

THE NEED TO USE LOGISTICS COST ACCOUNTING IN ENTERPRISES - RESULTS OF COMPARATIVE STUDIES

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Abstract

Enterprises need methods that allow for optimal management of logistics processes with a particular focus on the financial dimension. The answer to these needs is logistics cost accounting, whose task is to identify and process costs related to logistic processes in enterprises in a systemic way. The aim of the article is to identify and classify logistics costs, to present general assumptions of logistics cost accounting and to analyze the needs of using such costing in enterprises. The article will use literature research and surveys on the need to apply logistics cost accounting in enterprises. The results of surveys will be compared with similar surveys conducted in 2012 in order to analyze changes in the need to use the account. The research entities are companies from southeastern Poland.

Keywords: Logistics, costs, cost accounting

1. INTRODUCTION

In recent years, companies have started to pay much more attention to measures accompanying their core business. The area to be optimized in companies is the area of logistics processes. The basic reason for focusing the activities of enterprises on logistics processes is the increasing role of logistics processes in building a competitive advantage on the market.

One of the basic measures determining the quality of logistic activities in enterprises is the financial effectiveness of these activities. The tool supporting the optimization of logistic activities in enterprises is logistics costing.

The aim of the article is to identify and classify logistics costs, to present general assumptions of logistics costing and to analyze the needs of using such costing in enterprises. The article uses literature research and surveys on the need to apply logistic costing in enterprises. The results of the survey were compared with similar surveys conducted in 2012. The purpose of the comparative analysis is to determine the changes taking place in enterprises in the area of logistic activity cost management. The research entities are companies from southeastern Poland.

2. LOGISTICS COSTS

According to the definition formulated by the Council of Logistics Management, logistics is an instrument for planning, implementing and controlling an efficient and economically effective flow of raw materials, production materials, finished products, goods and relevant information from the point of origin to the point of consumption in order to meet customer requirements [1,2,3,4]. Logistics activities may include, but are not limited to: customer service, demand forecasting, information flow, inventory control, handling activities, order fulfillment, repair and partial supply activities, location optimization of production plants and warehouses, procurement processes, packaging, return service, waste management, transport activities and storage.

By analyzing the definition of logistics it is also possible to determine the costs of logistics. M. Kufel [5] logistics costs refer to the costs of material flow in the company. Logistics costs are a detailed cost category, which

represents a monetary reflection of the intentional consumption of the company's assets caused by the planning, implementation and control of non-technological processes of movement in time and space of all forms of materials.

C. Skowronek [6] argues that the costs of logistics should be considered as the purposeful consumption of living labor, means and objects of work, as well as financial expenses and other negative effects of extraordinary events caused by the flow of material goods, i.e. raw materials, materials, finished products, goods in the enterprise and between enterprises, as well as the maintenance of inventories.

Other authors define logistics costs through their complexity. J. Twaróg [7] presents logistics costs as costs of: costs of transport of deliveries to the warehouse of the company and the customer, costs of maintenance of warehouses and warehouse management departments, costs of data flow concerning materials and products, transport and control, costs of disposal of products, transport and operating capacity, costs of freezing capital in fixed and current assets.

The scope of logistics costs determines the form of logistics costing. The most frequently proposed cross-sections of logistics costs are costs [8]: by type, flow, stages and places of origin, concerning basic logistics processes, fixed and variable.

Logistics costs include primarily transport costs and inventory costs. Transport costs include costs related to the movement of goods within enterprises. In the literature there are different classifications of transport costs, but in general they can be divided into [9]: general transport costs, external transport costs, internal transport costs, handling costs of transport operations.

The overheads of transport are indirect costs of transport operations. Internal transport costs mean the costs of moving goods within the structure of the company. The structure and value of these costs are largely influenced by the organization of warehouses and the means of internal transport available to the company (belts, forklifts, cranes, lifts). On the other hand, the costs of external transport will be influenced by such factors as: the type of transport used (the principle of optimizing the transport capacity of a given means of transport depending on the size and type of cargo should be applied), distance of transport routes, type of cargo, size of cargo, quality of the road.

