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THE CONCEPT AND ASPECTS OF THE FUNCTIONING OF A SUSTAINABLE SUPPLY CHAIN

Berezhnaya G.G.

Abstract

The article presents the term "sustainable" in the context of the supply chain, the concept and structure of the supply chain. The description of the international standard ISO 26000 is given, which systematizes the knowledge about broadly defined corporate social responsibility (CSR). The essence of a sustainable supply chain is revealed. The objectives in managing supply chain from logistic standpoint are defined. Actions to improve the supply chain stability in a responsible business environment in certain areas of its functioning are proposed as recommendations. The article provides with examples of approaches to a sustainable supply chain at different stages of the life cycle.

Keywords: supply chain, sustainable development, environmental friendliness, economic and social aspects.

Introduction

The uncertainty of the future, dictated by unpredictable indicators of economic development, often has negative consequences for the business sphere, affecting the functioning of supply chains. This situation forces business entities to search for alternative flexible solutions that adapt enterprises to rapidly changing environmental conditions. Logistics specialists increasingly see the future in so-called sustainable supply chains [9]. Currently, sustainable development is a response to growing social, economic and environmental challenges, the purpose of which is to meet the needs of not only the end user, but also all participants in the supply chain, taking into account environmental aspects.

The National Strategy for Sustainable Development of the Republic of Belarus until 2030, the programs of environmental associations and other organizations in the field of environmental protection address issues of social responsibility of enterprises. As part of improving a sustainable supply chain, it is necessary to consider the methods and techniques that individual elements of the supply chain should follow in order to bring their products to specific social, economic and environmental requirements. The process of adapting functioning supply chains to the conditions of doing responsible business has already started in the Belarusian business environment. The purpose of this article is to consider issues related to the formation of a sustainable supply chain in a responsible business environment.

The concept of a "sustainable" supply chain in the aspect of responsible business

The term "sustainable" in the context of the supply chain can be understood as achieving a state of equilibrium that provides a balance between individual positions in the final balance of the enterprise. However, the most common is the definition according to which sustainability is understood as "development that meets the needs of the present without compromising the ability of future generations to meet their needs" [5]. The evolution of the concept of corporate social responsibility and the direction of social responsibility in the supply chain is shown in Figure 1.



Figure – 1 Evolution of the concept of corporate social responsibility and social direction of responsibility in the supply chain

Thus, balancing social and economic development with environmental protection is an area of sustainable development. Other legal instruments reflecting the essence of sustainable development are recognized international standards, which include, but not limited to: ISO 26 000 standard, the Principles of the UN Global Compact, etc.

ISO 26000 is an international standard that systematizes knowledge about broadly defined corporate social responsibility (CSR). This document is advisory in nature and is not intended for any form of certification or mandatory regulation. This standard is a practical guide to implementing the principles of responsible business and defines its framework. According to ISO 26000, corporate social responsibility is defined as "the responsibility of an organization for the impacts of its decisions and activities (products, services, processes) on society and the environment, resulting in ethical behavior and transparency which:

- contributes to sustainable development, including the health and well-being of society;
- complies with current laws and is consistent with international standards of behavior;
- is integrated throughout the organization and implemented in its relations".

There is no single definition of the supply chain in the specialized literature. Logistics specialists define the supply chain in different ways:

1. The supply chain is a network of manufacturers and service providers who work together on the processing and movement of goods - from the raw material stage to the end user level. All these entities are linked by flows of physical goods, information flows and cash flows [1].

2. The supply chain (as a structure) is a group of enterprises implementing joint activities required to meet the demand for specific products in all its links, that is, from obtaining raw materials, through production and distribution to the final consumer. These actions may include: development, production, sales, service, procurement, distribution, resource management, support activities [4].

3. The supply chain consists of mining, manufacturing, trading and service companies cooperating in various functional areas, as well as their customers, between whom flows of materials, information and financial resources move [3].

The analysis of the above definitions enables to conclude that the supply chain, in fact, is a network of cooperating organizations engaged in joint activities, starting with the production of products and ending with its delivery to the end consumer. Speaking about the supply chain, it should be emphasized that there is no single universal model. Each industry, each enterprise operates in a specific environment and creates its own unique delivery organization system (for example, it can outsource most of the processes). However, there are a number of universal phenomena related to this area and important from the point of view of corporate social responsibility. If business responsibility means doing business in such a way that economic goals are combined with the good of society and the environment, the same principle applies to supply chain management.

Supply chain management is the concept of establishing relationships with suppliers and consumers, as well as with customers in order to provide maximum value to the customer at minimal cost [6].

According to the definition of the European Logistics Association, supply chain management is an integrated approach to business that implements the basic principles of logistics chain management, such as: formation of functional strategies, organizational structure, decision-making methods, resource management, implementation of supporting functions, systems and procedures [6].

