

CONTROLLING LOGISTICS IN THE SUPPLY CHAIN

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Abstract: It is commonly believed that the development of small and medium-sized enterprises is mainly limited capital barriers. Should pay attention to maintaining the barrier that is the trend by companies maintain full independence and autonomy. Option of a new form of business is turning to the groups in the chain of supply. The establishment and functioning of the supply chain requires participants to develop the principles of cooperation and mutual respect for independence. Observations of supply chain enterprises strongly suggests that ensuring the correctness of the operation cannot be limited to the standard tasks of controlling. It is necessary to perceive new tasks relating not only to the core but also the conditions of supply chain logistics. This article aims to provide relevant metrics and indicators controlling the supply chain from the moment of purchase, production, gathering and creating inventory for distribution, inclusive. The presented indicators provide a broader view of the scope of logistics and the functioning of the supply chain. This allows the selection of indicators suitable for logistics companies that ensure that the appropriate function in the control of logistic processes on spatial-temporal changes in the characteristics of the materials which is associated with the function of the change in the number and species.

Keywords: controlling, supply chain.

1. Introduction

Nowadays, operating a business activity is associated with increasing risks and limitations. The free market economy is very dynamic and external conditions are rapidly changing. Product-market relationships shape especially dynamically. Under these conditions, companies want stay on the market, they must abandon the conservative strategy (passive) and develop. They should be able to foresee all the dangers, the chances of its development through attainment the abilities for long-range prescience and adapt to changing operating conditions. Additionally, in the recent decades increasing diversification of customers' demands is noticeable, namely, the customers want to see more and more types and variations of products on the shelves of the shops [1]. In this situation, strategic planning becomes essential, the ability to capture weak signals about future trends, the use of every opportunity for your business and the ability to flexibly adapt to the rules prevailing on the market.

This is reflected a radical change in both the planning and organizing functions [2]. However, over the last few years the function of control has changed the most. The use of active control, names controlling which results in significant improvement of the quality of manufactured products, has a significant impact on the reduction of inventory, which in turn dramatically improves productivity and lowers the cost of production. Control is the stage that in every production must be taken into account, it cannot be overlooked. Controlling is defined as more than an instrument of business management function, which

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is the result of a process-oriented company, carried out by the management, control and reporting. At the same time its stressed that the controlling activities are designed to promote the company's management in making decisions. Controlling is so advise all cells of decision-making and coordinating business objectives, decisions and actions, it also provides balance the objectives of individual departments of the undertaking, while maintaining the dependencies between them. It also contributes to the development of each decision maker ownership the sense of responsibility for overall result of an enterprise-economical and business-like.

According to other authors controlling is the system which use a variety of known and used instruments and management techniques such as management by results and by objectives, management accounting, budgeting techniques. As part of the controlling all these tools are coordinated and jointly contribute to the achievement of its objectives. You can then say that controlling becomes an effective tool for the control and the stimulation of individual enterprise sub-systems for independent and permanent increasing of efficiency. It is also coordinating the planning, management, control and supply the information. So it is the manoeuvring of business activity for the appoint goals.

Controlling should be considered in terms of the management subsystem, whose primary task is to support the traditional functions of management (planning, organizing, controlling, motivating). It performs a so-called. transversal function of the enterprise, as well as human resource management and quality. In this way, contribute to the harmonization of plans and coordination of decisions all functional areas and all levels of decision-making according to the uniform system of targets.

Participation of controlling in the implementation of the general objectives the company is done by focusing on the basic objectives in terms of value, and by optimizing the result (by maximizing the value of the capital or profits), with a focus on providing financial liquidity. At the same time business-like and social goals are under controlling coordination in terms of results and financial liquidity. Financial planning is essential for a company to operate safely and optimal. Even a successful large corporation with great history can end its activity and close down, if it gets into a financial problem, which disables the company to keep up financing its operation even only for a short term [3]. The main task of controlling becomes at the same time information security result-oriented planning, control and supervision over the whole behaviour of an enterprise combined by the function of coordination and integration.

Among the criteria for the types of classification for honourable mention deserve two basic: functional criterion and the criterion of senior management.

By controlling we distinguish functional criterion relating to:

- logistics,
- production,
- marketing,
- personal,
- financial costs.

In turn, according to the criterion level of government controlling share on:

- operative,
- strategic [6].

Various levels of government, to which the mentioned types of controlling cause that is also seen variously attributed to the goals, orientation, nature and purpose of the tasks and the time horizon. Common features for both types of controlling are shown in Table 1.

