

Main Factors for the Improvement of a Complex System of Strategic Production Cost Management

Principales Factores Para la Mejora de un Sistema Complejo de Gestión de Costos de la Producción Estratégica

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ABSTRACT:

The purpose is to elaborate the problem of utilization of the main factors of improvement of production cost management. The main factor of improvement of production cost management is the optimization of planning and practice of implementation of controlling in Russian companies. The novelty of this research lies in the fact that it examines the main factors of improvement of production cost management for the first time in special economic literature on cost management.

Keywords: Cost management, planning optimization, competition, controlling level increase

RESUMEN:

El objetivo es elaborar el problema de la utilización de los principales factores de mejora de la gestión de costes de producción. El principal factor de mejora de la gestión de costes de producción es la optimización de la planificación y la práctica de la aplicación del control en las empresas rusas. La novedad de esta investigación reside en el hecho de que examina los principales factores de mejora de la gestión de costes de producción por primera vez en la literatura económica especial sobre gestión de costes.

Palabras clave: gestión de costes, optimización de la planificación, competencia, aumento del nivel de control.

1. Introduction

Nowadays, the escalating competition among producers forces them to be ahead of their competitors by selling products that comply with international quality standards and have a lower cost price through an improved utilization of the main factors of improvement of

production cost management, the investigation whereof is the subject of this research. Many economists, such as Kotlyarov S.A. (2001), Lebedev V.G. (2012), Lieberman I.A. (2006), John K. Shank and Vijay Govindarajan (1999) ignore this issue altogether, while only Drury C. (2003:27) notes that the improvement of management accounting is part of the complex system of strategic production cost management. This, however, is not enough. The expectation was that the follow-up studies would investigate all the main factors that affect the improvement of production cost management, but that did not happen. In her new economic encyclopedia, Rumyantseva Ye.Ye. (2006:179) views the achievement of good results through the implementation of innovations and does not mention any other factors.

V.G. Lebedev (2012:41) considered planning and efficient utilization of the company's resources the main factor of improvement of cost management. D. Hahn (1997:108) argued that efficient cost management required the implementation of controlling, which includes a complex of tasks for the improvement of planning. The issue of controlling was covered by such authors as A.M. Karminsky, A. Deyhle, V.B. Ivashkevich, and many other economists. According to V.B. Ivashkevich (2011), operational controlling helps managers to achieve the goals that were planned for one or two years, which manifest themselves in the obtainment of maximum profit and increase in output.

As seen from the literature review, production cost management based on the improvement of production cost management has only been investigated partly. Therefore, the purpose of this research is to elaborate the problem of utilization of the main factors of improvement of production cost management, the solution whereof is relevant in modern economic conditions.

In order to improve production cost management, it is necessary to improve the innovative activity in the company, optimize output planning, enhance the role of controlling, and improve the effectiveness of strategic production cost management. Nowadays, one can see the effective results of the implementation of these factors. For instance, RAM LLC (Russia) started using a new deep pump at the National Company KazMunayGaz JSC deposits, which enabled saving about 49 million kW/hour, amounting to 4.9 million dollars per annum (Ryzhov, Telbukov, 2011:115). In addition, modern economic entities increase the output by optimizing planned figures, thus improving the profitability of products. Efficient company management is impossible without goalsetting and the planning of measures, which is why controlling is necessary for management and monitoring (Hahn, 1997:108). The main goal of controlling is to monitor the performance of set tasks and receive profit within the planned size through efficient utilization of the entire production potential of the company. Effective controlling is achieved by continuously improving the performance of the main functions, optimizing the planning of the main technological and economic indicators of the company, which are aimed at achieving good results (Shank, 1993:71). The improvement of production cost management effectiveness starts with the improvement of management cost accounting, which helps to achieve the desired results. It is worth noting that the improvement of the efficiency of cost management is achieved by utilizing all the factors of improvement of cost management and the factors that help to cut production costs. All factors of the improvement of production cost management are beginning to take root in Russia companies (Downes, Nunes, 2014).

In economic literature, cost management based on the factors of improvement of production cost management has been covered partly, which is why the author of this research decided to elaborate the problem of utilization of the influence of the main factors of improvement of production cost management, which will give impetus for new developments.

2. Methods

The main research method was a brief analysis of literary sources on cost management. It is worth noting that nowadays, production companies try to survive in harsh competition for profitable sales of quality products with reduced cost price based on the improvement of production cost management. Therefore, special attention in this research is devoted to the description of the influence of the main components on the improvement of production cost

management, such as: improvement of the innovative activity of the production company, optimization of output planning and the cost of production and sales, and enhancement of the role of the implementation of controlling into the complex system of physical production cost management. The research also investigated the issue of improvement of the efficiency of strategic production cost management. All the aforementioned factors have gotten well accustomed in Russian and Kazakh companies, which is proven by examples.