Using different classifications of transport costs, they can be generalized and presented using a formula:

$$K_t = K_{as} + K_{pts} + K_{mts} + K_b + K_u + K_{rs} + K_d + K_n + K_{ut} \quad (1)$$

where:

K_t - transport costs,

K_{as} - costs of depreciation of cars and buildings of the car base,

K_{pts} - costs of remuneration of drivers and other transport employees, including surcharges,

K_{mts} - costs of materials, fuels and energy consumption related to the operation of cars,

K_b - office costs,

K_u - costs of insurance of means of transport,

K_{rs} - costs of repairs and maintenance of means of transport,

K_d - lease costs,

K_n - other transport base costs,

K_{ut} - costs of external services.

The value of external transport costs will also be influenced by the mode of transport, as there will be a different ratio between transport costs and cargo volume in the case of road transport and a different ratio in the case of air or maritime transport.



The problem of stockholding is a complex one and in practice companies are not able to optimize it. On the one hand, the amount of goods in stock should ensure continuity of supply to customers even in the event of supply problems. On the other hand, maintaining inventories generates costs associated with freezing the value of inventories and the effect of lost profits.

The level of costs of customer service is largely determined by the expectations of customers as to the type and scope of this service. The increase in customer service costs is influenced by activities related to: special, additional or non-standard orders, small quantities of goods in a single order, irregularity of orders, unusual delivery conditions, change in the size and/or structure of an order during its execution, manual handling and processing of data, requirements for extensive pre- and post-sales service, the need to maintain high stock levels in connection with unpredictable orders.

All listed costs and their causes are identifiable and measurable by the financial and management accounting system. A great facilitation in the identification of logistic costs is the use of IT systems dedicated to logistic activity in enterprises [10].

3. LOGISTICS COSTS ACCOUNTING

In order to meet the management needs of the owners, the logistic costing should be focused primarily on the measurement of those logistic costs that affect the different levels of customer service throughout the supply chain in a given company. These differences may be due to different freight transport conditions, delivery method, distribution channels, pre and post-sales customer service, storage of goods or customer requirements.

A logistic costing system should make it possible to obtain correct and compliant with the expectations of managers information on logistics costs. In enterprises, the system may be integrated with the financial accounting system or it may be run as a parallel system, which is possible thanks to more and more widely implemented IT systems. Logistics cost accounting integrated with financial accounting means that logistics costs must be recorded in synthetic or analytical accounts. These records are not easy to implement in practice, because many logistics costs are complex costs that occur in many different activities performed in the company. The financial accounting system is mainly designed to meet reporting needs, so its integration with logistics cost accounting may not be cost-effective in practice. It seems that non-accounting records of logistics cost accounting as part of management accounting are a more effective solution. Keeping the logistic cost account within the framework of managerial accounting allows to shape the structure of this account in a free and fully adjusted to the information needs of managers.

The general logistic costing can be presented in the form of four related elements: identification and recording of logistics costs, accounting and calculation of logistics costs on cost carriers (resources and/or processes), analysis and evaluation of logistics costs, reporting.

Settlement of logistics costs should take place on those cost carriers according to which the company analyses the costs of its operations. This division can be made in the traditional way with the use of division keys. As part of the logistics cost calculation, the unit cost of a given cost carrier to which they are assigned is determined.

The calculation of logistics costs should make it possible to identify and classify logistics costs in such a way that it is possible to analyze the causes of these costs and assess the legitimacy of further incurring them. With the use of this analysis and assessment, the company may take steps to improve the operation of the internal logistic system.

Reporting in the logistics costing system plays the role of internal benchmarking [11,12] and is intended to provide the necessary information on logistics costs to those responsible for managing these costs. This information is then used to improve logistics operations in both operational and strategic terms.

Cost accounting for logistics also has the potential to improve the operational safety of enterprises and institutions [13].

