

MODELING THE IMPLEMENTATION OF GREEN LOGISTICS PRINCIPLES: THEORETICAL ASPECT

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Abstract. During the past few decades, there has been a growing interest and need for logistics businesses to become more environmentally friendly in their operations, products and services. Summarizing scientific literature analysis, it could be stated, that Green logistics is defined as a good management practice that promotes the preservation of the environment and the application of green practices to mitigate the environmental impact of logistics operations by reducing CO₂ emissions, noise, conserving natural resources, and so on. The aim of the article is to present a model for implementing green logistics principles. Research methodology includes comparative analysis and synthesis of scientific literature, modelling.

The authors of the paper present theoretical model of green logistics principles implementation that takes into account of the stakeholders for green logistics principles application, green logistics initiatives and practices, stages of green logistics implementation, and finally implementing benefits. The application of the principles of green logistics in logistics companies is not only in the interests of the environment itself, but the need comes from the society, suppliers, national government and politicians, business partners and investors. Theoretical model depicts green logistics activities such as green transport, green packaging, green warehousing, green logistics data management, waste management, which represent a wide range of practices of application of green logistics principles. A company that has implemented green logistics principles would clearly benefit and improve its activity by improving the company's image, obtaining a financial return on investment, meeting government environmental requirements, increasing supply chain efficiency, reducing risk, improving investor and partner relations, and suppliers and consumers and increase their competitiveness in the market.

Keywords: Green logistics, green transportation, green warehousing, implementation stages, benefits, green logistics principles.

Introduction

Logistics is one of the most important and significant sectors for the Lithuanian economy. According to the contribution of the transport and storage sector to the Lithuanian budget, which accounts for about 13% of the country's gross domestic product (GDP), half of this figure falls on road freight transport (Verslo žinios, 2021). According to data for the 2020 provided by the Lithuanian statistical department, revenues of companies in the transport and storage services sector rose systematically: in 2018 compared to 2017 a revenue grew by 18%, and in 2019 compared to 2018 a growth was 12.8%. But in 2020 revenues fell by 6%, however, recent years were not common in Lithuania and worldwide, due to the COVID-19 pandemic, therefore, business sector has suffered, but still remains one of the main economy drivers. Although sales revenues for services of transport and storage companies have fallen in recent years, freight turnover has not been affected so much. Based on the preliminary data for the 2020, freight turnover in all modes of transport in Lithuania has increased by 2.4% in recent years. This leads

to the conclusion that flows in the transport and storage sectors are increasing, while the logistics potential is still untapped and is growing steadily. At the same time, this is thought-provoking, because logistics is already one of the most polluting sectors and poses pressing environmental problems that need to be addressed. One of the solutions proposed by the scientific community is a widespread application of the principles of green logistics in the logistics sector, which are essentially linked to the concept of sustainability, ecological friendliness and reducing negative environmental impacts (Radavičiūtė, Jarašūnienė, 2019).

According to Kumar (2015), green logistics can be defined as a sustainable production and distribution of goods, taking into account environmental and social factors. Hutomo et al. (2018) extend that green logistics is an economic activity aimed at serving customers and social development by linking suppliers and customers, overcoming space and time barriers to the efficient and rapid movement of goods and services. Often in scientific discussions (Wang et al., 2019; Golroudbary et al., 2019; Dukkanci et al., 2019; Khan et al., 2019, Rakhmangulov et al., 2018) the expression of green logistics principles is based on the integration of social, economic, and environmental dimensions in logistics. However, the implementation of the principles of green logistics in enterprises is difficult and complicated enough. The authors C. Malesios, P. K. Dey and F. B. Abdelaziz (2018), argue that the main obstacle to the application of green logistics principles in enterprises is that the tools necessary are generally considered as expensive, even if they emphasize the benefits of cost reduction. In addition, some companies do not even know how environmental measures work and that application of green logistics principles can improve company's efficiency, reduce costs, risks and create new opportunities for the company. The obstacles to the implementation of green logistics were also described in their study by B. Roxas, N Ashill and D. Chadee (2017). The authors stated that small and medium-sized enterprises in particular often lack the resources, finances, time, and knowledge to implement measures for environment improvement. The authors assume that it is easier for larger companies to invest in corporate social responsibility and its long-term benefits. Active debate and growing interest in the principles of green logistics have led to a broader theoretical analysis of the principles of green logistics and the factors that promote and hinder their implementation, and to the development of a model that will facilitate the implementation of green logistics principles by companies in the business.

