

**ENHANCING PRODUCTION EFFICIENCY: INNOVATION AND HUMAN CAPITAL
PERSPECTIVES**

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Abstract

This study explores practical approaches and future prospects for enhancing production efficiency, emphasizing the crucial role of innovative development and human capital. Modern enterprises face increasing competition and rapid technological changes, making it essential to implement innovative technologies, optimize labor skills, and foster a culture of continuous improvement. The research highlights methods such as automation, digitalization, lean production, and workforce development as key drivers of efficiency. Integration of human capital and innovation not only improves productivity and product quality but also ensures sustainable growth and competitive advantage in global markets.

Keywords

Production Efficiency, Innovation, Human Capital, Automation, Digital Technologies, Lean Production, Workforce Development

In increasing production efficiency, innovative development and human capital are interrelated, mutually reinforcing factors. When innovation brings a new technology, a new process, a new product, or new management methods to an enterprise, human capital is the main resource that allows these innovations to be adopted, implemented, and transformed into sustainable results. In this sense, sustainable growth in efficiency is ensured not only by updating equipment, but also by developing knowledge, skills, motivation, and management culture. Human capital is theoretically considered as a set of knowledge and skills, health, labor discipline, and socio-psychological factors of employees; in practice, it has a measurable effect on the enterprise in terms of labor productivity, quality stability, reduction of losses, and increased innovative activity [2]. Innovative development, on the other hand, enhances the ability of an enterprise to adapt to change: such areas as process redesign, transition to digital management, energy efficiency, deepening quality systems, and strengthening cooperation in the supply chain give a systematic result precisely through an innovative approach [1][3]. Thus, if human capital is the “engine” of innovation, then innovation acts as a “mechanism” that transforms human capital into efficiency. Highly qualified personnel are the basis for the successful operation of an enterprise, and therefore, for additional income. The professional skills of a specialist combine all the knowledge acquired during his studies and characterize how his skills can benefit the organization. In the current conditions of rapid development and improvement, the study of technologies and the process of upgrading skills associated with the gradual obsolescence of previously acquired knowledge is gaining importance. In the modern economy, highly qualified specialists occupy a special place, ensuring the effective production and application of personnel who can create innovative products and ensure their effectiveness. There is no single correct answer to the question of how to properly motivate employees. Each company seeks it through trial and error. Motivating employees, if approached comprehensively, should include various types of incentives - material and non-material, individual and collective.

You should also have "anti-incentives" - fines and other sanctions. For incentives to work, certain rules must be followed:

Requirements for the effectiveness of incentives

Every incentive should be open to every employee, and the terms of the incentive should be transparent and understandable.
the incentive must be significant (the threshold for incentive sensitivity can vary significantly across companies)
gradualness (from a small reward to a more significant reward without unexpected jumps)
Minimize the gap between the result of labor and its payment (less, but immediately)
a combination of material and non-material incentives (both groups of incentives are equally strong)
The combination of incentives and "anti-incentives"

The combination of incentives and disincentives is the correct organization of a motivation system to increase the labor efficiency of employees in the enterprise and production process. Incentives are tools that encourage employees to do active, creative and goal-oriented work. Disincentives are factors that lead employees to make wrong decisions in the work process and reduce efficiency

Incentive and disincentive factors affecting employee performance

Incentives	financial incentives: bonuses, awards, high salaries	Anti-competitive	improper organization of work, excessive pressure or unclear goals
	intangible incentives: recognition, promotion opportunities, advanced training courses		incorrect allocation of time and resources
	working conditions: comfortable workplace, safe work, flexible work schedule		working with unskilled employees or failure to adapt to new technologies

Adaptation is the balancing of incentives and disincentives, that is, maximizing labor efficiency by motivating employees and reducing the impact of negative factors. For example, if training employees in new technologies in automated processes is an incentive, then not supporting them is considered disincentive. The combination of incentives and disincentives increases the efficiency of the enterprise, optimizes the production process, and increases employee loyalty. Material motivation. This is, first of all, wages. For ordinary employees, it should be decent, sufficient for living. That is, its amount should be commensurate with the minimum consumer basket. The employee should know how his salary is formed and how bonuses are calculated. He should clearly understand how and under what conditions he can increase his salary and receive additional bonuses. When a person knows how much and why he will receive, he is encouraged to work and achieve results. An important part of material motivation is the social package. Usually it includes payment for mobile communication, lunch, transportation costs, provision of

company products, free training. A strong social package is a strong argument in favor of the employer. Example. Effective motivation with low wages - from among the residents of the Tashkent region, cleaners of industrial buildings were hired for a foreign enterprise for a low salary. The following were among the main motivations for employees:

- official employment;
- training and professional certification;
- providing recommendations for finding a new job in international hotels after 1.5 years of work in the company.

