COST MANAGEMENT OF THE ENTERPRISE: ANALYSIS, REGULATION AND REDUCTION OF COST IN THE ORGANIZATION (OJSC GZLiN)

Morakinyo Ojo Adetomiwa

Educational Institution «Sukhoi State Technical University of Gomel», the Republic of Belarus

Scientific supervisor T. G. Filchuk

The cost management system plays an important role in every organization within the decision making process. The detailed analysis of costs, the calculation of production cost, the loss quantification, the estimating of work efficiency provides a solid basis for the financial control. Knowing the costs represents a decisive factor for making decisions or planning future activities.

Cost management is the process of ascertaining and accumulating the cost of product or activity. It is a process of accounting for the classification, analysis, interpretation, and control of cost.

Cost management is the process of accounting from the point at which expenditure is incurred or committed to the establishment of its ultimate relationship with cost centers and cost units. In the widest usage, it embraces the preparation of statistical data, application of cost control methods and the ascertainment of profitability of activities carried out or planned.

For cost management to be effective, it is important to identify and display all the costs of the enterprise. To do this, it is necessary: to carry out cost planning, defining guidelines for cost management, execution and control; determine the budget, evaluating all the financial resources necessary to regulate the effectiveness of all company activities; control costs by tracking all variable and fixed costs of the institution, as well as expenses and losses, updating the cost base and budget; frequently analyze the information in order to identify unnecessary expenses and better business opportunities.

The analysis of costs and directions for their reduction was carried out on the basis of data from an open joint-stock company “Gomel Casting and Normals Plant” (OJSC “GZLiN”), located in the city of Gomel. Currently, OJSC “GZLiN” is a modern industrial organization with a fairly high potential, with sophisticated equipment and qualified personnel.

The company carries out the following main activities: agricultural machinery production; production of castings from iron, steel and non-ferrous alloys; manufacture of mechanical fasteners (bolts, nuts, pins, rivets, axles, etc.); manufacturing of foundry equipment, non-standard equipment; production of cold heading tools, dies.

One of the most important areas of financial and economic analysis is the analysis of the cost. The cost structure is presented in table 1.

The table 1 shows material costs have the largest share in the cost structure. Their share decreased from 57.03% in 2017 to 54.93% in 2020. Labor costs are in second place. Their share increased from 27.73% in 2017 to 30.58% in 2019, but in 2020 their share slightly decreased to 29.84%.

Table 1

The cost structure at OJSC "GZLiN" for the 2017–2020, %

Elements of costs	Period %				Deviation (+, –)		
	2017	2018	2019	2020	2018 related to 2017	2019 related to 2018	2020 related to 2019
1. Material costs	57.03	53.36	54.05	54.93	–3.67	0.69	0.88
2. Labor costs	27.73	27.90	30.58	29.84	0.17	2.69	–0.75
3. Social security contribution	9.73	9.77	10.70	10.61	0.04	0.93	–0.10
4. Depreciation	0.04	5.03	0.42	0.26	4.99	–4.61	–0.16
5. Other costs	5.46	3.94	4.24	4.36	–1.53	0.30	0.12
Total costs	100	100	100	100	–	–	–

The dynamics of costs at OJSC "GZLiN" for the 2017–2020 is shown in figure 1.

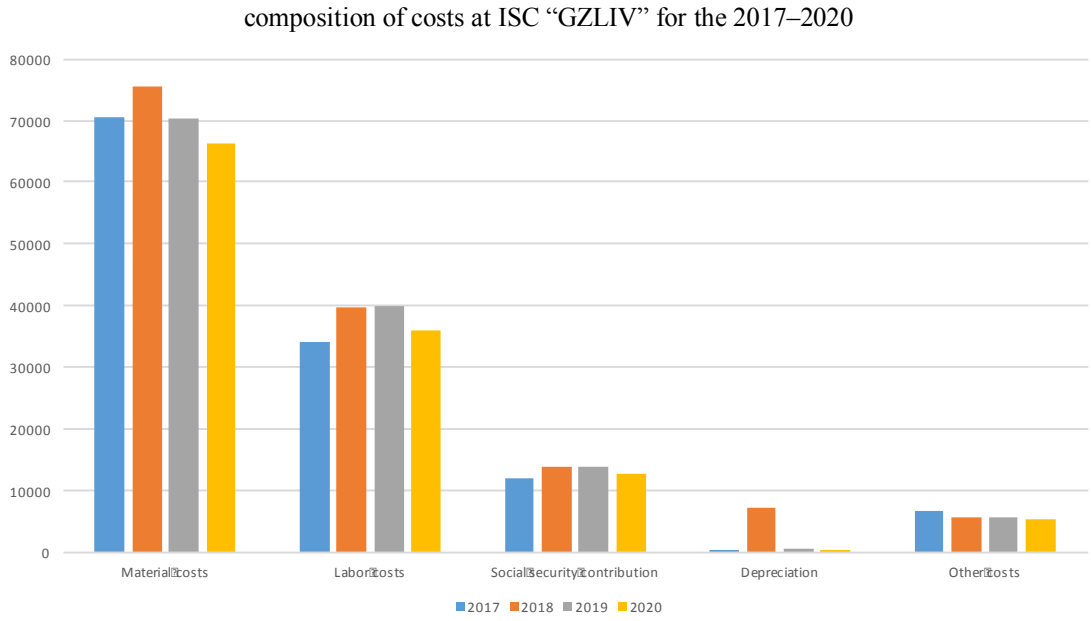

Figure 1. The dynamic of cost 2017–2020 (thousand rubles)

The total amount of costs increased in 2018 compared to 2017 from 123444 to 141798 thousand rubles. However, in 2019 and 2020, the costs decreased and amounted to 130242 and 129813 thousand rubles, respectively. This situation is associated with a decrease in the volume of production. Material costs are the most important in the total cost. Their dynamics is similar to the dynamics of total costs. Labor costs are the second largest in terms of total costs. However, their dynamics is different: growth occurs during 2017–2019, there was a decrease in 2020.