The research emphasizes the importance of the increase in the level of innovative activities of economic entities and notes that specific theoretical problems related to the improvement of innovative activities of companies are understudied and unresolved. In addition, the research defines the term "innovation" and "implementation of innovations in the petroleum industry". Due attention is paid to the optimization of planning, since the improvement of planning of, for instance, output and production costs is one of the main factors of improvement of production cost management. The term "planning" is defined. The research investigates the enhancement of the role of controlling and notes that the effectiveness of controlling is increased by continuously improving the performance of the main functions of all elements of the complex system of strategic production cost management, optimizing the planning of the main technological and economic indicators of the company, and improving the accounting and control of costs that are aimed at obtaining quality final and main results of production. In addition, the paper describes the practice of implementation of controlling in Russian companies.

In addition, the research notes that in order to improve the effectiveness of cost management, it is necessary to improve the entire organizational structure, responsibly perform all functions, and enhance intra-managerial control of costs for the optimization of the utilization of all company resources.

The novelty of this research lies in the fact that it examines the main factors of improvement of production cost management for the first time in special economic literature.

3. Results

Nowadays, the escalating competition among producers forces them to be ahead of their competitors by selling quality products at lower cost price. In order to achieve such results, the suggestion is to implement the main factors of improvement of production cost management in companies (Sabden, 2010:28-35). The main factors include: improvement of the innovative activity of the company, optimization of output planning and production costs, enhancement of the role of the implementation of controlling into the cost management system, and improvement of the effectiveness of strategic production cost management (Edquist, et al., 2015). It is necessary to consider the role of these factions in production.

The improvement of the level of innovative activity in the company confirms the achievement of positive results. In the modern economic dictionary, the term "innovation" is defined as novelties in the field of science, technology, labor organization, production, and management, which are based on the utilization of scientific achievements and advanced experience and the use of these novelties in various areas of activity (Patterson,

Kerrin, Gatto-Roissard, 2009). Nowadays, the implementation of new promising ideas and their realization in production is the main issue of survival in the harsh conditions of transition to a market economy. For instance, in his message to the people of Kazakhstan, President of Kazakhstan N.A. Nazarbayev noted that Kazakhstan had to fully update all of its production assets in accordance with cutting-edge technologies. This strategy is aimed at achieving the sustainable development of the country. The successful development of the competitiveness of the economic system is only possible through the comprehensive use of modern concepts of innovative development (Kazakhstan 2050 Strategy, 2012). Competition is the mechanism that ensures dynamic technological and organizational development of economic entities. The main characteristic that enables achieving goals in a competitive environment is competitiveness

(Yegorov, Chigarkina, 2012:125-135). The competitive advantage of the company consists of the market conditions and the competitiveness of the company itself. In Western countries, in order to improve competitiveness, innovations are used in all areas of production, as well as increase in investment in production and human capital. In order to improve production and management activities, many economists suggest implementing organizational and management innovations. The implementation of such innovations can save costs during the innovative financial and production activity of economic entities. According to A.N. Daurenbekova and D.A. Kunanbayeva (2013:19), small business should play a major role in innovative development. Foreign experience shows that small innovative businesses are very dynamic and require comparatively smaller investments. In developed countries, small businesses provide more than a half of all innovations. The implementation of innovative technologies also includes the widespread installation of wind farms and solar panels across all of Kazakhstan, including the Mangistau Region, which is predetermined by both economic and environmental characteristics. The economic growth of the country also includes the petroleum industry, which widely uses innovations. For instance, RAM LLC (Russia) started using a new deep sucked rod pump at the National Company KazMunayGaz JSC deposits, which enabled saving about 49 million kW/hour, amounting to 4.9 million dollars per annum (Nurabayev, 2012:38-31). The main directions of innovations are related to the creation of new types of products based on the improvement of its quality and reduction of its cost price, primarily through the implementation of new technologies. It is possible to conclude that in economic practice, it is necessary to pay special attention to the improvement of innovative activities, with a view to achieving goods results.