There are other types of material motivation that help retain employees. These are payments for treatment, loans for training or mortgage payments, the opportunity to purchase company shares. Gifts for employees also work well. When deciding what to give for the holiday, it is better to conduct a survey among employees so that a similar situation does not repeat itself, such as a vacation outside the city in question.

But no matter how great the material motivation is, it is not enough. You quickly get used to good things and want even more! Experts say that a person gets used to a new income after about 3 months and then takes it for granted. At the same time, highly paid employees in responsible positions may accumulate fatigue from workloads, a lot of work, the inability to maintain a balance between work and personal life, etc. It is hard to believe, but such employees may feel trapped: they cannot even spend their money as they would like, because there is not enough time for anything except work and sleep. Everyone has a family, children, parents, needs rest, cultural and entertainment activities, as well as personal time and space.

Non-material motivation. The most important motivator for a person is the coincidence of his values with the values of the company he works for. Determine what a person needs for happiness and compare it with what the company can offer. This is a surefire way for a company to hire a suitable employee who is a good fit for it and makes working there a pleasure. A manager is an unexpected but very important motivator (or demotivator). If it is comfortable to work with him, this aspect will keep the employee in the company for a long time, contributing to satisfaction at work. Clear goals and requirements, as well as regular assessment of achievements by the manager, are powerful motivating factors. Training and development are the most important conditions for employee retention. Develop an internal training system, career development programs. This will encourage people to stay in your company and grow. Example Effective motivation through coaching The company recruits and trains coaches from among its employees, who, in turn, teach and share their experience with newcomers. Moreover, their position, work experience or qualifications do not matter, the main thing is desire. The intern is given a specific training program that corresponds to his level of training, they are trained, and they are helped to become a coach. "Reward" over time. During the pandemic, many employees switched to remote work, which gave them great advantages in distributing their time. For the 3rd year in a row, many companies have not been able to bring their employees back to the office. Indeed, time is the most valuable resource, which is why there are countries that are currently switching to a 4-day work week, and many companies have introduced a hybrid work format - 2 days in the office, 3 days at home. The possibility of "rewarding" employees with flexible schedules and time off is a powerful motivator and reason to stay in the company. Technology companies are offering various solutions to automate processes, track work hours and monitor the performance of tasks for employees who need a flexible schedule so that the work process does not suffer, and to achieve goals. Gaming or gamification can also be called an intangible motivation trend. It includes various types of competitions, challenges and contests that can be created in the workplace. For example, for achieving work goals, employees receive "stars" that can be exchanged for some material incentives, gifts. Or – at the end of the month,

employees are rated, and the winners who take first place receive lunch with the manager, concert tickets, massage sessions or something more significant, for example, an interesting project or promotion. All this helps employees feel recognized. Game methods are also used in the processes of training and adapting employees, familiarizing themselves with the company. Corporate training platforms, mobile applications and chats in messengers help in this. Real tournaments, competitions, team building are held with the same goals. However, it is very important not to overdo it here. The game approach appeals to young and mobile people, but not everyone. If employees are required to participate in various activities at the same time, this can simply “overheat” them, and they will begin to look for a quieter place for themselves.

Quality circle. This method came to us from Japan. Quality circle is a group of company employees who voluntarily meet regularly to identify errors and shortcomings in processes and interactions, and prepare proposals for their elimination. The main idea is that where gaps and problems arise, they should be identified and eliminated by the participants in the business process themselves. Employees who encounter various problems in the daily work process are considered the best specialists in this field. This format allows you to use creativity, involve everyone in optimizing work, and prevent the loss of motivation that often occurs due to such “obstacles”. Organization of the workplace and employee service. A beautiful and comfortable office, a “tasty” kitchen, the ability to withdraw cash without going out, comfortable relaxation or coworking spaces, modern equipment and office equipment, a convenient location - all this creates a good motivational “climate”. Order in processes, a healthy working environment, fair incentives, competent management, creativity and various methods of motivation: serve as an excuse for employees to come to work with joy and go home with a sense of satisfaction; for employers, it will be a great help in preventing personnel turnover and the dispersion of resources for ineffective “incentives”.