The most frequently formulated goals in supply chain management from logistics standpoint:

- minimizing the total cost of the product and the information flow while maintaining the quality of the delivery service required by the customer;
- ensuring the shortest possible delivery time and the maximum possible reliability, frequency and flexibility of deliveries at the expected level of flow costs (so-called operational logistics);
- optimizing the inventory level within supply chain along with flexible adaptation to the preferences in the field of supply management of individual market segments.

The supply chain in its simplest form consists of a focus company, its suppliers and consumers. However, in reality, such simple supply chains are extremely rare. The most common form is an extended supply chain, where individual links have several suppliers and consumers (both first and second level). Any supply chain consists of several companies, each playing a specific role. Firms can be manufacturers, distributors, wholesalers, retailers, corporate and private customers or end consumers of goods. Other entities support the activities of these companies, being suppliers of a wide range of necessary services.

Manufacturers are links that can produce both semi-finished products and finished products from the consumer's standpoint. Distributors (mediators) are organizations whose goal is not to change the physical form of a product, but to divide large and homogeneous product flows into smaller and broader ones in terms of product availability. These organizations also strive to closely monitor and analyze the preferences and demand of the customers to whom they sell products. They also organize direct advertising, often using price discounts, choosing products and providing services, ensuring the comfort of the buyer in such a way as to attract his attention to the products they sell. Customers or consumers are any organizations that buy or use products (Fig. 2).

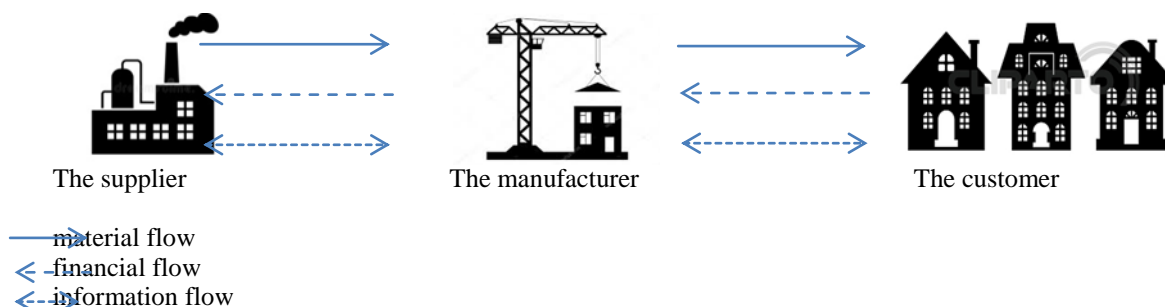


Figure 2 – Key links in the construction chain

Sustainable supply chain in the aspect of social responsibility is defined as the process of using environmentally friendly resources and transforming these resources in such a way that their side properties can be improved or recycled in the existing environment without disturbing its ecological balance. As a result of this process, the final product is created, which is recycled and reused until the end of its cycle, thereby creating a balance in the supply chain [3].

The classical model of the supply chain described above includes in its structure the three main mentioned flows, that is, material, financial and informational. In the past, when environmental aspects were less taken into account, additional issues such as return, reverse logistics, greenhouse gas emissions were not considered. At each stage of the supply chain, there are economic, social and environmental aspects that are important from the point of view of sustainable development [8]. A sustainable supply chain, functioning taking into account the principles of responsible business— is a chain in which a system is organized that allows smoothly combining these aspects in an effort to minimize the negative impact on the external environment and maximize profits. To achieve the desired success, it is necessary to cooperate with manufacturers, distributors and consumers. Each of these links may in a suitable way implement sustainable development. Thus, the cooperation of various participants in the supply chain to ensure sustainable development is the way that can lead logistics networks to success. Manufacturing companies play a special role in this aspect, since they have a significant impact on the environment and the behavior of the rest of the supply chain. The problem created by the manufacturer involves the following links (this means that it passes through all other participants in the supply chain). Recommended actions in the most important areas of the supply chain include:

1. Concern for quality and compliance with technological and ethical standards:

- minimization of weight due to consistent use of recyclable materials;
- support of national recycling systems;
- support for a system of permanent access to information;
- cooperation in this area with other participants in the supply chain.

2. Own production and cooperation:

- careful treatment of natural resources, reduction of water and energy consumption, search for alternative and renewable energy sources;
- reduction of losses in the production and transport process at each stage of operation;
- optimization of procurement, storage and sales logistics to reduce environmental impacts (including carbon dioxide emissions);
- introducing innovations and improving the efficiency of production processes.