The aim of the article is to present a model for implementing green logistics principles. **Research methodology** includes comparative analysis and synthesis of scientific literature, modelling.

The first part of this article reveals the concept of green logistics, presents general characteristics. The second part identifies and comments more broadly on the principles of green logistics, the impact of their application and the factors that encourage and hinder implementation. The last part presents a theoretical model and conclusions of the implementation of the principles of green logistics developed by the authors.

Concept and general characteristics of green logistics

It is widely acknowledged that logistic activities not only bring appropriate benefits, but also have an unavoidable impact on the environment. One of the logistic processes that have a significant impact on the environment is a transportation, where carbon dioxide (CO₂) and other greenhouse gases from cars, aircraft and cargo ships are one of the main effects of global warming. In addition, logistic activities contribute significantly to water and air pollution and increase waste disposal and fuel consumption. In order to minimise the seriousness of these problems, green logistics is applied, the concept of which has been developed to describe

logistics systems using state-of-the-art equipment and technology to reduce environmental damage by increasing the use of assets. According to the authors A.F.R. Lew, B.C. Chew and S.R. Hamid (2017), green logistics is a concept of sustainable development that can solve environmental problems while maintaining the effective operation of the organization and the economy of the country, in the processes of exchange of goods and services.

According to the author P.K. Patra (2018), green logistics can be defined as a whole set of efforts by organizations to measure and reduce the environmental impact of logistics activities. The author distinguishes that one of the main reasons why companies choose greenness is to increase the competitive advantage. Other reasons may include: a striving to control pollution, saving costs in the long term. Analysing the scientific literature, it was found that green logistics is defined differently by authors. The authors Su-Young Kwak, Woo-Sung Cho et al. (2020), argue that green logistics is the logistics that takes into account logistic impact on the transport and environmental sectors in a joint action process. In the narrow sense, green logistics refers to activities related to the reduction and management of pollutants, for example, reduction of air pollution and emissions in freight transport. However, in a broad sense, the concept of green logistics covers not only the environment affected by logistics, but also all logistics processes. The author K. Zowada (2018) describes green logistics as a concept of material flow management, which is accompanied by information flow from the very beginning of the organization and thus contributes to the achievement of the economic and ecological goals set. Meanwhile, T. Athanasios (2018) identified green logistics as an environmentally responsible system involving the implementation of "preliminary" logistics processes such as: acquisition of raw materials, production, packaging and distribution of goods and reverse logistics procedures – reverse logistics, packaging recycling. Having analysed the authors' definitions of green logistics, it can be stated that green logistics is a form of logistics, implementation of which focuses on reducing the negative environmental impact of logistics in all logistic processes.

The author X. Wang (2018) states that green logistics is a planning, organizing, coordinating, and controlling by assessing all logistic operations to achieve customer satisfaction. X. Wang (2018), K. Zowada (2018), T. Athanasios (2018) and others distinguish four areas of activity in which the principles of green logistics are actively expressed:

1. Designing of green logistics products – an environmental impact of most products is determined by the product designer/ designer. Environmental impact can be general and specific. General is a common standard, e.g., a lower or higher use of energy resources in production. Specific is a selection of special active substances. From the point of view of the production company, good design of organic products or the project itself can make sufficient use of current resources, such as the use of economical and environmentally friendly raw materials, reasonable use of production equipment, consideration of the use of packaging materials and circulation of product development and processing, etc.
2. Green distribution - the green logistics system of modern enterprises should control pollution during logistical distribution, namely, a scheme to reduce environmental pollution should be adapted as far as possible to the planning and adoption of the logistical distribution system and operation plan. For example, to avoid traffic jams, save fuel and reduce emissions of hazardous gases, freight cars with a lower maximum load should be used, and smaller loads should be consolidated into one or deliveries should be done at night. As an option, companies can also cooperate with third-party logistics companies to reduce distribution costs and improve logistics efficiency, service level. Thus, it is necessary to optimise routes, which helps to exploit fuel and reduce mileage, to exploit the capacity of the container, to

evaluate the use of alternative fuels, for example, natural gas, instead of gasoline and diesel, this could reduce transportation costs, reduce greenhouse effect in the future.

