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INFLUENCE OF SCIENTIFIC AND TECHNOLOGICAL PROGRESS ON THE MANUFACTURE DEVELOPMENT

Currently scientific and technological progress has become a significant factor. It determines the face of the world economy, world trade, and the relationship between countries and regions. On a large scale, scientific discoveries and inventions materialize in the production apparatus, constantly changing the life of humanity. STP and potential of country is the main mover of its economy. In the conditions of the new stage of the scientific and technological revolution and structural reorganization of the world economy, the issue of scientific and technical potential is becoming crucial. As a result of STP, all the elements of productive forces are developing and improving: resources and subjects of labor, technologies, production organization and management. Innovations are the immediate result of STP. The

scientific and technical potential of the country along with natural and labor resources creates the basis of the efficiency of the national economy of any modern country.

Scientific and technological progress is only about 300 years old for now. That's when an industrial civilization began to emerge. It is twofold since has both positive and negative features. Positive one is comfort improving, negative - environmental and cultural, since there is development of communication devices there is no need for straight contact. STP is an ongoing process of discovering new knowledge and applying them in manufacture, allowing combine available resources in brand new way in order to increase the output of high-quality products at the lowest cost possible. [1, p.154]

STP leads to considerable resource savings and reduces the role of natural materials, replacing them with synthetic raw materials. The use of modern technology in the complex led to the creation of versatile production systems that are widely used in production. American economist James Bright denominates scientific and technological progress as the unique process that combines science, technology, economics, enterprise and management. It extends from the generation of an idea to its commercial realization, thus uniting the whole complex of relations like production, exchange, consumption, etc.

In global economy, scientific industries such as the electric power industry, nuclear and chemical industry, hardware development acquire significance.

However, scientific and technological progress shows a complex and contradictory impact on global processes in modern circumstances. On the one hand, scientific and technological development and scientific and technological progress are directly related to socio-economic progress. Undoubtedly, their result was rapid economic growth on the basis of increasing public productivity and saving natural resources, enhancing the internationalization of the world economy and the interdependence of the world countries. On the other hand growth of unmet demand, as scientific and technological development stimulates new requirements; negative consequences associated with unpredictable results of the introduction of certain

achievements in manufacturing like pollution, accidents, disasters; underestimation of the human factor; the growth of moral and ethical problems.

Important global problems are the increasing distance from resources and energy, the natural sources exhaustion. In addition, the resource intensity of production and lifestyle increases limitations of our environment. [2, p.134-135]

The problem for the underdeveloped countries is the "brain drain", when the most qualified personnel aimed to find work abroad. The reason is that the personnel's training does not always correspond to the real possibilities of using them in specific conditions. [3, p.67]

The problems of scientific and technological progress relate to the global problems of humanity, so their solution can be signified in general. They are not separate from each other, but function along, which requires radically new ways to their solution. On the way to solving global problems, a number of obstacles arise. Those are economic and political arms race, regional, political and military conflicts.

Global problems must be resolved through cooperation between all countries that form the system of the world economy. Modern scientific and technical progress is aimed to reinforce the role of environmental events, eco-friendly technologies that do not affect the environment, technologies that do not produce waste, energy-saving technologies. [4, p.87-88]

Obviously that scientific and technological progress covers all aspects of human activity, eases human labor and affects the resource potential of both the world economy and national economy in particular. The role of scientific and technological progress is determined not only by its present, but also by the future. Currently our main goal is keep balance between further scientific development and avoiding harmful impact on environment.

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SMART HEAT CONTROL OF MICROCHIPS

The purpose of research is protection against cyberattacks that can lead to the destruction of processors that used by industrial manufacturers.

Object of the research is microchips and subject of research is investigation of temperature changes of microchips under the influence of various loads.

Methods and means of research are based on identifying thermal patterns during normal operation of processors. Calculations that were carried out are stored in the main memory or can be downloaded from the hard disk. All these operations have different influence on processor, so such manipulations can produce short-term heating and cooling in different areas of the processor.

Sensitive infrared cameras are assigned to monitor such patterns and reproduced these changes in the control routine from minimum temperature changes or temporal deviations of a few milliseconds. This setup was used to demonstrate advantages of such thermal monitoring. I am convinced that in the future, sensors on the chip are planned to assume the function of the cameras.

In addition, I convinced that the scientists want to equip the chips with neural networks to identify thermal changes and to monitor the chip in real time with using of special programs.

Technological progress in the electronics sector gives opportunities to "Industry