3. Sales and distribution:

- along with distribution, concern to create offers consisting of products produced in accordance with the principles of responsible production;
- the opportunity for the consumer to choose products that are suitable from the point of view of his health, environmental protection and ethical principles;
- informing and educating consumers about the possibility of choosing products that promote responsible consumption and disposal of household waste;
- promotion of products manufactured in accordance with the principles of ethics, providing local producers and employees with decent working conditions and wages, as well as adequate social conditions;
- implementing such assortment and pricing policies along with distribution in order to expand the circle of consumers, for example, through a policy of costs and prices reduction which can contribute to reducing poverty and social exclusion in the long term;
- implement responsible management of waste, energy carriers and auxiliary substances; training of personnel, the public, business partners and consumers;
- investing in infrastructure and participating in public-private partnership projects.

An important aspect in organizing supply chain is its smooth operation, which allows to ensure an optimal balance of resources used. A resilient supply chain should consume renewable resources more slowly than it produces them, while non-renewable resources should be used as slowly as possible or replaced with suitable counterparts (Fig. 3).

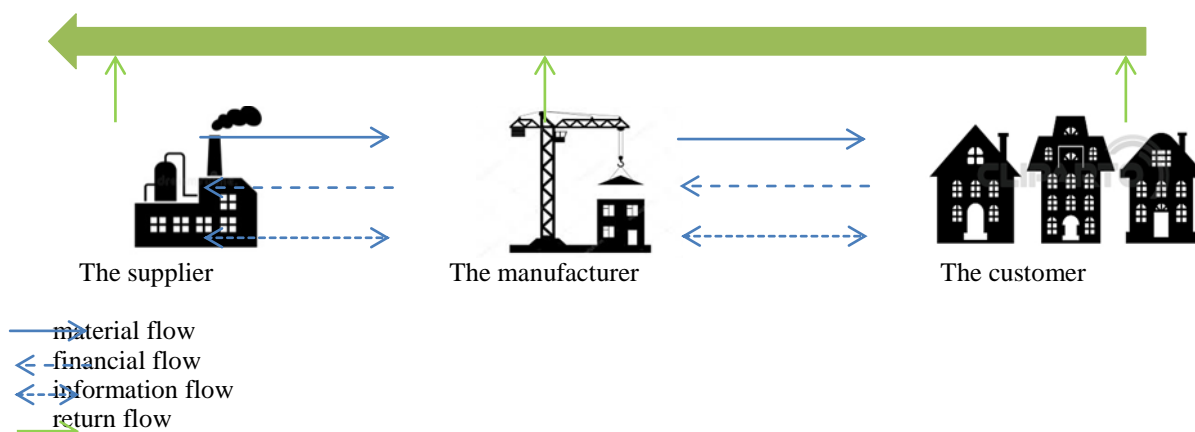


Figure 3 – Key links of the returnable supply chain model in the construction sector

The main objective of sustainable activity is to minimize the negative impact on the environment throughout the entire life cycle of the product. This seems to be complicated but specialized companies successfully cope with it. Table 1 provides with examples of approaches to a sustainable supply chain at different stages of the life cycle.

Table 1 – Aspects of the functioning of a sustainable supply chain

Analyzed area	Characteristics of the criteria
Economic issues	The economic criteria that determine the relationship between companies and their suppliers include, among others, such aspects as fair contract terms, timely payment of receivables, refusal to use economic advantages to negotiate inadequate prices and contract terms, prevention of corruption. Suppliers can be companies of different sizes and with different bargaining power - with the supplier's turnover with the company being significant, the risk of breaking the contract with him should be taken into account. From the point of view of the principles of responsible business, the deadlines for paying bills are also particularly important - when setting an acceptable deadline, it is worth considering whether this time interval will allow the supplier to work effectively, especially if his financial condition may depend on the company's order.
Social issues	Among the social aspects that companies can monitor in their supply chains are compliance with labor laws and human rights, fair staff remuneration (especially in a situation where the minimum wage does not allow them to support themselves), compliance with established requirements, working hours and workplace safety. Also, it is worth considering how the company affects the local community, and if negative, then how it tries to minimize it. In countries where consumer activity in the field of corporate responsibility monitoring is quite high, social problems associated with suppliers often led to boycotts of companies that could not prevent fraud.
Environmental issues	Aspects related to the environmental impact should be associated with all stages of the product life cycle - from its design to disposal, including the transportation of materials, the use of appropriate raw materials and their rational management. The supply chain can measure the amount of greenhouse gases emitted, energy efficiency and type of energy sources, the impact on biodiversity, the possibility of recycling materials.

These approaches will allow enterprises to use a wide range of tools that will have a positive impact on both economic and environmental indicators. The functioning of supply chains, built on the principles of responsible business, will allow domestic business entities to approach European standards.

Conclusion

A sustainable supply chain will change future business processes. Due to the large diversification of activities, these changes will occur at a dynamically changing rate (depending on the market segment).

