

Insgesamt bietet die Nanotechnologie erhebliche Vorteile im Bereich der Energiespeicherung und ermöglicht die Schaffung effizienterer, langlebiger und kompakterer Geräte.

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IMPACT OF AUTOMATION ON LABOR COSTS IN ENGINEERING SECTORS

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Automation in manufacturing has revolutionized the way products are made from the earliest days of mechanization to modern robotics and machine learning technologies. Simply put, automation in manufacturing refers to the use of technology and equipment to perform tasks that were once performed by humans [2].

The relevance of this topic is due to the fact that the engineering sectors are at the forefront of technological development, actively implementing robotics, AI and other automated systems. This leads to significant changes in the employment structure, which creates many issues, in particular: changes in labor costs, increased working capacity, changes in professional skills requirements, and uncertainty about the future labor market.

Technology is becoming a key element of the economy and the key to the success of any enterprise, increasing efficiency and opening up new horizons. Automation and robotics are permeating an increasing number of engineering fields, from design to data analysis. Although the transition to automated production requires significant initial and operational costs, over time it leads to dependence on a single system, which can lead to serious problems in the event of a failure.

The following types of automation are distinguished: partial, complex and complete. With partial automation, technologies are replacing complex, uncontrollable and especially risky processes for human life. With complex automation, part of the production goes offline, but it is still under the supervision of a person

who controls the operation of the equipment. With full automation, all human work is done by machines.

How does robotics affect the labor market? The introduction of multiple technologies into cyclical processes leads to job cuts. Employees whose positions become automated must retrain and learn new skills in order to remain competitive in the labor market. In this case, the number of jobs for low-skilled workers is reduced, but instead there are more places for highly qualified people: programmers, engineers, roboticists, and data analysts. In the course of its development, technology has an impact on the workforce, while at the same time changing its costs. The impact on costs depends on the type of automation, industry, and HR management strategy:

Type of automation: the introduction of robots and algorithms to perform routine, repetitive work is significantly different from the introduction of complex systems that include artificial intelligence as their basis.

Industry: Automation may be more efficient and cost-effective in some sectors of the engineering sector than in others.

The size of the company and their HR management strategies: large companies have more resources to introduce automation, each company decides for itself whether to accept this transition or keep the classic manual labor.

Technological progress: technologies have a rapid pace of development, which affects the type and possibilities of automation.

Automation is a high degree of mechanization that reduces the workload of the employee. It also reduces the number of occupational diseases and reduces the likelihood of injury.

Automation is rapidly changing the way engineering sectors look, and it has a significant impact on labor costs in both the short and long term, although this impact is ambiguous and depends on many factors.

In the short term, there is both an increase in costs and a decrease in them (in some areas). At the initial stage of automation implementation, labor costs, as well as costs in general, may increase. This is due to:

The cost of purchasing and installing hardware: software and other automated systems are expensive.

Staff training costs: employees will need training to work with the new equipment and system.

Potential layoffs and severance payments: Automation can lead to job cuts, which will entail the payment of severance payments to laid-off employees.

Reduced productivity during the adjustment period: while staff are adapting to the new system, productivity may temporarily decrease.

Even in the short term, automation can reduce labor costs in some cases. This is possible if: automation allows you to replace highly paid specialists with

cheaper equipment, automation increases the productivity of existing employees, allowing them to do more work in the same time.

In the long run, automation tends to lead to lower labor costs due to:

Increased productivity: Automated systems work faster and more efficiently than humans, which allows you to produce more products in less time.

Error reduction: automation reduces the number of errors, reducing the cost of correcting defects.

Reducing the need for manual labor: many routine and repetitive tasks can be automated, which reduces the need for many low-skilled workers.

Changing the structure of labor costs: automation not only reduces total costs, but also changes their structure. Instead of low-skilled workers, more specialists capable of designing, maintaining, and managing automated systems will be needed. This can lead to higher salaries for highly qualified professionals.

The paradox of automation is that by destroying some jobs, it creates others. There will be new vacancies in the field of development, maintenance, improvement, implementation and management of automated systems.

Overall, the impact of automation on employment and the workforce is complex and multifaceted. While automation has the potential to increase productivity and create new jobs, it can also lead to job displacement in certain industries [2].

The future of automation in manufacturing is an exciting and rapidly evolving field as advances in technology continue to transform the industry. With the growing demand for faster, more efficient, and higher-quality production, manufacturers are constantly looking for new and innovative ways to incorporate automation into their processes.

From robotics and artificial intelligence to IoT and machine learning, the possibilities for automation in manufacturing are endless. The future of automation in manufacturing promises to bring new levels of efficiency, productivity, and quality to the industry, as well as create new opportunities for innovation and growth [2].

Thus, the impact of automation on labor costs in the engineering sector is multifaceted and complex. While automation clearly reduces the direct labor costs associated with repetitive tasks, it simultaneously requires investments in new technologies, skilled labor for implementation and maintenance, and possibly retraining of the existing workforce. The net impact on total labor costs depends on a variety of factors, including the scale of automation, the specific engineering discipline, and the size and resources of the company. Therefore, a subtle approach is needed that considers not only the immediate reduction in direct labor costs, but also the long-term impacts on training, infrastructure, and the potential for increased productivity and innovation leading to increased profitability. Ultimately, the introduction of automation, combined with effective planning and management, and staff adaptation is crucial for the engineering industries, as it

allows for the potential benefits of automation to be realized while reducing its potential negative impact on labor costs and the overall well-being of staff.

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CUSTOMS OFFENCES AND THEIR PREVENTION

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Offences in the area of customs activities represent a serious problem in the sphere of economic activity of countries, international trade and security. Customs offences include such offences as non-declaration of goods, smuggling (illegal import/export of goods) evasion of payment of customs duties, document forgery, etc.

Customs offences can be divided into two large groups: administrative offences and criminal offences.

The administrative offences may include failure to declare goods within a specified period, violation of customs procedures, movement of goods across the customs border in unspecified locations, obstruction of the official to carry out the necessary customs procedures, related to storage, transportation, inspection, inspection of the goods being moved, disobeying the orders of customs officials. A fine is charged for committing administrative offenses and illegal actions, and the goods can also be confiscated in accordance with the Code of the Republic of Belarus on Administrative Offenses.

Criminal offences include smuggling, illegal importation and exportation of drugs, weapons, evasion of customs payments, illicit movement and failure to