Foreign experience in personnel development includes investing in training, coaching, position rotation, as well as creating conditions for healthy competition. Different countries use different approaches: in the USA, the emphasis is on career growth and internal corporate competition, in Europe, international mentoring and experience exchange practices are used, and in Japan, internal production training is used, which creates a sense of "big family". The role of human capital in increasing production efficiency is of particular importance. International experience shows that technological modernization and automation processes are highly effective only if they are combined with the qualifications, professional competencies and motivation of employees to work. Therefore, motivating employees and continuously improving their skills is one of the priority areas in the strategy for increasing production efficiency. In the conditions of the modern global economy, increasing production efficiency is an important strategic task in ensuring the sustainable development and competitiveness of industrial enterprises. In the context of increasing competition, resource constraints and technological progress in the world economy, the issue of increasing production efficiency is gaining urgent importance not only for individual enterprises, but also for entire industrial sectors and the national economy. International experience shows that sustainable economic growth and high competitiveness are ensured mainly through the rational use of resources, the introduction of innovative technologies and the formation of an effective management system. The results of the study show that, although the extensive development path in increasing production efficiency can yield positive results in the short term, in the long term it leads to increased costs, resource shortages and environmental problems. On the contrary, the intensive development path ensures sustainable economic growth through improving production processes, technological modernization, the introduction of innovations and increasing labor productivity. The experience of developed countries confirms that relying on intensive factors is the most effective approach

to increasing production efficiency. In international practice, the concept of Lean Production is widely used as one of the important tools for increasing production efficiency. This approach is aimed at identifying and eliminating losses in production processes, reducing non-value-added operations, and using resources efficiently. Lean technologies, including 5S, Kaizen, Just-in-Time, Kanban, TPM, and SMED methods, play an important role in optimizing production processes, improving product quality, and reducing costs. At the same time, the use of Six Sigma and Lean Six Sigma methodologies allows reducing defects in processes, stabilizing quality indicators, and increasing the effectiveness of management decisions. The rational use of energy resources plays a special role in increasing production efficiency. Today, industrial sectors account for the majority of energy consumption worldwide. Therefore, increasing energy efficiency is important not only for economic efficiency, but also for ensuring environmental sustainability. The introduction of the ISO 50001 energy management standard, the use of waste heat recovery (WHR) technologies, and the use of modern energy-efficient equipment can significantly reduce production costs. The introduction of digitalization and automation technologies is also one of the important factors in increasing production efficiency. Digital monitoring systems, IoT sensors, and automated control systems based on the principles of Industry 4.0 allow for real-time monitoring of production processes, early detection of failures, and increased resource efficiency. However, increasing production efficiency is not limited to technical and technological factors. Studies show that human capital is one of the decisive factors in production efficiency. The professional qualifications, knowledge, and skills of employees, as well as their motivation for work, directly affect the efficiency of production processes. Therefore, motivating employees and improving their skills should be considered an important priority in the strategy for increasing production efficiency. In international practice, material and non-material mechanisms for motivating employees are widely used. A salary system tied to labor results, bonuses and awards based on performance indicators serve to increase employee productivity. At the same time, non-material methods of motivation, such as professional recognition, career growth opportunities, social guarantees and participation in the collective decision-making process, strengthen the internal motivation of employees. Improving the skills of employees is an important condition for sustainable production efficiency. In international practice, the development of the professional potential of employees through the introduction of a continuous education system, advanced training courses, trainings, seminars and mentoring programs is widely used. In particular, training employees in Lean Production, Six Sigma, digital technologies and energy management significantly increases the efficiency of production processes. In addition, it is important to stimulate the innovative activity of employees. The introduction of a system of proposals based on the Kaizen philosophy, support for employees' initiatives to improve production processes forms a culture of continuous improvement in enterprises. This, along with increasing production efficiency, strengthens the intellectual potential of the enterprise. Analysis of international best practices, including the activities of industrial enterprises in Germany, Japan, China and Italy, shows that an integrated approach is important in increasing production efficiency. High results can be achieved only when technological modernization, energy efficiency, digitalization, improvement of the management system and development of human capital are carried out in a coordinated manner.

In conclusion, increasing production efficiency is an important condition for the development of modern industry, which is ensured through an integrated approach based on innovation, lean production, energy efficiency, digital technologies and employee motivation and training. Adapting international best practices to national industrial conditions is of significant scientific and practical importance in increasing the competitiveness of Uzbek industrial enterprises, reducing production costs, and ensuring sustainable economic growth.

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