



TECHNOLOGICAL PROCEDURES AND THE IMPORTANCE OF AUTOMATION PRODUCTION IN ECONOMIC DEVELOPMENT

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ABSTRACT

This article emphasizes the importance of technological processes, their automation including modern innovations in production, in the development of the national economy. The essence of automation of technological processes and the factors influencing them are studied in detail. In today's day and age, the industry has analyzed the pace of production and the use of modern innovative technologies in the production process. Factors for improving the economic efficiency of automation of technological processes are represented, along with the benefits of automation and directions for further development of these processes.

KEY WORDS: *technology, technological process, production, industry, innovation, modernization, diversification, automation of technological processes, economic efficiency, productivity.*

DISCUSSION

Today, the ever-increasing integration of economic relations and the acceleration of globalization make it an objective necessity for sustainable development of the national economy and increasing its competitiveness. Industrial production is important when it comes to maintain sustainable economic growth rates, provide macroeconomic stability and keep a competitive economy. This is because the development of industrial sectors in the country promotes efficient employment, exports and imports of products, improvement of living standards and welfare.

Among the real branches, industry is the leading sector of the national economy. Large-scale work on modernization and diversification, technical and technological re-equipment of industrial enterprises in our country contributes to the increase of production volume and quality in the regions. With the ever-increasing importance of innovative and digital technologies in the economy, special attention is paid to the development of complex systems through

systematic, schematic and constructive development of digital computing systems and automated control systems in technological processes and production worldwide.

Reforms undertaken in our country also pay much attention to modernization of production, development of innovative activities in production processes. In particular, in the Strategy of Actions for further development of the Republic of Uzbekistan for 2017-2021, first of all, high-tech processing networks, approved by the Decree of the President of the Republic of Uzbekistan dated February 7, 2017, № PD-4947, “On the Strategy for further development of the Republic of Uzbekistan” by transferring to a qualitatively new stage aimed at developing high value added finished goods based on deep processing of local raw materials, tasks for further modernization and diversification of the non-budget are prioritized [1].

Innovative development is one of the main tasks in further improvement of production. This is because innovative development of production



contributes to economic efficiency and labor productivity. The use of innovation in production has been shown to automate technological processes and diversify production.

In developed economies, 70-90% of GDP is created by the development of innovative activities. Innovation provides the scientific, material and spiritual basis for moving from one stage of the socio-economic development of the society to the next. Through innovation, business methods, both qualitative and quantitative are improved in business. Automation is the main focus of scientific and technological development, the use of self-regulating techniques, economic and mathematical methods and control systems, which can significantly reduce the level of participation or work complexity operations that facilitate people's involvement in the process of obtaining, transmitting and using materials or data.

Automation of technological processes is one of the main directions in the development of technology, which opens up new scientific achievements and new possibilities for the development of science and technology. Automation also enables new, high-intensity processes that are beyond human control, and the creation of new, more effective materials that are not known in nature. Technological process automation is a continuously evolving system that is closely linked to the peculiarities of production and many areas of science and technology. The main condition for achieving high efficiency in automation of

production is mechanization of basic and auxiliary production processes.

The main goal of automation is to increase productivity, improve product quality, optimize management, get rid of hazardous areas, improve production reliability and accuracy, and reduce processing time.

There are two types of automation of technological processes: partial and complete automation. Partial automation occurs when one operation or a separate production cycle is carried out automatically. At the same time, a limited participation of a person in it is allowed. Most often, partial automation takes place when the process is too fast for the person to fully participate in it, while fairly primitive mechanical devices, driven by electrical equipment, do an excellent job of it.

Integrated automation should cover a separate large production area, it can be a separate workshop, power plant. In this case, all production operates in a single interconnected automated complex. Complex automation of production processes is not always advisable. Its scope is modern highly developed production, which uses extremely reliable equipment.

