

# THE ANALYSIS OF CONSTRAINTS AND OPPORTUNITIES ASSOCIATED WITH LOGISTICS COSTS ACCOUNTING

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#### **Abstract**

The primary tool allowing for the logistics costs record keeping is a well-functioning logistics costs account, which should be identified with a system allowing for determination of the level of costs incurred in connection with the implementation of logistics processes in a given unit of time. On the other hand, to be able to achieve the goals of the logistics costs account, the account should be available in many forms and sections. Forms of the logistics costs account are dependent on the requirements and needs of business practice for the acquisition of information necessary to conduct a proper evaluation and to take rational economic decisions. The diversity of purposes of the logistics costs account contributed to the creation of different forms and sections of the cost accounts.

The article presents the essence and importance of cost accounting used in business entities characterized by a well-developed logistics activities. The aim of the article is to present limitations related to the logistics cost accountancy. Author, as the key constraints identified: labor, legislation, technical conditions, financial and organizational reasons. The article presents also opportunities related to methods of logistics cost accountancy.

Keywords: Logistics costs, logistics cost accountancy, limitations

# 1. INTRODUCTION

Proposing a costs account aimed at obtaining costs information from an enterprise's logistics activity area that would both meet the statutory requirements of bookkeeping and accounting and fulfill the goals that information users expect of it in terms of logistics is neither a simple nor a straightforward task. Difficulties arise already in the conceptual understanding of the essence of logistics costs accounting. The definition of logistics costs accounting which allows for understanding the substance of the problem should be relatively simple and straightforward. Difficulties in the understanding of the essence of logistics costs accounting are not the only obstacles, many difficulties are not related to the essence of logistics cost accounting, and it results from the way it is practically applied in a particular economic entity.

### 2. ESSENCE AND SCOPE OF LOGISTICS COSTS ACCOUNTING

Attempting to contain in that definition all logistics activities that generate logistics costs cannot possibly be successful since the scope of the logistics activity of economic entities is constantly evolving and leading to a justified objection to the incompleteness of such a way of defining logistics costs. Logistics costs are a primitive concept in relation to logistics costs accounting and should therefore be explained first and in detail, too. Meanwhile, attempting to present the sense of logistics costs accounting should contain only its essence, without any additional indication of the scope of logistics activities. For the purposes of this paper, thus, a definition based on the formula developed by V. Skrodzka was proposed. Logistics costs accounting is therefore understood as a system that makes it possible to determine the costs incurred for logistics operations at a given time unit.



- J. Twaróg [1] offers two basic principles that should apply to a properly organized logistics costs accounting model:
- the costs accounting system should reflect material flows, which means that it should be able to identify
  the costs associated with customer service.
- the system should allow for the separation of costs and revenue analysis according to types of customers and market segments or distribution channels.

These principles are based on the analysis of the weaknesses of traditional costs accounting. This problem is due to the significant increase in general management costs and the difficulty associated with assigning this category of costs to costs carriers.

To achieve the goals of logistics costs accounting, it must be conducted in many forms and cross-sections. The forms of logistics costs accounting depend on the requirements and needs of an economic practice in terms of acquiring the information needed to carry out a proper assessment and to make rational economic decisions. The variety of goals posed by logistics costs accounting contributed to the development of forms and cross-sections of costs accounts [2].

The problem is to choose the right costs accounting. Economic theory and practice have so far failed to come up with a single, universal solution that would meet all the requirements of costs accounts. Obstacles result, to a large extent, from the large diversity of operators and the associated differing approaches to the specific costs of logistics, the ways in which they are accounted for, their calculation and their analysis. Any logistics costs analysis is likely to fulfill its role provided that the relevant standards for costs accounting and collection are applied. Only a detailed knowledge of the causes, relationships and proportions of the individual components of costs can make it possible to actually use costs accounting to streamline logistics processes.

Economic practice has offered a significant contribution to the following opportunities for shaping logistics costs accounting:

- partial extension of the applied costs accounting, which in its general structure remains unchanged. In
  this case, the formation of logistics costs accounting is associated with keeping records of cost types
  with greater variability and improved keeping of the costs of internal logistics services. The introduction
  of this solution does not entail significant expenditure and labor, but its drawback is that it can be used
  where logistics activity is of limited relevance,
- occasional supplementation of costs accounts by a special logistics-oriented account. With this method
  of logistics costs accounting, logistics costs, traditionally not occurring logistics costs are added as
  supplementary to the first method. Improvements to the existing costs accounting are made by
  extending the scope of generic costs, logistics costs centers and costs carriers,
- extend existing costs accounting by an additional, current logistics-oriented billing system. In this solution, we are dealing with an improvement of the traditional costs accounting that both focuses on the fulfillment of information needs of the manufacturing area and gives the opportunity to meet the information demand of logistics. IT tools play a particularly important role in this regard [3].