The globalization of economic systems and business is continuing, which has led to a change in the nature of competitiveness and sources of competitive advantages in regional markets in the context of the transition from an unsaturated "producer market" to a saturated "consumer market" and a change in consumer behavior [2].

The most effective tools for implementing responsible business principles in supply chain management:

1. Developing and transferring criteria for cooperation with suppliers (determination of adequate economic, social and environmental requirements) in the form of relevant documents, codes, tender criteria.
2. Conducting an audit with suppliers, and in case of violations, preparing a recovery plan
3. Training of suppliers on sustainable development
4. Introduction of systems for monitoring economic, social and environmental aspects in the supply chain (for example, calculating the carbon footprint)
5. Introduction of standards and norms (e.g. quality standards, environmental standards, CSR standards)
6. Creation of communication channels with suppliers (the possibility of submitting initiatives, two-way communication)
7. Partnership on innovative solutions

Actions in the field of sustainable development force a slightly different look at the functions performed by the company. The development of a sustainable supply chain is an opportunity not only to get added value in environmental, economic and social aspects, but also represents a serious problem for both individual links of the supply chain and for its entire structure [7]. The concept of a sustainable supply chain is associated with a widely understood term of sustainable development, referring to various aspects of the activities of companies in the logistics industry. It should be borne in mind that at present the issue of the impact of individual enterprises (links in the supply chain) on the environment is especially relevant in reference to the EEU member states, which is not only an economically, but also an environmentally oriented organization.

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Vakulich N.A.

SOURCES AND DIRECTIONS FOR DEVELOPING 3PL LOGISTICS PROVIDER FUNCTIONS IN THE MODERN SUPPLY CHAIN

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Abstract: The main point of the article is that logistics, in order to provide the world economy with its two major functions, service and integration, creates an objective need for changes in its own institutional settings of activity. Based on reports and references, the author of the article has analyzed the forms and scope of activities of logistics operators by seeking answers to a fundamental issue in this context: to what extent entities being part of third-party logistics providers (3PL) affect the economic order of the modern world and what are the forecasts for the role and place of 3PL companies, now known as orchestrator. This future role of the orchestrator is defined at three levels: transaction cost economics (TCE), resource-based theory (RBT), and network theory (NT).

Keywords: third-party logistics provider, orchestrator, supply chain, globalization.

Introduction.

In global expertise shows a resilient trend towards an increasing demand for logistic services and raising the bar of their quality in terms of, in particular, cost optimization and uninterrupted service along the whole value chain. This makes it necessary to create and develop logistics centers as focal companies that manage inventory and related flows in moving products along new transport routes [1].

There is probably no overestimation in asserting that present years are a time of general restructuring of traditional models of doing business, organization and functioning of economic processes. Elaboration of a modern economic order promoting the sustainable management addresses optimization guidelines in relation to new sets of market entities. Many factors and trends, mainly associated with globalization of management, informatics development, creation of new socio-political and economic systems, have an impact on the ongoing changes. For logistics, it is an evident and at the same time natural challenge that real development of an open global economy concept has not and will not be possible without introducing logistics tools and solutions that define modern supply chains [2].

A prerequisite for participation in today's global development processes is the active creation of innovative processes, understood as actions aimed at achieving competitive advantages. Integration of innovation processes is already at the enterprise level, but the opportunities to implement such clear innovations do not depend solely on enterprises, but also on network cooperation which is increasingly acquiring the features of regional, rather than sectoral systems [3].

The development of modern supply chains is possible due to new logistics solutions, the so-called logistics chains, i.e. logistics processes performing fundamental functions in the economy: service and integration. It is only the form and scope of the projection binding, and the implementation of these functions in economic reality that vary. Opportunities emerging as a result of new forms and tools for logistics services in advanced supply chains are causing fundamental changes in model economies that we may observe. The function of integration and logistics of services, noticed and used initially only in reference to certain areas of enterprises functioning, such as: supply, storage management, distribution, has forever entered the economic systems of many enterprises. In these agreements, everyone is focused on their core competencies, and together - on partnerships in supply chains. Thanks to its functions, logistics supports the interaction of groups of many enterprises aimed at creating value and competitive advantages through synergies achieved in the joint partner business. Within integration and service functions, relevant roles are assigned to supply chain leaders, changed technologies, and manufacturing and supply processes. Thanks to this strategy, the costs of storing goods at the stages of the highest production cost decline significantly, and the product itself is supplied after production straight to the customer without unnecessarily waiting for the real buyer.

Using the idea of production modularity combined with relevant logistic support for customer service, a massive customization of end products has been created. As a result, the competitive costs of producing highly processed goods were competitive compared to traditional ones.