Automation of production processes is the introduction of innovation in technological processes. Today, thanks to the introduction, modernization and diversification of state-of-the-art innovative technologies in industrial production, the volume of industrial production is increasing.

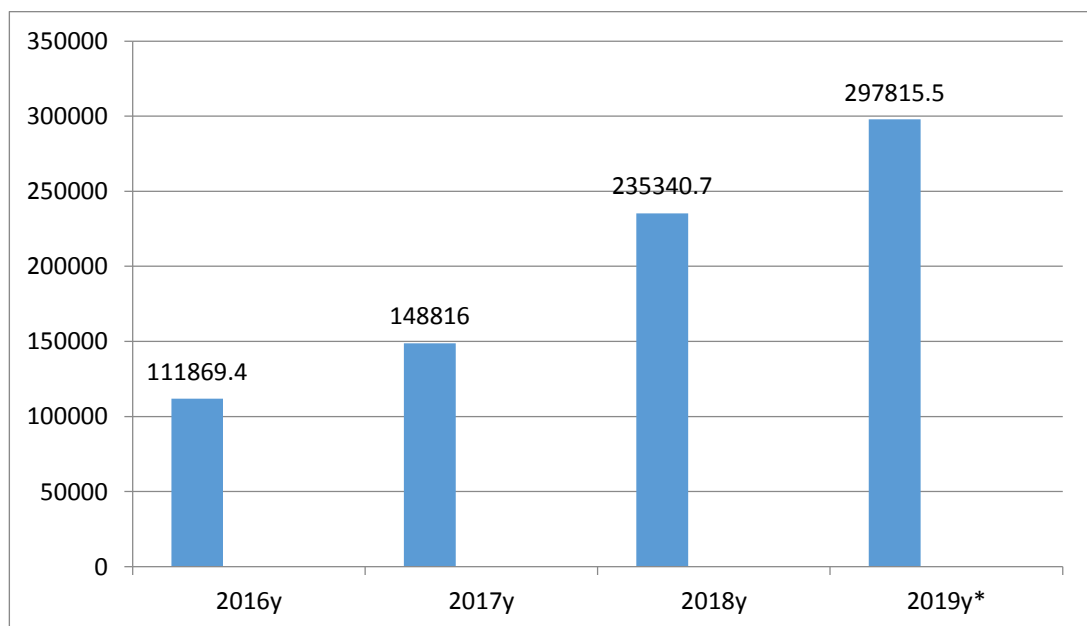


Figure 1. Volume of industrial production in Uzbekistan in 2016-2019, in billions

Note: * data of January-November, 2019

As you can see from the picture, the volume of industrial production in our country is increasing year

by year. As a result of consistent reforms and measures aimed at increasing the share of industry in the



economy, the volume of industrial output in 2016 amounted to 111869.4 billion sums, and in 2018 this figure was 235340.7 billion sums. In January-November 2019, we can witness that industrial output has increased over the 12 months of 2018.

In recent years, the volume of innovation products has also increased, and the analysis shows that in 2014, the volume of innovative products was 7043 billion sums, and in 2018 there was a 4-times increase compared with 2014, amounting to 28871,5 billion.

Most modern manufacturing processes are characterized by full automation. Automation ensures uninterrupted operation of all equipment, prevention of accidents and environmental contamination. The explosion and fire hazard in the chemical and food industries also require maximum automation.

The process of automation of technological processes is influenced by numerous legal and accidental factors (Figure 2).