# 3. CONSTRAINTS ASSOCIATED WITH LOGISTICS COSTS ACCOUNTING

Implementing logistics cost accounting is not a simple thing as it may encounter resistance [4]. The main reasons for failures in the implementation of logistics costs accounting tend to be as follows:

- costs accounting implementation program is difficult to understand,
- logistics costs entry program is badly developed
- lack of understanding among employees as to the concept of costs accounting.

The process of creating and applying logistics costs accounting is usually accompanied by more difficulties than facilities[5]. This results in the fact that hopes of its introduction should be considered unfulfilled. According



to the author, the main sources limiting the usefulness of the application of logistics costs accounting in economic practice are:

- human factor,
- legal regulations,
- technical conditions,
- financial conditions,
- organizational conditions.

When analyzing the limitations determining the suitability of logistics costs accounting, two issues are particularly worth stressing, namely the limitations resulting from the human factor as well as the typically organizational constraints. In the case of the former, it does not matter whether it concerns serial employees or the management. Everything is settled by how the employees approach their duties. Right motivation is also very important, as without it, it would be difficult to enforce specific actions and the necessary degree of commitment in the field of accounting, and later in the analysis of logistics costs. The organizational restrictions mentioned above also reflect the effectiveness of the logistics costs accounting used. In this area, the lack of precisely defined responsibilities and accountability is evident, and so is the lack of appropriate rank and importance of logistics costs analysis. Other sources of limitations do not drastically affect the potential and cost-effectiveness of costs analysis relying on data provided by costs accounting, expanded to include logistics costs records.

Accounting regulations do not allow for the direct inclusion of logistics costs in mandatory costs accounting and financial reporting, although they do not limit the ability to expand and improve the complexity of applied costs accounting through analytical solutions.

The technical capabilities of applied financial and accounting programs also do not constitute a barrier to the accounting and presentation of enterprise logistics costs data. Implementing the logistics costing concept in practice is usually only required to take measure to add appropriate analytical accounts to the traditional account layout.

Due to the low cost of software used to bookkeep and analyze logistics costs, financial considerations also have no impact on the effectiveness of operation and the suitability of costs accounting in an enterprise. The increase in operating costs arising from the implementation of logistics accounting and reporting of logistics costs, which may in turn occur due to high costs of obtaining information on logistics costs.

#### 4. OPPORTUNITIES ASSOCIATED WITH LOGISTICS COSTS ACCOUNTING

Despite the risks, rationalized logistics costs accounting can be considered a basic management tool [6]. It must be borne in mind that the solutions proposed by the subject theory are sometimes very different from the solutions developed by the economic practice. This is usually owed to fact that theoretical solutions are too elaborate and it is difficult to translate them into an obligatory bookkeeping system [7].

The literature and economic practice have contributed to the development of the following three methods of accountings logistics costs:

- quick one-off diagnosis,
- systematic full records,
- random costs registration [8].

A quick one-off diagnosis is not about costs accounting, in this case logistics costs, but about the level of total costs incurred with the use of estimation methods. These estimates are intended to answer the question of what is the level, or how much the total or one of its subsystems is, over the period of time considered. Like



any action that involves only estimation, and also in this case, the results of this method are subject to a large margin of error.

Another disadvantage of this method of recording costs (although it is difficult to speak in this case about the actual recording of costs in the accounting sense), is the ability to distort the results of the estimates due to the influence of some factors during the diagnosis. In some situations, the subjective perceptions of the estimator may also influence this method. On the other hand, the advantages of the method, with certainty, include short lead time and low cost.

The opposite of a quick one-off diagnosis is systematic full records, which consists in isolating from the cluster of all costs incurred in a given period only those components that are accepted by the economic entity as logistics costs. In order to be able to keep records in accordance with this method, it is necessary to specify which costs are considered as logistics costs. Among the next issues that need to be resolved is the classification of logistics costs to meet the costs accounting information requirements, and the definition of specific technical solutions to record logistics costs.