3. Green warehouses - warehousing and transport are two major and important logistics chains, and with reasonable planning of warehouse management, shortening the warehousing time of goods and improving cargo turnover, the company is an effective tool to improve logistics efficiency and customer service levels. In addition, taking into account waste reduction in the warehouse, eco warehousing, as well as cyclical use of containers and pallets, application of the latest loading methods and safety stock application in conjunction with containers and other equipment, active processing of long-term non-living stock, and other content not only help to reduce warehouse costs, but also reduce the impact on the environment.
4. Green packaging - stimulates reduction of layers of packaging, promotes recycling. In general terms, the tare used should be sustainable. Sustainability should consist of operational and technical level covering the design and assessment of sustainable containers, structures, etc.

According to X. Wang (2018), execution of logistics processes by providing "green" criteria will have a positive impact on all processes of logistics activities. The author distinguished a decline in logistics costs and increasing customer satisfaction with services. Meanwhile, according to the author P. K. Patra (2018), there are four fundamental benefits of why it is important for organizations to practice green logistics:

- Reducing carbon dioxide emissions;
- Cost reduction in the long-term prospect, because in the initial prospect - green solutions also require significant investment;
- Control of air pollution and noise, environmental pollution;
- Business diversification, management of additional directions (reverse logistics).

To achieve these benefits, P. K. Patra (2018) depicted the flow of green logistics processes (see Fig.1)

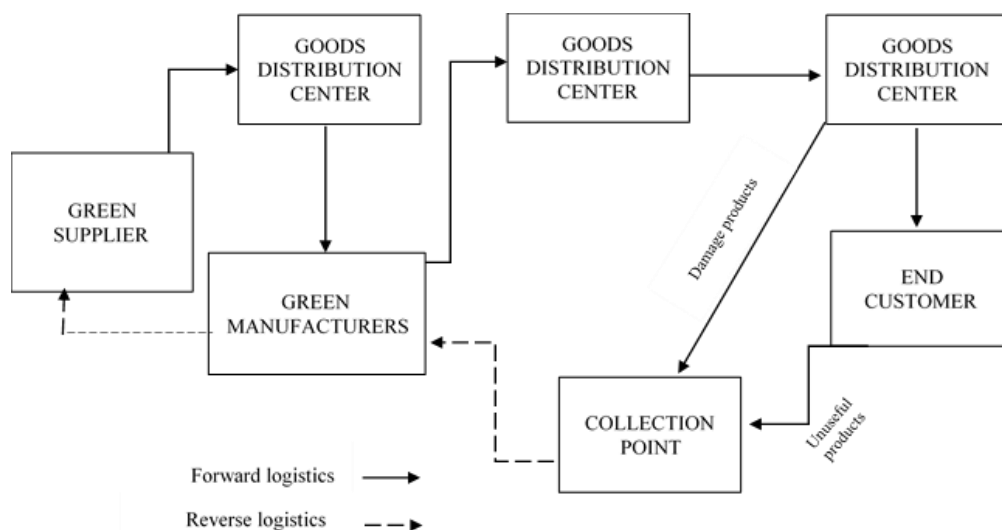


Fig.1 Flow of green logistic processes

(compiled by the authors, based on P.K. Patra 2018)

The author P. K. Patra (2018), while describing the flow of green logistics processes he formed, distinguishes that this process is formed to make green logistics efficient. The author suggests that more intermediate distribution centres (after the supplier and manufacturer stages) should be provided in the flow of green logistics processes, as this would reduce the likelihood of goods damage or release of spoilage to trade, given that in green logistics packaging is of greater importance, due to its greening. Such methodology would help green logistics to increase its efficiency and promote sustainability at the same time.

Analysing broader benefits of green logistics processes for the overall organization, P. Trivellas, G. Malindretos and P. Reklitis (2020) in their research described the impact of green logistics on the sustainable development of the organisation (see Fig.2).

