

I. BONDAR, Senior Lecturer,
O. KRAVTSOV, Associate Professor,
I. KARAPYSH, Student
Kryvyi Rih National University

CRITERIA AND LIMITS OF THE OPTIMAL DURATION OF REPAIRS AS A FACTOR OF INCREASING COMPETITIVENESS

In the modern environment, enterprise potential management is becoming increasingly important in theoretical studies of economic science and practical activities of enterprise managers. One of the most time-consuming tasks in theory and practice is the task of building organisational, economic and managerial mechanisms for forming a development strategy, the most important component of which is the mechanism for forming an efficiently functioning potential. In this case, each structural element of the enterprise potential. Each structural element can also be considered as an independent system within a higher-order system according to the criteria of subordination. Therefore, when describing the structure of the enterprise's potential, an integrated approach should be used that combines the resource and functional management methods.

Within the possible duration of the equipment repair cycle due to physical wear and tear, there are infinitely many different options for the standard duration of the repair cycle of the machine. The task is to choose the option that best corresponds to the improvement of economic indicators characterizing the use of this machine.

Various optimization criteria are used to determine optimal repair periods and equipment service life. For example, an optimization criterion may involve the minimum cost of repair and depreciation, as well as the minimum current costs per unit of output produced by the machine, and the minimum costs per unit of output produced by the machine in operation.

The minimum present value of costs is the most general of these criteria. However, it only reflects the payback period of additional capital investments but not their full value. In addition, it does not take into account the possibility of increasing the profitability of production not only by reducing the cost of production, but also by increasing the amount of produce.

If the maximum profitability of the machines is chosen as a criterion for optimizing machine durability and the repair cycle duration, the following can be reached.

Profitability R_1 is known as the ratio of profit P (the difference between annual output expressed in wholesale prices QPr , where Q is the annual volume of products (works), Pr is the selling price of a unit of production, and production costs, 3 is the average annual cost of production assets, F is the sum of the balance sheet value of fixed assets and working capital:

$$R_1 = \frac{P}{F} = \frac{QPr - 3}{F}$$

It is advisable to use the highest average profitability of equipment operation per unit of time, e.g. a month or a year, during the entire repair cycle as the optimality criterion. At that, when studying duration of equipment repairs, one month period should be chosen for the most accurate depiction of dynamics.

The Monte Carlo method uses random simulation to approximate calculation of complex quantities. The basic principle consists in the following: the average of the results of a large number of random tests will approach the true value of the sought-for one.

Implementation of the mechanism of innovation potential management in the mining industry makes it possible to direct investment flows to the best areas of innovation activity. In addition, the system makes it possible to optimise the use of technical innovation potential components, such as the cost of repair, replacement, and the reserve of fixed assets.