

## ECONOMICS

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### LEAN PRODUCTION CONCEPT AND OPPORTUNITIES FOR ITS IMPLEMENTATION IN THE REPUBLIC OF BELARUS

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*Implementation of lean production concept is carried out at industrial companies in many developed and developing countries of the world community. The Republic of Belarus is no exception: the tools and methods of lean production are used with great success in our companies.*

**Introduction.** Today, in the conditions of fast development of market relations and high competition, it is extremely important to introduce a technology or system that would be able to minimize and possibly even avoid various types of losses associated with production [1]. Such system exists and is called "Lean Production" [2]. Lean production is a real method of optimizing production activities. The main creator of Lean production is Taiichi Ono, that introduced the concept in the Japanese company Toyota Motor Corporation in the 50s of the last century [3]. Lean production is used in many European countries and in the United States of America – both in the production and non-production areas. In recent years, there have been successful attempts to implement the Lean Production concept at the industrial enterprises of the Republic of Belarus.

**Results, their discussion and perspectives.** The Lean Production concept helps to increase the importance of the product at each stage of production. Thanks to this, it is possible to make the final price significantly less, which makes the company more competitive in the market. Thus it is advisable to use various lean production tools at Belarusian enterprises in different industries in order to expand their market opportunities.

The analysis of methods, technologies and tools for implementing the system is essential. Based on its results, in the future, you can use your own experience to look for ways of improving the competitiveness of the enterprise, reducing its losses, as well as increasing productivity both at this enterprise and by other business entities of the Republic of Belarus.

Today there are already enterprises in Belarus that were the first to implement the Lean Production micrologistic system and at the same time achieved an improvement in the values of economic indicators, which evidence the effectiveness of this concept.

An example of the introduction of new production organization technologies is the Management Company of the Belkommunmash Holding, a leading manufacturer of urban electric transport rolling stock in Belarus and the CIS countries [4]. The main goal of the project was to minimize the production costs and the time required to create the final product, while maintaining the high quality of the product and observing the guaranteed delivery times. The company's interim goals were to increase production volumes (from 45 to 60 units per month); reducing the duration of the production cycle by 40%, increasing the turnover of working capital (from 170 to 60-70 days); optimizing the level of capacity utilization [5]. As a result, the use of lean production tools helped to reduce the duration of the production cycle, as well as reduce defects – by half. Finally, financial savings at the enterprise amounted to more than 10 million US dollars [5]. The lean production concept has helped the company to eliminate many types of losses that do not add value to the final product. The quality of our products has significantly improved.

It should also be noted the success of LLC "Machine-Building Enterprise "COMPO" and JSC "Borisovsky Aggregate Plant", which successfully uses such a lean production tool as the "5S" system, which includes five main strategies: sort; set in order; shine; standardize; sustain [6, 7]. At the same time, these enterprises are working on the introduction of such a lean production tool as the "Kanban" system, which involves the use of information cards. These cards are used to transfer the production order from the subsequent operation of the production process to the previous one. The application of these principles has led to more than twice increase in productivity at JSC "Borisovsky Aggregate Plant", and at LLC "Machine-building Enterprise "COMPO" – in more than four times.

If we analyze the activities of enterprises that use the concept of lean production in practice, then in the end they achieve the following main results:

- reducing the level of defects by 90%;
- reduction in production cycle time by 90%;

**Economics**

- decrease in the level of inventory by 90%;
- reduction in total costs by 73%;
- intensification of the development of a new market from 50 to 75%;
- increase in labor productivity up to 70%;
- the release of production areas up to 50% [2, 3].

**Conclusion.** The Lean Production system is a consolidation of innovative technological opportunities that should be available in the work of every modern industrial enterprise in Belarus. The introduction of the tools and methods of the concept has a positive effect on the ability to successfully develop the enterprise. An equally important result of using the system is an increase in both economic and technological efficiency, which will help organizations to reinforce their competitive positions in sales markets, as well as open up horizons for the development of new markets and, most importantly, to produce and sell high-quality competitive products in demand.

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