Among the next issues that need to be resolved is the classification of logistics costs to meet the cost accounting information requirements, and the definition of specific technical solutions to record logistics costs[9]. This method is certainly more complicated and costly than the one-off diagnosis, but the benefits of it usually compensate for these limitations. Positive aspects of full records include the possibility of:

- obtaining logistics cost data in the classifying cross-sections,
- tracking current logistics costs information,
- immediate response to adverse events within logistics costs.

The third method of logistics costs accounting is the random recording of costs under which the total cost of logistics falls into two groups. The costs of the first group are kept on a full-record basis, whereas the one-off diagnosis applies to the other group. Business entities can sometimes abandon the one-off costs accounting and only maintain full records within the selected area of their logistics activity. This method is used in the event of a desire to concentrate only on an specific field that appears strategic from the standpoint of the logistics costs incurred and their possible reduction. The disadvantage of random logistics costs accounting is the limited scope of data to the areas covered by the records, which can result in unreasonable decisions regarding global logistics costs.

In turn, considering the technical ways of recording logistics costs, it is possible to apply one of three solutions. The first solution consists in manual records, i.e. kept without the help of proper IT software. Due to the archaic nature of this method - it generally generates excessive amounts of work and limited possibilities for further use- it was rejected as an object of this analysis. A similar decision was made in relation to the second solution, namely bookkeeping relying on additional software outside the basic financial and accounting one, which record all business management operations. The disadvantage, in this case, is the need to account based on two different software programs. This solution is prone to errors, mainly because it skips logistics costs and focuses solely on tax records. The third option, which seems to be the most well-balanced due to the least amount of labor required to use it, is to account logistics costs through the use of typical financial and accounting software tailored in terms of additional information requirements.

Consequently, comprehensive logistics costs accounting is related to the recording of business operations covering this cost category on the relevant bookkeeping accounts. Records may be kept on the resultant and off-balance accounts. The main costs, however, are recorded in the resulting accounts, which are subject to appropriate modifications. This change involves the introduction of additional analytical accounts to the resultant accounts in order to refine the information and derive from the records in the accounts the part of the costs that actually has to do with the logistics activity.

Given the wide range of business operations covering the spectrum of logistics costs, operations of this kind are typically recorded on the basis of a spreadsheet system. While it is true the proposed solutions with a



calculation system have many benefits, the basic disadvantage of these methods is that they can be used in costs accounting entities where most businesses record operating costs in a straight-line manner.

#### 5. CONCLUSION

Logistics costs accounting is the basic tool for obtaining information on the amount of logistics costs incurred by a company. Proposing the setup of an account that meets its objectives is neither a simple nor straightforward task. The article presents, on the one hand, the constraints associated with logistics cost accounting as well as the opportunities created by the individual techniques of recording the costs category in question.

#### **REFERENCES**

- [1] TWARÓG J., Koszty logistyki przedsiębiorstw, ILIM, Poznań, 2003, pp. 21.
- [2] BLAIK P., Logistyka, koncepcje zintegrowanego zarządzania, PWE, Warsaw, 2010, pp. 25-60.
- [3] NOWAK E., PIECHOTA R., WIERZBIŃSKI M., Rachunek kosztów w zarządzaniu przedsiębiorstwem, PWE, Warsaw, 2004, pp. 208-210.
- [4] STRATON, R. & WARBURTON, R. D. H. (2003). The strategic integration of agile and lean supply. International Journal of Production Economics, 85, p. 183-198.
- [5] PETTERSSON, A. I. & SEGERSTEDT, A. (2013). Measuring supply chain cost. International Journal of Production Economics, 143, pp. 357-363.
- [6] SHAFIEE, M., LOTFI, F. H. & SALEH, H. (2014). Supply chain performance evaluation with data envelopment analysis and balanced scorecard approach. Applied Mathematical Modelling, 38, pp. 5092-5112.
- [7] SONI, U., JAIN, V. & KUMAR, S. (2014). Measuring supply chain resilience using a deterministic modeling approach, Computers & Industrial Engineering, 74, pp. 11-25.
- [8] MCKINNON A. (2011). The effects of transport investment on logistical efficiency, Logistics Research Centre, Heriot-Watt University, Edinburgh, UK, w: Raising your transport budget may be the fastest route to competitive advantage, LCA, Issue 4, 07.2011.
- [9] HERROND.P. ABC Data Correlation, [in:] K. RUPPENTHAL, HA MCKINNEL JR. (red.) Business Logistics in American Industry, Stanford University, Stanford 1968, pp. 87-90.