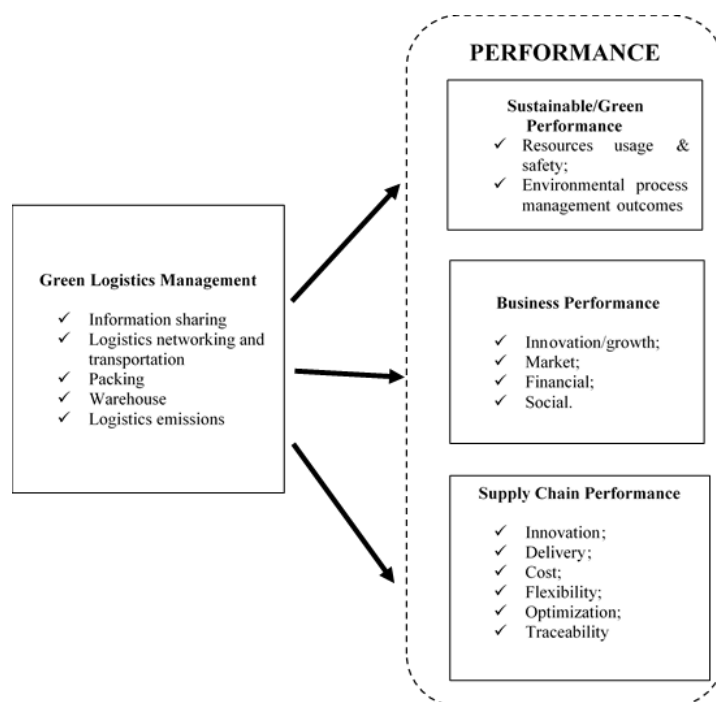


Fig.2. The concept of the benefits of the principles of green logistics for the organization
(compiled by the authors on the basis of P. Trivellas G. Malindretos and P. Reklitis 2020)

Based on figure 2, the authors point out that management of logistics information network and logistics processes in the fields of transportation, warehousing and packaging are the main indices that determine the benefits of green logistics for the development of organisation, both in promoting sustainability and in the overall development of business and supply chain management.

Thus, it can be concluded that green logistics are logistic processes that help organisations to reduce their costs and increase their profitability, and also to maintain a positive environmental impact and improve sustainability of the company's activities. As environmental concerns grow, companies need to take greater care of logistics activities related to climate change, air pollution and accidents, by adapting the concept of green logistics, fundamentally transforming organisation's objectives in enterprises, which not only would help to achieve successful business management results but also minimise negative environmental impacts.

Principles of green logistics and their implementation in organizations

By analysing directly applicable green logistics practices, the scientific literature foresees the logistic processes and activities, adaptation of which in organizations helps to reduce negative environmental impact of logistic processes.

Compared to traditional logistics, the field of green logistics defines more objectives, more specifically speaks about the economic and environmental objectives that organisation should set for its implementation and which determine the process of management of material and information flows. The authors K. Zowada and K. Niestrój (2019) describe economic objectives as a reduction in the cost of the processes implemented due to increased cost efficiency and improved image as well as competitive advantage. The authors identify as ecological objectives the reduction of the burden of generally understood logistic processes on the natural environment through less pollution and a more rational use of fewer resources.

Although green logistics has been studied for more than 25 years, the importance of green logistics in organisations is still poorly recognised. In many cases, the reason for this is that the managers of the companies lack the knowledge of the assumptions of the concept itself and the methods of its implementation. Thus, in order to facilitate the application of environmentally friendly solutions in practice, the literature on this topic identifies four stages in the implementation of green logistics in business operations (Zowada, Niestrój, 2019) (see Fig.3).

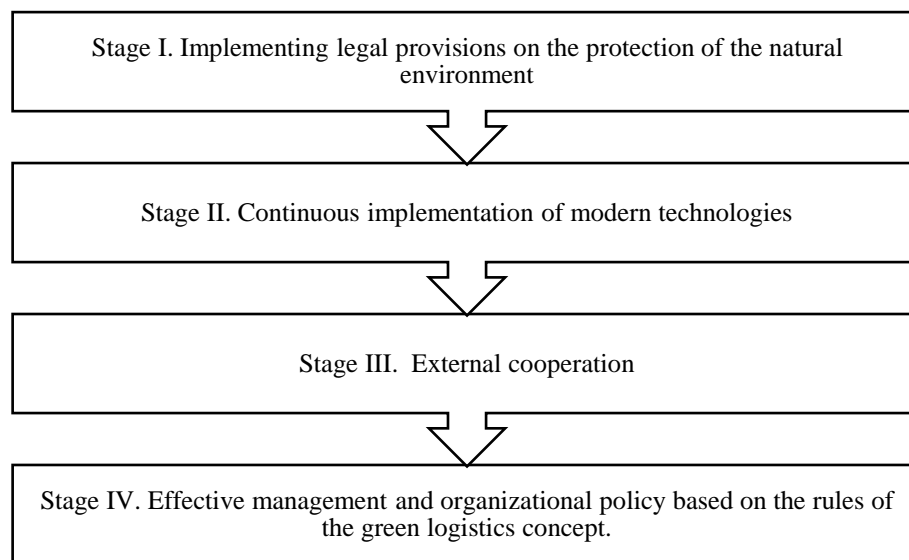


Fig.3. Stages of implementation of green logistics in the organization
(compiled by the authors according to K. Zowada, K. Niestrój, 2019)