The effectiveness of the cost management system can be assessed using the cost per ruble of manufactured (sold) products (table 2).

Table 2

The cost per ruble of products sold at OJSC "GZLiN" for the 2017–2020

Feature Name	Period			
	2017	2018	2019	2020
Revenues from sales of products, goods, works, services, thousand rubles	139412	161514	135168	129987
Cost of products sold, goods, works and services, administrative expenses, expenses on realization, thousand rubles	129045	139949	126551	123820
Cost per 1 ruble of products sold, ruble	0,93	0,87	0,94	0,95

The indicator of costs per 1 ruble of production shows the ratio of the total cost to revenue, which can be calculated both for manufactured products and for sold ones. It is easier to calculate this indicator for products sold, since the cost and revenue values can be taken from the income statement (appendix to the balance sheet OJSC "GZLiN" "Profit and Loss Statement" for the 2017–2020). The lower the score, the better, the greater the profit. If the value of the indicator tends to 1, then the profit of the organization tends to zero.

The table 2 shows that the cost per ruble of sold products is high and continues to grow. 2018 is an exception, the value of the indicator decreased to 0.87. The results indicate a low efficiency of production activities and a high level of production and sales costs, especially material costs.

Production costs occupy the main place in the cost structure of an industrial enterprise, concentrating the results of all areas of its activity. The problems of managing production costs affect the solution of issues of planning, accounting, analysis, cost control, and reducing the cost of production. It is important to determine the basic principles that an enterprise should be guided by when choosing an option for organizing a production cost management system, identify the purpose and roles of this system in the overall management of an enterprise, and correlate these roles with the current and future tasks of the enterprise, as well as its specifics. Currently, the processes of managing production costs at the enterprise do not have the necessary level of consistency and flexibility. There are a number of problems, the presence of which is largely due to the following circumstances: lack of due attention to the analysis of the external business environment when structuring production cost management processes, difficulties in choosing cost management methods and implementing these methods, insufficient development of criteria for assessing the effectiveness of production cost management.

To improve the cost management system at OJSC "GZLiN", it is necessary to collect information and test tools and methods to determine how management decisions affect the cost.

Directions for improving the cost management system at OJSC "GZliN":

– materials or resources used in the performance of the organization's activities should be accurately measured;

– an assessment of the impact of costs on the change in the activities of OJSC "GZLiN" was carried out;

– the amount of wear and tear of the organization's machines or equipment was checked;

– conducting external and internal analysis of the organization's activities.

External analysis of the organization's activities will allow:

– provide aggregate indicators of the value of stocks and the cost of goods produced;
– provide the total cost of raw materials, materials and components from suppliers.

Internal analysis of the organization's activities includes:
– providing information on costs for making strategic management decisions;
– providing information on expenses for operational control;
– providing information on the cost of goods sold, works, services, management costs, sales costs;
– analysis of labor costs, labor efficiency, production cost per employee and employee working time;
– study of all indirect costs.

Thus, the identification of weaknesses, priority areas for improving the cost management system, ways to improve it will allow OJSC "GZLiN" to reduce the cost of production and sales of products, as well as increase the level of efficiency of economic activity.

ЭКОНОМИКО-МАТЕМАТИЧЕСКОЕ МОДЕЛИРОВАНИЕ ОПТИМИЗАЦИИ РАСХОДА МАТЕРИАЛА НА ИЗДЕЛИЕ

Н. Г. Малашков

Учреждение образования «Гомельский государственный технический университет имени П. О. Сухого», Республика Беларусь

Научный руководитель Е. А. Кожевников

В производственном процессе для изготовителя наиболее важно получить выгоду от своего производства, вследствие чего он ищет лучшие варианты для оптимизации, например, замена технологий и материала на более дешевые. В таких случаях качество производства падает и спрос на данное изделие уменьшается. Но существуют способы оптимизации изготовления изделий без большой потери качества с уменьшением затрат на производство.

Был проведен эксперимент по расчету стоимости производства зубчатого колеса диаметром 33 мм. Общий вес изделия составляет 0,28 кг. Для примера была взята сталь AISI 1035. Стоимость 1 кг стали AISI 1035 на белорусской бирже стоит от 1940 до 4000 белорус. руб. за тонну. Зубчатые колеса производились на заводе методом копирования.

После получения данных была создана 3D-модель зубчатого колеса и проведено исследование топологии для нахождения мест с наименьшей нагрузкой при работе для последующей обработки и удаления ненужного материала. В нашем опыте были заданы параметры для уменьшения веса изделия на 30 %. После анализа была получена необработанная модель шестерни весом в 0,2 кг. После обработки изделия она будет пригодна для использования в производстве.

Также для оптимизации производства было решено заменить материал для изготовления шестерни со стали AISI 1035 на сталь 35. Свойства данной стали не отличаются от AISI 1035, а ее стоимость составляет от 1150 до 1267 белорус. руб. за тонну, и при замене стали AISI 1035 на сталь 35 производитель получит выгоду в 59,30 %.

После анализа зубчатого колеса и замены ее материала был поднят вопрос о замене технологии производства. После изучения возможных способов производства зубчатых колес был выбран метод обкатки, так как при помощи такого метода получались более точные и качественные изделия.

После всех исследований получили зубчатое колесо из стали 35 весом 0,2 кг на фрезерном станке методом обкатки. Проанализировав все варианты оптимизации, получили оптимизацию производства на более 60 %.