Table 1
Characteristics features of strategic and operative controlling

Type	Strategic controlling	Operative controlling
Objectives	Security capability and development of the company in the long term perspective	Current profitability, liquidity and efficiency
Orientation	Surrounding of the enterprise (especially in the context of adaptation to the changes)	Interior of the enterprise (particularly in the context of coordination of internal processes)
Nature of tasks	Mainly qualitative (poor structuring)	Mainly quantitative (measurable tasks)
Subject of tasks	Identify opportunities and threats generated by the environment in a confrontation with the identification of strengths and weaknesses sites of the enterprise	Identification and verification quantity in systems: the cost-performance, the cost-income-expenditure flows
Time horizon	Long-term	Short and medium term

Source: Own elaboration

Controlling through different points of view allows for an in-depth analysis of the processes occurring in the enterprise. Its introduction to the enterprise mainly simplify the management of production, can very effectively control the production processes, inventory management, distribution of products. The role of controlling is such management of the company to allow it to function without any problems on the market. Organizations must be flexible and quick to respond to constantly changing business conditions. To do so, timely intelligence about the organization, its processes, and its business partners must be available to inform decisions and actions to achieve or maintain a competitive advantage in the marketplace [4]. Such controlling is system of self-regulation by which all the components of the controlling are bound to each other. According to that system every employee in the enterprise has a specific field of activity. Company management has to set the goals to which the company should pursue, management must take care that all of the company activities should favourably affect to gain the set goals, in the event of deviations, management should immediately take precautionary measures in order to maintain the company's operations. An important role is also played by ordinary, rank and file employees who perform any work related to the business of the company. The product of their work are products that are passed into the environment, which is on the market. Not always, however, they meet the desire of buyers to buy them. Controller task is to find the best solution to achieve company goals. Controller should give to the decision makers the information that has been obtained by comparing the facts of the objectives and aims to provide advice on how best you can achieve the set aims under present circumstances. This analysis can be done through the use of continuous feedback occurs all the time in the company. The existence of a continuous feedback loop forces the management to constantly make decisions that ensure the achievement of objectives [8]. Controlling is focused on the future. Any adjustments in the system cyber system significantly organize

and facilitate the functioning of the current enterprise. Continuous monitoring and comparing performance to pre-established objectives allows to manage production in a better way. It should be consider that not all companies have an extensive network between employees and the company management. It often happens that in small enterprises controller, management and the board of directors are the same person. It is the owner of the company, who personally takes care of the execution of fulfil the predetermined goals. Such a person decide on the production lines, production type and determine the status of inventory. Inventory control, the current control of production requires wide skills from the management. With the development of computers, those skills are complemented by a growing number of supporting management production software. Many managers in order to make the best decision use the opportunities offered by computers, mainly to coordinate development in the areas of production management. Controlling supported by an extensive system effectively influences the management of production processes. Nowadays, major manufacturing company cannot exist without a developed information technology system. A general model of the modern operative management in terms of computer show the diagram.

2. Controlling instruments

Controlling is the control of whole production. Effects of the entire process of processing are obtained on the output, which is on the monitor. Then the controller receives information about the produced product. The output measurements are made of the final product, which is why at this moment you can pick up any irregularities, possible deviations from the plan or failures in the production. Through the feedback loop the corrective action takes place in the features and quality of the product. Controller after ascertain the deviations has to make contact with the managers responsible for these variations in order to search the possibilities of corrective actions [6].

An indispensable tool in control, which supports production management is the analysis of so called ‘bottlenecks’. Planning all production process mainly depends on the determination of type and number of “bottlenecks” in production departments. An analysis is carried out to improve the planning of production processes and protects the company against squandering margins of coverage. In order to save the optimal result of production we must determine what products will be produced, in what quantities, using what processes or technologies that, what will be estimated revenues. It allows to avoid many of the problems associated with an incorrect reading of the needs of the buyers. Analysis of “bottlenecks” is helpful in determining the optimal production program; this analysis also cares about determining as much as possible the kind and measurement of the final production.

An important instrument which allows accurate calculation of the efficiency of production is a break-even analysis. With it help you can better assess the opportunities for profit. It allows you to choose the production of such a group of products that will bring the most profit to the enterprise. Application of break-even analysis in the field of business management enables the detection of weaknesses and the strengths of the whole production and produced goods [8]. For an efficient production processes in a company it is necessary to take care of an appropriate level of inventory to enable a reliable and non-conflicting realization of the production. A useful tool in controlling the structure and size of the order is analyse of optimization of the size of orders. It allows for immediate adjustment of the

size of the production to average size of orders. If the ratio is disturbed, it may be a break in production caused by insufficient amount of materials which are needed in the production. This results in a decrease of the efficiency of production, and thus – reducing revenues. Determining the optimal amount of ordered materials depends mainly on the material requirements of production, storage requirements and a supply situation on the market. When determining the number of ordered materials we can use the method to purchase large lots in large intervals. Such a buy is used due to low prices and low cost of purchase. It gives a relatively greater security of current production, however, is associated with a high commitment of capital and the increased cost of storage.