The authors K. Zowada and K. Niestrój (2019) describe and distinguish the stages of the implementation of green logistics in organisation in such a way that during the first stage, organisations implement environmental provisions laid down by the management of the country in which they operate or the organization's management. In the second step, the actions are carried out related to the introduction of modern technologies in the organization, which increase the "degree of greening". These are, for example, IT solutions that allow better use of the company's transport fleet, more efficient management of warehouse premises, etc. These solutions include modern vehicles as well as the purchase of less polluting cars that meet the

highest standards. Thus, it should be noted that the development of green logistics in business operations is impossible without investment in modern technologies.

The third step is defined by the provision that a high level of greening of the enterprise is unattainable without cooperation with external entities. In practice, many logistics processes are carried out involving another participant in the supply/distribution chain. It is argued that the implementation of "green" logistics is only insufficient at the company level, as there is a need to review the processes of the entire supply chain – greening of raw materials, sustainable packaging, efficient warehousing, etc. The last step is performed when the organization's management is based on the principles of green logistics. (Zowada, Niestrój, 2019)

Company's policies supported by the principles of green logistics are often linked to the company's standards of quality management under implementation. The main ones are:

- ISO 9000 series – "Quality management standards of ISO 9000 series are internationally recognised standards whose purpose is to ensure that the products (results of activities or processes) provided to consumers meet certain quality requirements. To achieve this objective, it is necessary to establish and document a quality management system based on standards. The number of consumers of these standards are constantly increasing in both the private and public sectors" (Nakrošis, Černiūtė, 2010, p. 67);
- ISO 14001 is an international standard for environmental management based on the concept that efficiency of environmental protection can be achieved by systematically identifying and managing relevant aspects, taking into account the needs of interested parties (customers, public, public authorities, etc.) to ensure a sustainable development of the organization (Ciravegna Martins da Fonseca, 2013);
- OHSAS 18001 - occupational safety and health management standard. In order to facilitate integration of quality, environmental and occupational safety and health management systems in organisations, the standard has been designed to comply with ISO 9000 (quality) and ISO 14001 (environmental) management system standards (Ciravegna Martins da Fonseca, 2013);

The author K. Zowada (2018), based on global literature, distinguished 10 the most applicable principles of green logistics in an organization:

- Use of recyclable packaging;
- Use of alternative fuels;
- Improving fleet facilities for greening;
- Route optimization;
- Use of intermodal transport;
- „Eco-driving“;
- Upgrading warehouse machinery and technologies for efficient use of energy;
- Optimisation of warehouse area;
- Reduction of paper documents (digitisation);
- Adaptation of "green" criteria while choosing suppliers / business partners.

Adaptation and management of green logistics is an economic activity aimed at serving customers and carrying out social development by linking suppliers and customers, overcoming space and time barriers to the efficient and rapid movement of goods and services. Green logistics reduces environmental damage of logistics processes and thus makes full use of available resources in enterprise practice (Hutomo, Mohd Saudi, Sinaga, 2018).

The author N. Karia (2016) presented the benefits of green logistics and the impact it has on organisations (see Table 1).

Table 1. Impact of the principles of green logistics
(Compiled by the authors, based on Karia, 2016)

Areas of green logistics	Impact of green logistics principles
Green packaging	Reduces negative environmental impact, greenhouse effect; reduces layers of packaging used; Recyclable packaging; reduction of packaging costs due to materials used.
Green warehousing	Optimization and efficient exploitation of the place reduce the movement in the warehouse, increase the productivity of the enterprise by reducing costs and increasing profits. However, due to more sustainable technologies in warehouse, logistics services will be relatively more expensive.
Green transportation	Route optimization maximizes fuel consumption, reduces mileage, empty kilometres. In the future the use of alternative fuels (e.g., natural gas instead of gasoline or diesel) will help reduce transportation costs. In the field of transportation, it helps to reduce costs, increases competitiveness, increases speed/ reduces transportation time, reduces pollution, increases safety of workers.
Green logistics management system	The commitment of top managers to implement the environmental sustainability strategy and to involve all employees of the organisation strengthens staff's morale to practice and facilitate work and application of green logistics principles. Economic indicators are important in the development of the enterprise - this is the value of money, assets, debts, and investments. To improve these indicators, green logistics gives the opportunity to reduce costs associated with a sustainable environment, for example, reduction of energy consumption, minimization of waste, processing, environmental taxes. Environmental efficiency is measured in terms of energy savings and emissions of pollutants, reduction of waste reducing negative environmental impacts, e.g., sulphur dioxide concentration, nitrogen oxides concentration, greenhouse gas emissions and fossil fuel consumption.
Green logistics data collection and management	The organization implements information technology, transport or warehousing management systems, innovative management, use of electronic documents instead of paper.