During the transition to a market economy, special attention should be paid to the planning of the main technological and economic indicators of production, since this is the main function of production management. The improvement of planning increases the competitiveness of products. Planning is the process of development of a plan, while a plan is a form of management decision. The essence of planning is that it is a development of future forecasts of the developed of various processes and adjustment thereto in the present time (Qi, Shen, Dou, 2016:72). The product output is executed within a certain range. It forms the minimum acceptable, maximum acceptable, optimal, and physical output and sales of products. The minimum acceptable output is achieved through equilibrium of income and expenditure. The maximum acceptable output is achieved at the maximum loading of production capacities of the company at minimum expense for the company. Output is considered optimal when it provides maximum income with regard to the possible maximum utilization of all production factors. D. Hahn viewed the planning of expenditure and income together as the planning of "input" and "output" (Hahn, 1997). The essence of this approach lies in the fact that the smaller the "input" and the bigger the "output", the greater the income. At that, it is worth paying special attention to the choice of intensive ways of development without increasing the utilization of various resources. In addition, when planning the product output for a future period, it is necessary to consider the assortment and types of products, which are based on the needs of clients and consumers. After the determination of the planned product output, the business plan of a company includes the planning of production costs (Harrison, John, 2013). When planning production costs, special attention is paid to the use of efficient technologies that improve the quality of production cost planning. Information about the planned volume of production resources is also necessary for the company to make managerial decisions when procuring means of production. Production cost planning is a laborious process, however, it is necessary to optimize and rationally use production, labor, and other resources. In order to plan production costs correctly and properly, it is necessary to analyze the actual results of the previous period and take into account the deviations from the planned results.

The planning of production output and sales is improved by searching for and implementing internal reserves for its increase based on the use of scientific achievements, including innovative technologies, the improvement of production organization and management, marketing, and timely shipping of and payment for goods (Ramjugernath, 2015). Another

equally important condition is the improvement of the plan. According to A. Deyhle, an equally important condition for the improvement of the plan is as follows. The greatest art of the manager is to provide his or her workers with a compromise between intensive labor on the one hand and the achievement of the set goal on the other hand. This means that the higher the extent, to which the economic potential of the company is tapped and all conditions of the company's functioning are taken into account, the more optimal the production plan is (Deyhle, 2003:186). For instance, if the output increases by 10% through the optimization of planned figures of the company, the profitability of the product increases by about 1%. It is possible to conclude that the improvement of optimal planned tasks is the main factor for the improvement of the economic efficiency of production without additional expenditures.

During the last decades of the twentieth century, the development of the economic science about production management was accompanied by a new economic concept of production management – controlling, which was caused, in part, by relevant problems of further development of the complex system of production cost management (Lieberman, 2006:77).

The economic term “controlling” derives from the verb “to control”, which has different meanings. In the economic sense, it means management and monitoring. In other words, controlling is an effective system that controls planning, accounting, and marketing, thus ensuring the lengthy competitive functioning of the company. The implementation of controlling is also necessary to ensure internal self-control of all functions of production cost management and the achievement of its competitiveness based on the continuous utilization of internal reserves, with a view to continuously improving the profitability of products. In addition, controlling can be used to check the correctness of management planning, management accounting and analysis, and, most importantly, management control of costs and proper decision making (Simons, 2013). Wrong decisions and lack of control can lead to negative results, which can be seen from the example of major repairs of wells. The planned annual scope of major repairs of wells can be calculated using the following equation:

$$T \cdot N = t_a \cdot n$$

where: T is the average time of 1 repair;

N is the number of planned repairs;

t_a is the reference worktime of 1 shift during the planned period;

n is the number of shifts at the start of the planned period.

However, our calculations showed that the planned volume of well repair works at the Zhetybay facility of Khimremontskvazhina LLP for 2010, which was 130 well repairs, turned out to be underestimated, since it had to be $232 = 5460 : 235.8$ (where $54600 = 2100 \cdot 26$ is the planned annual volume in shift hours, obtained by multiplying the reference worktime of 1 shift per annum ($t_a = 2100$) by the number of shifts ($n = 26$) and 235.8 crew hours is the reference time of 1 well repair based on the actual volume of work done in 2009). This means that if the crews of Khimremontskvazhina LLP stayed within reference time, they would have performed not 154 actual well repairs, but considerably more – 232 (Ilysheva, Krylov, 2014). Based on this result, the conclusion is the that insufficient attention was paid to the planning of the volume of major well repairs, which led to losses and the nonfulfillment of the plan. Such planning does not hold against any criticism, since the plans were approved with a low level of liabilities without due attention to the improvement of planning.

According to economists, controlling is necessary to maintain the effective work of company subdivisions. The basic principle of the controlling system is as follows: do today that, which you will only think about tomorrow; focus on the business strategy and perspective; take economic conditions into account; optimize profit; anticipate problems; use an original method of direct production cost accounting (Metsälä, Salmelin, 2015). Thus, it is possible to say that controlling incorporates all the achievements of modern management, while all functions of

management activities are under constant control.