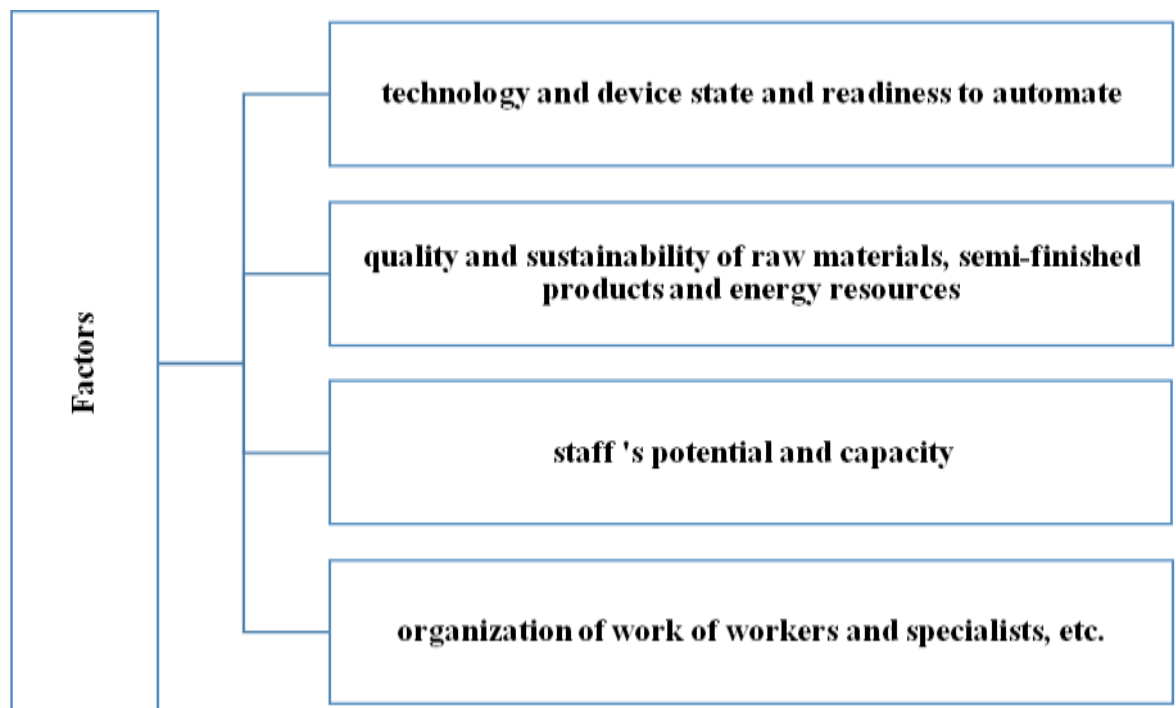


Figure 2. The main factors influencing the development of automation of technological processes

The main factors that contribute to the development of automation of technological processes are the state of machinery, equipment, or readiness to automate. Existing raw materials and semi-finished products are also important, as it is important to have access to raw materials after the automation of the technological process.

The quality and reliability of energy and other resources make the automation process more efficient. Staffing and organization of work of specialists are the guides for expanding the use of innovative technologies in technological processes.

It is objective to increase the economic efficiency of automation of production and technological processes in industrial sectors. There are many factors that enhance the economic efficiency of automation of technological processes. Under current conditions, the cost-effectiveness of automation of technological processes is often impossible to achieve by reducing the number of personnel servicing, as modern manufacturing facilities provide services to a

small number of people. Therefore, the following factors may be included in economic efficiency:

- improving the quality of products;
- Reduction of consumption of raw materials and different types of energy, industrial waste;
- increase of production rhythm, increase of labor productivity and volume of output;
- elimination of hazardous work conditions in the areas of production of working conditions of the service personnel, which endanger the life and health of people.

One of the main advantages of automation of technological processes is the improvement of the quality of products. The introduction of modern techniques and technologies in the production process is a key factor in the production of high-quality products that meet the needs of consumers in a highly competitive market. Improving product quality increases product demand, or generates non-existent demand, and promotes competitiveness of the product.



In summary, automation of technological processes in the production process, that is, the introduction of innovative and digital technologies into the development process, will help the national economy to grow and become more competitive. As mentioned above, the process of automation of production leads to many positive results, elimination of human error, improvement of product quality and cost reduction.

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