The principles of green logistics include all attempts to measure and reduce negative environmental impact of logistics operations. Green packaging, transportation, warehousing, management system itself are among the most important processes in the logistics system portfolio. The main objective of green logistics practices is to avoid any activity that causes unnecessary carbon dioxide emissions, to look constantly for opportunities to reduce the environmental impact of your business, such as trying to use office stationery made of recycled materials, optimising fuel use, reducing waste, optimising routes, and applying sustainable distribution practices.

The implementation of green logistics in an organization is a complex of all logistics processes that are carried out in accordance with the principles of green logistics and thus achieve economic and ecological objectives of the organization, which increase the competitive advantage in the market. However, green logistics is diverse in its implementation process – businesses face not only the benefits of green logistics, but also certain obstacles. Organizations view green logistics positively only if the company's sustainability and greening indicators improve and costs decrease or remain the same (Mckinnon, Browne, Whiteing and Piecyk, 2015). The main factors of green logistics are optimization of logistics flows, improvement of the company's image, reduction of logistics costs, compliance with standards, customer

requirements, differentiation from competitors and development of alternative business directions (Gommel, Westerberg, 2016).

In general, customers and the need to satisfy customers are considered to be one of the main factors driving green logistics, but it is often noted that implementation of the principles lacks the real commitment of organizations (Colicchia, Marchet, Melacini and Perotti, 2013).

The authors A. Mckinnon and others (2015) define a number of key factors of logistics and supply chains sustainability encouragement. The main factors of green logistics are improving public relations, achieving a financial return on investment, meeting government requirements, increasing supply chain efficiency, reducing risk and improving relations with investors. Costs are considered to be both a driving force and an obstacle - a desire to be leaders in sustainable development, increasing energy and fuel costs, increasing competitive advantage and differentiation, complying with current or envisaged legislation, and relatively rising transport costs. These factors are both stimulating the development of green logistics, but also holding back.

H. Pålsson and O. Johansson (2016) distinguished four types of obstacles that interfere with the implementation of green logistics, i.e., cost and nuances of delivery (flexibility, time, quality). According to the authors, logistical barriers are information technology or lack of motivation, which are organisational barriers; conflicting national laws and regulations and the working environment are external barriers; and finally, lack of infrastructure, technical knowledge or commercial solutions are technical barriers. Other authors (K. Mathiyazhagan, K. Govindan, A. Noorulhaq and Y. Geng, 2013) as external barriers to the implementation of green logistics named legal regulations, poor obligations of suppliers and barriers of specific industry, and costs and lack of legitimacy as internal obstacles.

Thus, Table 2 presents the factors and obstacles to the implementation of green logistics, divided into internal and external factors covering five areas: cost, productivity, image, customers, competitors, and compliance with the rules.

Table 2. Factors promoting and hindering the implementation of green logistics

(compiled by the authors based on Gommel, Westerberg, 2016; Pålsson and Johansson, 2016; Mathiyazhagan et al., 2013; Sarmiento et al., 2018)

Green logistics	Internal / external	Area	Description
Promoting factors	Internal factors	Financial costs	Cost reduction, financial return on investments, decreasing fuel costs
		Efficiency	Sustainable development, optimised logistic flows, developing alternative business directions, increasing operational efficiency
	External factors	Image	Social responsibility, improving image of organisation
		Clients and users	Advantage enhancing competitiveness, meeting customer and consumer needs, improving investor relations
		Legislation	Compliance with legal acts and recommendations
Obstacles / hindering factors	Internal factors	Financial costs	Initial financial investments
		Efficiency	Technical capabilities, competence, information technology, lack of knowledge and experience, flexibility and quality assurance
	External factors	Image	-
		Clients and users	Disadvantages of communication and coordination, lack of public attention to ecology, specifics of industry
		Legislation	Differences in legal requirements between parties

H. Gommel, J. C. Westerberg (2016) discussed that based on the principles of green logistics, it would be possible to achieve industrial development in different sectors, while at the same time protecting the environment through innovation and technological change.