4. ANALYSIS OF THE RESULTS OF STUDIES ON THE APPLICATION OF LOGISTICS COSTING

Surveys were carried out in order to monitor the state of knowledge about logistics costs and the needs and practical application of logistics cost accounting. The first survey was conducted at the beginning of 2012 and 67 business entities took part in it [14]. The questionnaire consisted of 8 substantive questions and its structure was fully adapted to the purpose of the survey. The second survey was conducted in the second half of 2018 using the same questionnaire. In both surveys empirical data were collected in the form of anonymous surveys. The survey covered employees involved in logistics processes in companies operating in the south-eastern Poland. The second survey involved 56 enterprises, the vast majority of which belong to the group of medium and small enterprises (68 %).

This study will present some of the results of the surveys conducted in 2012 and 2018. In order to increase the informational value, the results of the survey from 2018 have been compared with the results of the survey conducted in 2012.

Answers to the first two questions concerning knowledge of the concept of logistics and confirmation of logistic activities in the surveyed enterprises. These answers were almost 100 % positive.

In the third question the respondents answered a question concerning the significant impact of logistics costs on the financial result of their company. The answers to this question are presented in **Figure 1**.

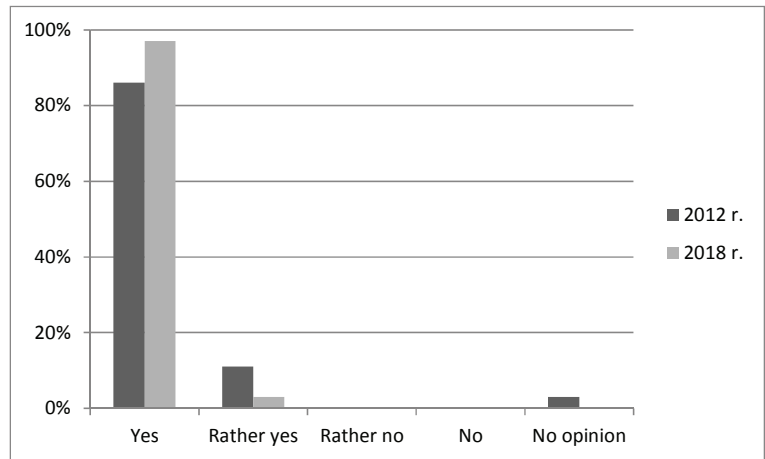


Figure 1 Statistics on the answer to the question: Do logistics costs have a significant impact on the financial result of the company?

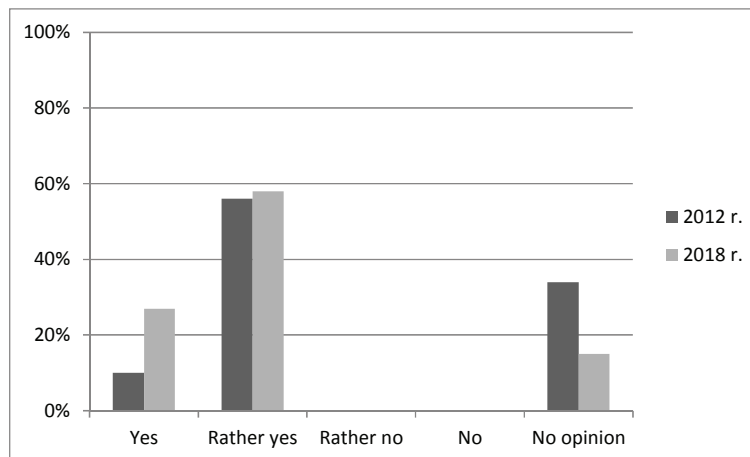


Figure 2 Statistics of the answer to the question: Can logistics costs be recorded separately?

In the opinion of respondents, logistics costs have a significant impact on the financial result. This opinion should be a key factor allowing for the implementation of measures to optimize logistics costs in companies. If



the respondents responded so positively to the previous question concerning the impact of logistics costs on the overall financial result of the company, do they see the possibility of recording these costs separately. This problem was related to the next question of the questionnaire, the answers to which are presented in **Figure 2**.

Analyzing the structure of answers to this question, it can be stated that awareness of the possibilities of recording systems has clearly increased in enterprises. This may be caused by the growing popularity and widespread use of IT systems supporting the optimization of business processes, including logistics. The next question concerned the need to record these costs when such a possibility exists. The answers to this question are presented in **Figure 3**.