The goal of controlling is to provide managers with necessary and sufficient information for their effective work, management of the optimal development of the company, and guarantee of effective results of its long-term production and financial activity. It is worth noting that the effectiveness of controlling is improved by increasing the quality of planning, accounting, and control that is aimed at improving the final results of production and increasing profit from sales (Shank, Govindarajan, 1999). Thus, controlling is a new form of cost management, an interconnected set of methods of acquisition, processing, aggregation, analysis, presentation, and utilization of various economic information. Information for controlling is provided by services of planning, accounting, and control that is aimed at achieving the ultimate goal of the company – to increase profit. The ability to anticipate economic and commercial conjuncture, estimate the expected profit, and determine the reasons behind deviations of actual expenses from planned ones and the ability to regulate them – this is what effective management, i.e. controlling is all about.

While the goal of controlling is to check the performance of the set tasks at all levels of production management, the general tasks of controlling include orientation of all types of activities and decisions within the company towards increasing profit within the planned volume, primarily through the efficient use of the entire production potential and the development of measures for achieving the goal of controlling (Silvius, 2013). According to A. Deyhle, controlling makes sure that each person is capable of controlling him- or herself during the achievement of goals that are set by the administration of the company, primarily profit-related goals (Andreyev, Sinelnikov, 2008:160). For instance, the output plan can be optimized by discovering and utilizing additional reserves, with a view to gaining additional output without additional costs. To put it short, controlling can be used to improve the main technological and economic indicators of the company.

In order to ensure operative production cost management, it is necessary to pay special attention to timely controlling for the purpose of intra-managerial control of the economic performance of the company and its main production units, with a view to improving the profitability of products and their sales. According to V.B. Ivashkevich (2011:28), operational controlling helps managers to achieve the goals that were planned for one or two years, which manifest themselves in the obtainment of maximum profit and increase in output and the maintenance of the financial liquidity of the organization. It is possible to conclude that operative controlling is used to regulate the cost to result ratio of the economic activity of the company and helps to achieve business goals.

Controlling has gotten well accustomed in Russian companies. S.G. Falko (2008:12) published a book titled *Controlling for Supervisors and Specialists*, which described information systems of controlling that were developed by four Russian companies. In addition, the book gives practical recommendations in regards to the development of strategies for controlling departments with duty regulations for their supervisors. This book is a good educational material to consider when implementing controlling in a company.

In order to achieve the set goal, it is necessary to bear in mind the improvement of the effectiveness of strategic production cost management. In order to improve the effectiveness of cost management, it is necessary first to improve the entire organizational structure, the performance of all the main functions, strict adherence to all principles, and to improve the execution of correct managerial decisions that aim to optimize the utilization of all the company's resources (Nikolayeva, Shishkova, 1998).

The improvement of the effectiveness of cost management should begin with the improvement of management (production) cost accounting, the quality whereof determines the achievement of desired results of management cost analysis, which, in turn, affects proper management decisions making for the purpose of reducing per unit costs (Grove, 2015).

Based on the above, it is possible to conclude that the problem of improvement of the

effectiveness of cost management should be solved through maximum utilization of all the factors of improvement of cost management and ways of reducing production and sales costs.

4. Discussion

This research investigated the improvement of a complex system of strategic production cost management. Special attention was paid to the main factors that facilitate the improvement of production cost management. Since this issue is understudied in economic literature, the authors made the following suggestions:

1. In order to actually improve the competitiveness of domestic companies, including those of the petroleum industry, it is necessary to develop and implement a complex model of improvement of competitiveness on a high-quality basis, which implies the modernization of all economic processes, including the system of state participation in the economy and the determination of scientifically reasonable priorities of development.
2. It is necessary to use all the possibilities to evaluate objectively the optimality of the plan and take into account the extent, to which the company uses its production capacities (economic potential) and the internal and external conditions, in which the company has to function.

The research described the effect of the main factors on the improvement of production cost management, such as the improvement of the innovative activity of the production company, optimization of the output and production costs, and enhancement of the role of controlling.

5. Conclusions

Nowadays, all companies seek to win the harsh competition for the profitable sales of quality products with a reduced cost price based on the improvement of production cost management. Therefore, this research elaborated the problem of utilization of the effect of the main factors of the improvement of production cost management and offered ways to achieve this:

1. The planning of product output and its cost price can be improved if the supervisors and specialists of all levels of production management diligently perform their duties and search for and use all the reserves the company has at its disposal, with a view to improving the profitability of products.
 2. When improving the conditions for the improvement of cost management in combination with controlling and intra-managerial control, it is possible to maximally use the effect of all production factors and ways of cutting production costs, as well as the conclusion that controlling becomes a form of improvement of the functions of all the elements of the complex system of cost management, while its implementation is a new factor of its improvement.
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