Literature analysis revealed that green logistics is a diverse concept due to the factors that stimulate implementation and interference. It can be concluded that logistics companies that are interested in green logistics and want to achieve higher earnings must innovate in their business culture by adopting new business models, collaborating with other companies, using non – traditional solutions to deliver services or develop new products. As stated by G. Pinčilingis (2018), first of all, it is important to assess the efficiency of the energy used, to distribute and rationalize properly logistics, and inevitably, together with the rationalisation of the company, to adopt innovations. In order to properly adapt the principles of green logistics, it is important to involve all employees in order to achieve communication with employees at different levels, this will improve the accuracy of the information transmitted, and the adaptation and improvement of new business models are possible across all employee chains. In the long term, the principles of green logistics will contribute to greater transparency, appropriate adaptation of the principles of sustainable development at environmental, economic, and social level, and it is essential that sustainability is integrated with the management of business risks and the diversification of business models.

Theoretical model of implementation of the principles of green logistics

Implementation of green logistics is a complex of actions that contribute to business development in line with the principles of sustainable development and reduce the environmental impact of logistics. Based on a systematic analysis of the scientific literature on the concept of green logistics and its characteristics, principles of green logistics, application areas, factors that stimulate and hinder implementation of the principles, the authors present a theoretical model for the implementation of green logistics principles in Figure 4.

According to the model presented in Figure 4, it can be stated that the application of the principles of green logistics in logistics companies is not only in the interests of the environment itself, but the need comes from the society, suppliers, national government and politicians, business partners and investors. Theoretical model depicts green logistics activities such as green transport, green packaging, green warehousing, green logistics data management, waste management, which represent a wide range of practices of application of green logistics principles. For the principles of green logistics to be implemented in business practice, it is essential to make policy decisions inside the companies and to set out a vision, strategic objectives related to sustainable development and environmental values. In addition, enterprises must constantly improve their use of information technologies, develop them in order to meet modern tendencies and increase the degree of "greening".

