The introduction of lean production principles at OJSC “Velikonovgorodsky Myasnoy Dvor”

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Abstract. The concept of “Lean Production” is one of the most promising directions for the development of modern processing industries. In addition to the development of equipment and technologies, in terms of ensuring the quality and competitiveness of enterprises, we must not forget about the main factor for encouraging development and stable work – human resources. It is the competent management work with specialists that promotes the optimization of technological processes, reduces production costs, and promptly solves emerging problem situations with the development and implementation of a corrective action plan. The article considers the introduction of the lean system at one of the largest processing enterprises in the North-Western region of Russia – OJSC “Velikonovgorodsky Myasnoy Dvor”, Veliky Novgorod. The company started implementing this concept only recently – in 2019 and has not yet managed to get significant financial results. At the moment, the company's specialists are at the initial stages of the lean production system implementation - the types of losses that occur at the enterprise have already been identified, and measures to eliminate these losses have been worked out. During the new system’s implementation period, it was found that the proposals for a technical improvement received by the management from ordinary employees of the enterprise are difficult to implement in the production process, as this complex task requires quite a lot of time. Only 18% of all proposals for a technical improvement were put into production throughout the concept implementation period. However, even such a small number of implemented ideas brought the company significant economic profit, which makes it possible to call the lean system introduction at processing enterprises a promising task.

1. Introduction
The philosophy of Lean Production, as a component of the Lean System, with its tools, which imply the effective use of the new technologies implementation potential and professional initiative of personnel, has already found wide application in a variety of industries. This philosophy's methods have been applied at some enterprises of processing industry of Russia. At the moment, leading food enterprises are beginning to implement the Lean System, since this approach provides additional profit from the use of their own resources (in particular, human resources); ensures the competitiveness of entrepreneurial establishments due to the implementation of the Lean Production concept [1].

Today, the main problem of the “Lean Production” system's development in Russia is the lack of professionals who have sufficient experience in optimizing production processes by implementing this
“Lean Production” technology. In addition, its implementation involves significant financial costs (which later pay off, but not immediately, gradually).

Lean Production tools implementation and the enterprise productivity improvement is a long process. It doesn't always bring the desired results instantly. Approximately 20% of companies, having taken the first steps, refuse projects, considering them ineffective, and their implementation too labor-intensive. While developing their production system, the main mistake of most companies is the lack of a well-developed action plan and a comprehensive approach to implementing productivity tools. This leads to delays in the implementation of the project, to disappointment from the planned indicators that were not reached, or to its closure due to inefficiency [2].

Successful companies that effectively use “Lean” technologies have the following characteristics:
1. People are the basis of the production system of such enterprises. It is the staff that is the creative force in the production of competitive products.
2. Production systems of “Lean” enterprises are focused on complete elimination of losses and continuous improvement of all processes.
3. The company's top management works for the future: decisions that take into account the further development of production, but not instant profit, are made [3].

The effective management - staff interaction is an important aspect of complex lean system technologies implementation. Only the combined use of the competence resources of each team member (from workers to management representatives) will allow to achieve a significant increase in labor productivity. The institution of respect for professionals – representatives of working professions that are the basis for effective management of any production, which has been severely shaken in recent decades, must be restored, otherwise the introduction of the “Lean Production” system is impossible. Folk savvy, based on many years of experience of “old-timers” - this is not just nostalgic moments of the past. People “from the machine” are able to bring such innovative ideas that reduce equipment downtime (up to 20 times), reduce the output of waste (up to 50 times), reduce the duration of the production cycle (up to 100 times), etc.

The interest of each employee in the result of work is an important basis for effective interaction of all team members of the company and for the formation of a new corporate culture. A specialist of any rank works effectively and brings maximum benefit to his company only if he gets satisfaction from his activities – material or moral. Thus, in the research of Gaboyan A. G. et al. the possibility of effective use of model-methodical and informational tools for rating all employees of the enterprise by the criterion of their quantitative and qualitative participation in “Lean Production” events is shown [4]. However, the research group of scientists of Institute of Economics, Urals Branch of the RAS noted that high innovative activity of managers of Russian enterprises is possible only under condition of bilateral stimulation system – that is necessary not only to encourage employees in innovative activity, but also to establish responsibility for her absence [5].

The development of a new concept at domestic enterprises is still at its initial stage and, as a rule, is represented by technological developments either of Soviet plants or of Western companies localized on the territory of the Russian branches. This situation is due to the fact that there is often a lack of understanding of a simple fact - to start implementing a Lean Production system, there is no need to immediately deploy large-scale activities that cover the entire production process. Although in order to start getting the first tangible results, it is possible to use only some simple elements of lean technology at the initial stage, which can provide an increase in labor productivity by 1.5-2 times.

Local implementation of lean technologies in general is a closed cycle including five steps (figure 1).
The first step in implementing the technology is to collect facts (standards used in the enterprise, statistical indicators obtained from accounting and control systems, measuring devices, photo and video recording systems, etc.) and data about the problem (the subject and cause of the violation, opinions of participants in the production process, previous experience, etc.). As a result, a list of problems and sufficient amount of information on them is formed.