We can also purchase smaller amounts of materials in a relatively short time. Thanks to the rapid rotation of the storage facility is less commitment of a capital and thus the smaller cost of storage. This reduces the risk of deterioration, aging of materials stored longer. However, when ordering small batches of material company loses favourable prices and attractive conditions of supply. Therefore, the task of controlling in the instrument to optimize the size of orders to is to balance these two opposing trends. To minimize the fixed costs enterprise should determine the optimal size of orders. This will allow for more efficient use of existing inventory and will help to improve the efficiency of the production process.

Table 2

Area of controlling activity (division I)

<i>Features</i>	Management features		Management instruments
	<i>Management accounting</i>	<i>Planning</i>	<i>Management by objectives</i>
Sale	Media accounts of costs, income statements for products, customers, markets and profit centres	Methods, procedures and instruments of strategic planning and budgeting, forecasting and evaluation of the implementation of plans, analysis of the level of reliability, prognostic and planning	Cost-effectiveness indicators for profit centres and their constituent units. The criteria for the allocation of tasks
Production	Bills of costs for job cost accounts cost carriers, income statements for products, accounts for the profit centres	Methods, procedures and instruments of strategic and operational planning, budgeting, analysis, implementation plans, analysing the plans, prognostic and planning	Cost-effectiveness ratios for profit centres and their constituent units. The criteria for the allocation of tasks
The progress and technical and organizational development	Bills of costs for projects, income statements for projects, bills efficiency projects	Methods, procedures and instruments to project planning, evaluation of projects	Costs and performance indicators for organizational units and positions, the criteria for the allocation of tasks

Source: Own elaboration

Strategic controlling is a process consisting of forecasting and planning, during which the chief management decides on major issues related to what the company intends to do and how it intends to achieve it. This process requires the preparation of the information

about the future, that is to say forecasting. Whereas, operating controlling is developed by senior management and approved for implementation strategies which set the framework for the tactical and operational level, and so the area of controlling the operational activities, relating specifically to these levels [8].

Table 3

Area of controlling activity (division II)

<i>Features</i>	Management features		Management instruments
	<i>Management Accounting</i>	<i>Planning</i>	<i>Management by objectives</i>
Marketing	Accounts of fixed costs	Methods, procedures and instruments budgeting, evaluation of the implementation of budgets, expectations	Costs and performance indicators for organizational units, positions, the criteria for the allocation of tasks
Management	Accounts of fixed costs		Costs and performance indicators for organizational units, positions, the criteria for the allocation of tasks
Finance	Profit and loss account of the enterprise	Methods, procedures and instruments of financial and capital planning, strategic and operative	Methods, procedures and instruments of financial and capital planning, strategic and operative
Consulting engagements, consulting, instructional	Specific Problems of a very diverse nature concerning the enterprise and the efficiency of its operations		

Source: Elaboration own

The primary task of the strategic dimension is to raise awareness and highlight the importance of logistics for the mission and goals of the company. On the highest management level (strategic) most important become conceptual abilities, the ability to coordinate and integrate properly functional areas as well as all the interests of the organization [5]. An early analysis of potential strategic logistics may prevent unjustified commitment to improving the business sphere of action when it appears that existing level of reserves increased efficiency and competitiveness is negligible. As rightly noted by J. Weber, not every company finds here the opportunity to improve its strategic position. To determine the validity of “entry” controlling in logistics provide the research which is called the attractiveness of the logistics for the company, with the use for example analysis of the portfolio. It is also advisable to study the potential effectiveness of the logistics system and its basic processes [7].

If appropriate will be to support logistic by controlling this will be included to its main strategic tasks:

- organization of the planning process, including the protection of logistics on strategic planning and control, linking, synchronizing strategic and operational logistics planning and control,
- introduction and development of modern concepts, methods and tools for logistics management (including for example, just-in-time),
- coordination of strategic partial plans and
- planning documentation.