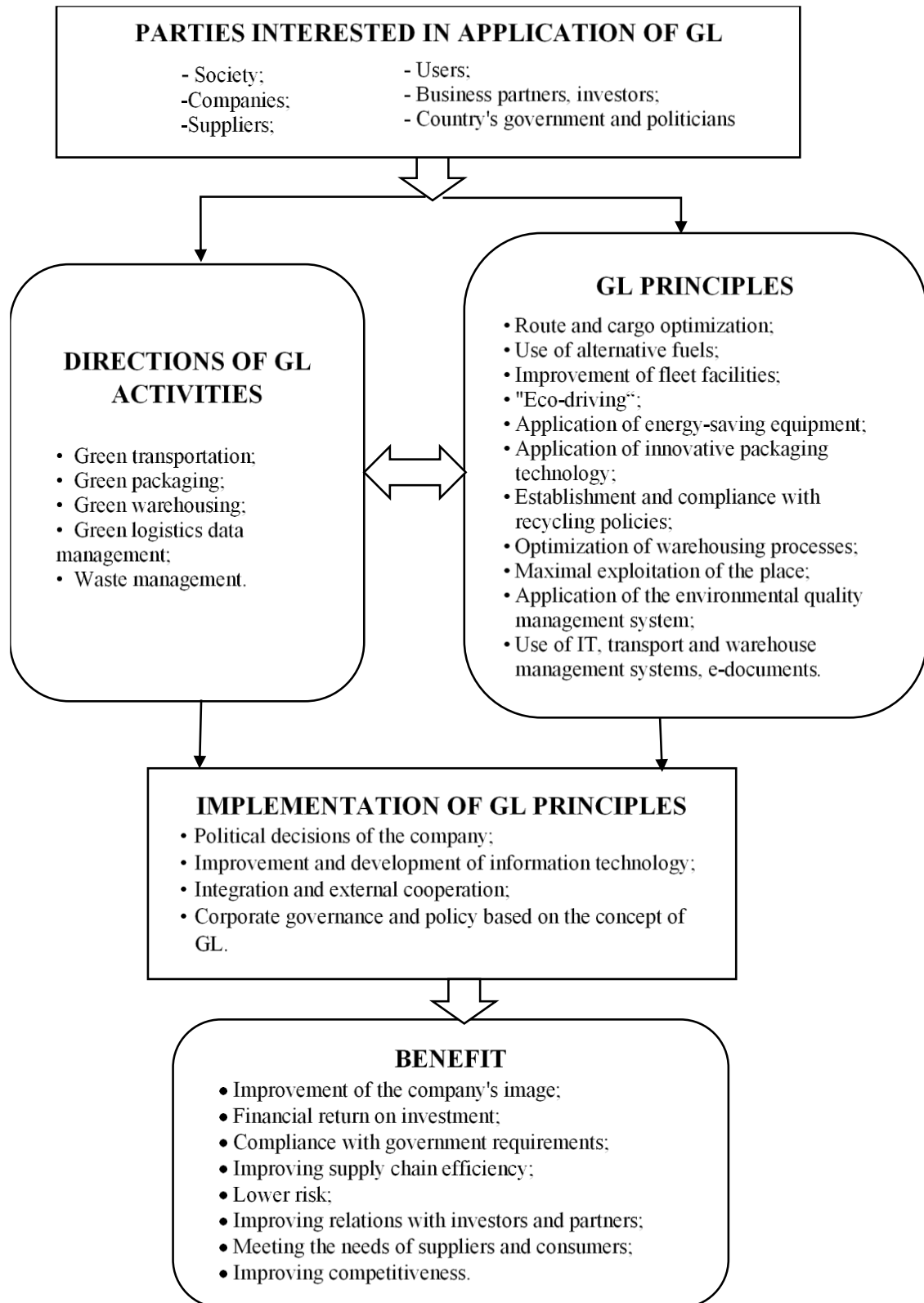


Fig.4 Theoretical model of implementation of the principles of green logistics
(compiled by the authors)

Comprehensive implementation of the principles of green logistics and a high level of coherence between organisations is not achievable without integration and cooperation with

external subjects relevant to the activities of logistics companies, i.e., participants of the entire supply chain. Finally, company's management and policies must be constantly based on the principles of green logistics and the increase of their expression. In the long-term prospect, monitoring and control of environmental and financial benefits is essential, in line with the principles of green logistics. In summary it can be stated that a company that has implemented green logistics principles would clearly benefit and improve its activity by improving the company's image, obtaining a financial return on investment, meeting government environmental requirements, increasing supply chain efficiency, reducing risk, improving investor and partner relations, and suppliers and consumers and increase their competitiveness in the market.

Conclusions

Reducing harmful effects on the environment is one of the major challenges in the world and the most important for sustainability today. In the logistics sector, environmental issues have become more severe due to the increase in logistics activities worldwide, including Lithuania. Statistics show a significant increase in both the revenue earned in the sector and the volume of goods transported. The main reason for this is that a growing economy led to a huge consumption of goods, and globalization led to mass flows of goods all around the world. This has led to the area of logistics being one of the most contributors to environmental pollution. One of the solutions to reduce environmental pollution is to apply actively the principles of green logistics in the field of logistics. Green logistics is associated with environmental friendliness and reduction of negative environmental impacts, as it emerged from the description of logistics systems that use state-of-the-art equipment and technologies to reduce environmental damage while conserving resources. In summary it can be stated that green logistics is defined as good management practices that promotes preservation of the environment and sustainable development practices in order to reduce the environmental impact of logistics operations, reducing CO₂ emissions, noise, conserving natural resources, etc.

Studies of the scientific literature have revealed that there are some internal and external obstacles to the implementation of green logistics principles, however, recognizing the benefits of applying green logistics principles can make a significant contribution to reducing environmental damage and making full use of resources available. The main factors of implementation of green logistics principles are improving public relations, achieving a financial return on investment, meeting government requirements, striving to increase supply chain efficiency, reducing risk, and improving relations with investors. Implementation of green logistics in enterprises is a complex of actions in logistics processes that are carried out in accordance with the principles of green logistics and thus achieve the economic and environmental objectives of the enterprise, which increase the competitive advantage in the market. Summing up the implementation of the principles of green logistics in logistics companies, it is worth noting that it is not only the companies themselves who are concerned about the environment, but the need comes from the public, suppliers, national government and politicians, business partners and investors. For the principles of green logistics to be implemented in business practice, it is essential to make political decisions inside the companies and to set out a vision, strategic objectives related to sustainable development and environmental values. In the long-term prospect, monitoring and control of environmental and financial benefits is essential, in line with the principles of green logistics.

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