The second step is to analyze the information received and search for the original root causes of the problems. This is a very important stage, because to get a sustainable result, it is necessary to work with the cause of the problem, and not with its consequences.

After identifying the root causes of the problem, the next step to be taken is to generate ideas for rationalizing production processes. Therefore, the third step is to find possible solutions.

At the fourth step, the proposed solutions are comprehensively evaluated in terms of their effectiveness, in order to determine the most preferred ones, with the subsequent development and implementation in the production process. At this stage of the system implementation strategy, it is very important not to miss the moment of interconnection of production processes – any changes at one point in the technological cycle lead to changes in adjacent production stages.

Moreover, the fifth step – standardization, which is the most important in the process of optimizing processes, and which many domestic enterprises, unfortunately, often forget about. With this step of implementation, the result is fixed, with stable implementation of the result in production activities, it becomes impossible to “roll back”. It is the results of the fifth step that determine the effectiveness of the implemented measures and enable to make final conclusions. After the process is improved, its content and parameters changed, it is possible to return to the first step. The iterative nature is the optimization is concluded in this cycle: there is no limit to improvement [6].
2. Objects and methods of research

The object of the research was the formation and development prospects of the “Lean Production” system at the Open Joint-Stock Company “Velikonogorodsky myasnoy dvor” (OJSC “VNMD”), Velikiy Novgorod.

In the process of research, such methods as analysis, synthesis, deduction, and economic analysis were used.

3. Results and discussion

The beginning of the formation of the “Lean Production” theory at the open joint-stock company “Velikonogorodsky Myasnoy Dvor” (OJSC “VNMD”) dates back to 2019.

“Velikonogorodsky Myasnoy Dvor” is a modern meat processing enterprise with a full cycle of processing of agricultural products. The company has been the largest plant in the North-Western Federal district of the Russian Federation for more than 25 years. OJSC “VNMD” has an annual production and sales volume of more than 36,000 tons [7]. In 2019, OJSC “VNMD” became a participant in the “Labor Productivity and Employment Support” international project, the long-term goal of which is to achieve a 5% increase in labor productivity compared to the previous year [8].

As part of the national project implementation, the participating enterprises need to increase their labor productivity annually by introducing Lean Production tools and continuously improving their production systems [9].

At the initial stages of implementing the provisions of the Lean Production concept at the OJSC “VNMD” and identifying problems, losses and opportunities for improvement, a working group consisting of managers and specialists of the enterprise came to the conclusion that the company has all seven types of losses described in numerous literature on Lean production. The analysis and further work aimed at eliminating these losses are required. A significant contribution to the solution of the identified problems and development of measures to address the major losses was made by ordinary employees that perform operations related to the production directly in the workshop. They informed the management that, along with the elimination of the seven major types of losses, particular attention should be paid to the eighth, called “the loss of intellectual capital” [10], which implies that the intelligence of employees is crucial for the improvement of production processes.

Consequently, in order to maximize the involvement of employees in activities aimed at improving production processes, OJSC “VNMD” has developed a “Regulations on submitting and stimulating proposals for a technical improvement”, which describes the procedure for submitting proposals for improvement, conditions for encouraging the authors of proposals for a technical improvement and employees involved in the implementation of such proposals.

Within 3 months (from January to March 2020), the employees of OJSC “VNMD” submitted 33 proposals for a technical improvement (PTI), 9 of which (or 21% of the total number of registered PTI) – with economic effect (figure 2).

The analysis of the information presented in figure 2 indicates a low share of proposals with economic effect in the total number of proposals for a technical improvement, which is most likely due to the current stage of the Lean Production implementation at the enterprise. These are mainly “simple” (visible, not significantly affecting the processes, not requiring significant costs, analysis and calculations) proposals for a technical improvement.
Figure 2. The share of proposals for a technical improvement with an economic effect in the total number of proposals for a technical improvement submitted by employees of OJSC “VNMD” in January-March 2020.

Of the 9 submitted proposals for a technical improvement, only 2 (18%) were implemented by the end of March 2020 (figure 3), which also indicates a small share of implemented proposals and a low speed of decision-making on the issues under consideration.

Figure 3. The share of implemented proposals for a technical improvement with economic effect in the total number of proposals for a technical improvement with economic effect submitted by employees of OJSC “VNMD” in January-March 2020.

However, the expected estimated annual economic effect of only two implemented proposals for a technical improvement is more than 900,000 rubles, which is 15 times higher than the level of implementation costs (about 60,000 rubles) of the submitted proposals (figure 4).
Figure 4. Expected estimated annual economic effect from the implementation of proposals for a technical improvement, thousand rubles.

4. Conclusion
Thus, despite the problems and mistakes that occur in companies during the introduction of the “Lean Production” system, the use of its tools allows companies to increase their efficiency by eliminating losses, involving the maximum number of employees in the improvement process, directing their intellectual potential and abilities to the development of particular processes, and generally, the entire company. This effect is achieved through a simple but effective tool – “Regulations on submitting and stimulating proposals for a technical improvement”, which allows solving problems on a daily basis, one by one, forming a culture of continuous improvement in the enterprise, contributing to the development and improvement of the company's efficiency, stability and competitiveness.

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