In turn, in controlling operational logistics must be set concretized goals set in strategic planning. Is not adequate to assume that the right products in the right amounts must be provided for the right job and in the right time. It is required to build a system of targets for each functional area of the company, which is under the “supervision” of logistics. It is also desirable to support ongoing planning and budgeting in the area of logistics, constituting a further development and operationalization of the adopted targets. It is about security planning and control of logistics processes and their synchronization and optimization across the enterprise through systematic support of decision-making managers responsible for logistics, through the preparation and timely delivery of relevant information.

3. Summary

An essential condition for the implementation of strategic and operational tasks of controlling in the area of logistics is to have a proper knowledge base, which include cost information. For this purpose should be defined set of (system) data characterizing generically separate logistics operations and the costs associated with them as part of the bill of costs and outcomes (benefits) logistics. The second essential component of the information system is a set of indicators of logistics. How is the procedure for controlling visualise in logistics? If it has been decided to supporting logistics through controlling, then you should consider the formal order of its introduce. It is worth to notice that both in literature and in practice there is lack of reliable methodical bases of intentional and comprehensively implementation of controlling, not only in the area of logistics, so that such implementations are often haphazard and selective. They usually start from operational controlling and budgeting in these selected areas where accidents of various forces make this possible. It focuses mainly on the tools, forgetting about their secondary character in relation to the goals and objectives for the implementation of which they were constructed. Lower interest turns out to a strategic controlling, leaving it for later. Appropriate methodical approach to the logistics of controlling for the basis should identify the objectives adopted in the enterprise. First, you must recognize the strategic objectives because they mainly determine the core area of activity of controlling in logistics. The purpose of such operational objectives should be derived, addressed to various functional areas (organic functions) of enterprise (supply, production, sales and marketing), due to the fact that logistics has a “cross” type with respect to those functions. Next, we should select those areas in which controlling suppose to work and concretize its goals, and then select the right components (i. e. management functions, which are the subject of support) and the tasks of controlling. These tasks should be related to the construction phase of the system and its operation phase. Finally, you must choose the appropriate tools (instruments) achieving the goals and objectives of controlling in selected areas of the enterprise.

Particularly important is the choice of the logistics area which is submit for controlling. Controlling logistics cannot be (if only because of the labour intensity) and do not need to cover the entire enterprise. It should be noted first of all and select those areas (cells), the functions of which have (or will have in the future) the key to the success of the enterprise. It is about competence, resources and assets, which the company needs to in the field to be successful (the source of competitive advantage). The selection process would be enhanced by a detailed analysis of the cost, but keep in mind that the cost approach can be confusing. Not in every case the areas and functions of the most expensive are the most important from a strategic point of view. To sum up changing and complicating conditions for the movement of material flow forcing enterprises to look for information and methodological support decision-making in the area of logistics management. Controlling can provide such support, provided the preparation and implementation of the system. Entering controlling the company, and thus the logistics cannot be a coincidence, since this would result in a waste of resources and unjustified increase in costs. What is needed is a comprehensive process, subordinated to the company, sequentially determining the objectives, tasks and controlling tools in consciously chosen and strategically important areas and functions of logistics. Only then the enterprise can count on efficient and effective introduction objectives pursued by logistics. It is in these times necessity, in order to compete both domestically and globally market. In short time we are entering into the structures of European Union. The primary goal of any business is its continuity and development, and controlling is an essential element in achieving the goals, both short-and long-term Controlling has an advisory role: it helps, gives feedback and suggests possible trends of action to management. About the nature of this help and the scope of its use decide the management.

References

- [1] Molnár, T.–Bányai, A. (2008): *Controlling and reengineering of producing-assembling company*. University of Miskolc, Advanced Logistic Systems, Vol. 2, pp. 61–66.
- [2] Kisperska-Moroń, D. (2006): *Measuring the functioning of the supply chain*. Wyd. Akademii Ekonomicznej w Katowicach, Katowice, Poland.
- [3] Farkas, F. M.–Gonda, G. (2010): *Comparison of controlling tools of different sales structures: case studies*. Polish Journal of Management Studies, Vol. 2. p. 10.
- [4] Al-Shubiri, F. (2012): *Measuring the impact of bussines intelligence on performance: an empirical study*. Polish Journal of Management Studies, Vol. 6, p. 164.
- [5] Jędrzejczyk, W. (2013): *Management of managerial competencies in Polish organizational practice*. Polish Journal of Management Studies, Vol. 7, p. 19.
- [6] Nowicka–Skowron, M. (2000): *The efficiency of logistics systems*. PWE, Warszawa, Poland.
- [7] Twaróg, J. (2003): *Gauges and indicators logistics*. Biblioteka Logistyka, Poznań, Poland.
- [8] Śliwczyński, B. (2011): *Controlling operating supply chain*. WUE, Poznań, Poland.