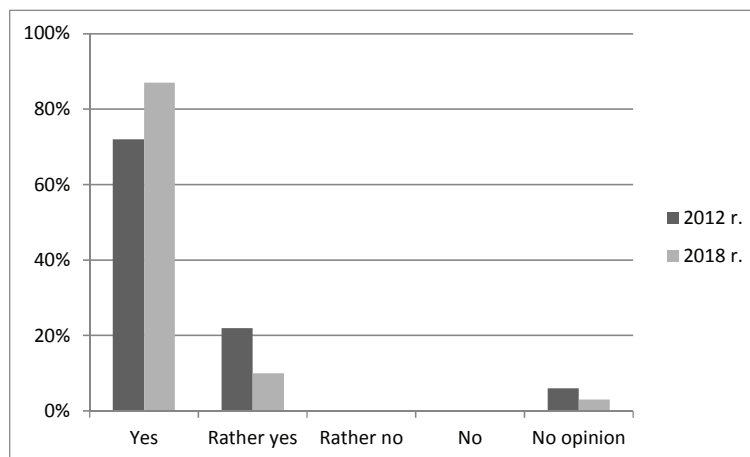


Figure 3 Statistics of the answer to the question:
Is it worth recording these costs for the purposes of logistics cost management?

However, the answer to the question concerning the use of cost accounting dedicated to logistics in companies shows that awareness of the possibility of such cost accounting is not enough to apply this cost accounting in practice. The structure of answers to the question concerning the use of cost accounting for logistics in an enterprise is presented in **Figure 4**.

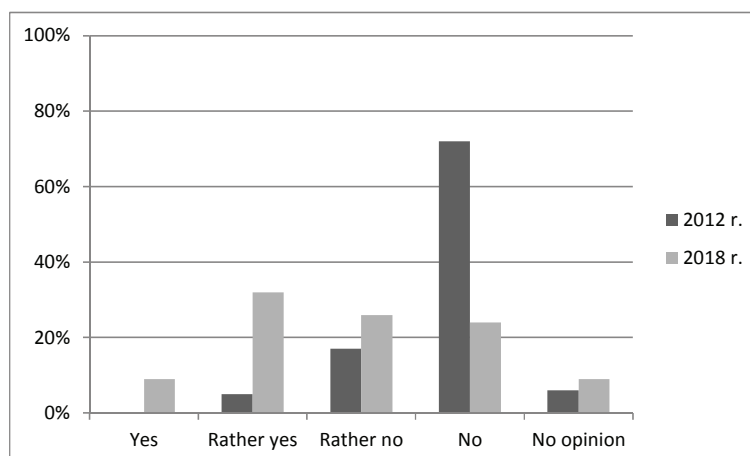


Figure 4 Statistics of the answer to the question:
Is there a separate account of logistics costs in your company?

On the basis of the answers to this question, a certain progression can be observed over a period of six years in the use of dedicated logistics costing. This should be regarded as a positive phenomenon, which bodes well

for the future of companies operating in Poland. This may mean that Polish managers are becoming more and more open to the use of the various cost accounts in question.

5. CONCLUSION

Logistics costing has great potential for optimizing logistics costs in companies. However, real possibilities to improve the functioning of this area of business activity are offered by the logistic costs account kept systematically and having a feedback in the form of corrective actions taken on the basis of the analysis of the causes of deviations from the assumed levels of cost execution.

The presented results of empirical research do not entitle the Author to draw too far-reaching conclusions. It results from a relatively small research group of enterprises. The research in 2012 and 2018 was conducted on another group of enterprises, which may also adversely affect the comparability of research results. However, the analysis of the results obtained from the conducted research shows that the awareness of managers in enterprises is constantly growing, especially in the financial area and various activities accompanying the basic type of business activity. The area of logistics, like any other, is a potential place of cost reduction in an enterprise.

The concept of cost calculation of logistics has a great potential for the implementation of scientific research in specific companies. Scientific research related to logistics cost accounting should focus on adjusting the assumptions of this account to the operating conditions of a particular enterprise.

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