

Model of an Estimation of Potential of the Industrial Enterprise

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Abstract

The model of an estimation of potential of the enterprise is offered. The model takes into account the following factors: labour potential, financial opportunities, an infrastructure, the industrial environment, the information environment, marketing potential, a condition of production (stability and reproducibility), administrative potential.

Keywords: potential of the enterprise, model, stability and reproducibility of process of manufacture, statistical methods

Introduction

The issue of sustainable development of the company associated with the formation and maximize its full potential - organizational and economic potential. Despite the urgency of the problem, despite the variety of work in the field of socio-economic systems, this problem remains unsolved [1, 2, 3].

The Results of Studies

We propose a model of evaluation of organizational and economic potential of the construction materials industry enterprises, based on consideration of the following components: labor potential Q_1 , financial capacity Q_2 , Infrastructure Q_3 , production environment Q_4 , information environment Q_5 , the marketing potential of Q_6 , the state of the production process Q_7 , management capacity. Unlike known models it includes - Stability and reproducibility of the production process Q_8 . Stability and reproducibility are evaluated for indices C_p and C_{pk} reproducibility and characterize the capabilities of the manufacturing process [4, 5]. To quantify the factors that determine the organizational and economic potential of the system was developed in private, comprehensive and integrated indicators. The author proposes the following model of organizational assessment - economic potential of industrial enterprises of building materials:

$$K_n = \alpha_1 Q_1 + \alpha_2 Q_2 + \alpha_3 Q_3 + \alpha_4 Q_4 + \alpha_5 Q_5 + \alpha_6 Q_6 + \alpha_7 Q_7 + \alpha_8 Q_8 \quad (1)$$

where K_n - organizational and economic potential of the company, points;

α_i - the weight of the i-th factor;

Q_i - assessment of the i-th factor, points;

The most significant factors are a condition of production ($\alpha_7=0,166$), financial resources ($\alpha_2 = 0,170$), management ($\alpha_8 = 0,175$).

Maximum capacity assessment of the enterprise may be Using the potential of the company proposed to calculate the formula

$$y_{com.} = \frac{K_n}{K_{max.p.}} \quad (2)$$

where $K_{max.p.}$ - the maximum possible potential of the company, equal to 5.0.

$y_{com.}$ - an indicator of the use of building.

Table 1 summarizes the main features of the situation in different settings, the use of the potential of the enterprise.

The level of capacity, equal to $y_{com.} = 0.75-1.0$, characterizes the company with a high degree of stability, rising profits, cost-effectively, the maximum values of performance indicators.

At the level of capacity utilization, equal to $y_{com.} \geq 0,5$, it is possible through the use of investment, improving technology, the use of statistical methods for

quality control and management products to increase profitability, reduce production costs. If the value of the level of capacity utilization is equal to $y_{com.} \leq 0,25$, the company is not viable.

Table 1

The level of utilization of the potential of the enterprise

Value $y_{com.}$	Key features of the situation
0,75 - 1,0	a high level of capacity utilization for the enterprise; stability of production and social situation in the workplace; minimal additional costs of production, minor glitches and system failures when creating the final product; high profit
0,75 - 0,5	additional increase in production costs and the availability of system faults and failures; the average level of use of the potential competitiveness of the enterprise; low degree of stability to ensure product quality indicators; low degree of stability of production and social situation.
0,5 - 0,25	additional increase in production costs and the availability of system faults and failures; low level of use of the potential use of the potential competitiveness of the enterprise; low degree of stability to ensure product quality indicators; low degree of stability of production and social situation.

With limited financial reserves are significant opportunities laid down in the regulation of the status of the production process and management process based on statistical thinking. Ensure stable product quality requires improvement of production processes based on scientific approaches to the study of their stability, efficiency and effectiveness. Only comprehensive solutions, including process monitoring, implementation of corrective and preventive actions, the use of statistical methods, will improve the quality and enhance the competitiveness of products.

Statistical thinking - a methodology, based on the understanding of the variability inherent in any process, diagnostics their stability and reproducibility, and uses simple and effective methods to analyze and solve problems [6].

We calculated the change in the potential of the enterprise, if we apply the statistical quality control of products. The results of calculation show that the use of only the methodology of statistical thinking in quality management of construction products will significantly increase the potential of the company [7].

For example, in the company of Open Joint Stock Company "RCS-1" capacity increased from 3.95 to 4.466, and Society to the limitations liability "Construction materials" - from 3,129 to 3,654 (Table 2).

Table 2

Changes in the organizational and economic potential of industrial enterprises of building materials

Name of enterprise	Indices			
	Organizational and economic potential of the implementation of the developed recommendations to	Using organizational and economic potential to the implementation of the recommendations developed by the	Organizational and economic potential after the application of the developed recommendations	Using organizational and economic potential after the introduction of developed recommendations
Open Joint Stock Company "RCS -1"	3,95	0,78	4,466	0,884 (13,3%)
Society to the limitations liability "Building materials"	2,352	0,46	3,034	0,60 (30,4%)
Open Joint Stock Company «Domostroitel»	3,129	0,619	3,645	0,7217 (16,5%)
Open Joint Stock Company «Kar'eroupravlenie»	2,059	0,4077	2,907	0,5756 (41%)

The note. In brackets are resulted value of growth of a level of use of organizational - economic potential, %. Thus, application of the developed

recommendations will allow to characterize the enterprise with a high level of use of potential of the enterprise, stability of an industrial and social situation in manufacture, the minimal additional production costs both insignificant failures and refusals of system at creation of end production (of "RCS -1").

Other enterprises, despite of increase of potential of the enterprise, are still characterized by growth of additional production costs and presence in system of failures and refusals, a low degree of stability of maintenance of parameters of quality of production.

Conclusions

For such enterprises an obligatory condition is application of engineering tools (methodology «six sigma», functions of expansion of quality QFD, methods Taguchi, etc.).

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