

## ARTIFICIAL INTELLIGENCE AND ECONOMIC EFFICIENCY

**Karimova Bahor Akmalovna**

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**Abstract:** The article evaluates "Artificial Intelligence", which is considered a current topic, and its development processes, efficiency in the economy and society. Assess potential economic benefits and disruptions from AI adoption; An analysis of the impact of AI on various industries and labor markets is provided.

**Keywords:** artificial intelligence, economy, intellectual property, inclusive, infrastructure, income, productivity, neurocybernetics, innovation, program, policy

### INTRODUCTION

In today's conditions of rapid development of science and information and communication technologies, state and community management, economy, economy, social protection, education, medicine, employment, service, agriculture, defense, security in the developed countries of the world, tourism and other fields are widely used modern information technology and artificial intelligence capabilities. Artificial intelligence means an intelligent artificial system that performs the logical and creative functions of a person. The term can also be applied to any technology that exhibits characteristics associated with human intelligence, such as learning and problem solving. An ideal characteristic of artificial intelligence is the ability to evaluate and take actions that have the best chance of achieving a specific goal. Currently, artificial intelligence consists of algorithms and software systems designed to perform various actions, and it can handle several tasks that the human mind can perform. While scientists are eager to experiment with artificial intelligence, many people are wary of the phenomenon. Even Tesla CEO Elon Musk has called it a "major threat" to humanity and a possible source of war and unemployment.

The development of artificial intelligence as a scientific direction was possible only after the creation of EHM. This happened in the 20th century. At this time, N. Viner (1894-1964) created his main works on the new science of cybernetics. The term artificial intelligence was proposed in 1956 at a seminar of the same name at Stanford University (USA). The workshop is designed to develop logical tasks, not calculations. After the recognition of artificial intelligence as an independent field of science, it was quickly divided into two main directions: neurocybernetics and "black box" cybernetics. And only now, the tendency to unite these parts into a single whole is felt. A great advance in the practical application of artificial intelligence took place in the mid-70s, when instead of looking for a universal algorithm of human thinking, modeling the specific knowledge of experts and software tools and systems where knowledge is the most important component came up with the idea of development.

In the 70s, experts in the field of artificial intelligence tried to model the complex process of human thinking, looking for general methods of solving tasks and using these methods in universal programs. But the development of such programs was a very difficult task, because the wider the class of tasks that one program can solve, the greater its capabilities in solving a specific task.

In the 80s, the efforts of programmers were involved in the development of information presentation and search methods. Information presentation methods are ways of framing problems

and tasks so that they can be solved. Lookup methods are a great way to control the progress of a solution so that it doesn't take up too much memory and time. In the late 80s, artificial intelligence experts realized that the effectiveness of programs in solving tasks depends more on the knowledge they possess.

In the early 90s, a completely new concept was adopted. Its essence is that in order to make the program intelligent, it is necessary to provide it only with high-quality special knowledge in some subject area. Thus, the artificial intelligence systems being developed must have a well-developed base of knowledge. Currently, this concept is more fully developed in the design of expert systems. WIPO is a specialized agency of the United Nations and is a global forum for member states on intellectual property, artificial intelligence, policy, information and cooperation services. As part of its mandate to promote inventions and creativity for the economic, social and cultural development of all countries, member states have asked WIPO to host a forum to discuss intellectual property and artificial intelligence policies.

The WIPO Technology Trends 2019 - Artificial Intelligence meeting showcased AI-related inventions that are moving from theory to practical applications. It has been mentioned that there are a number of factors that have helped to accelerate the changes in the field of artificial intelligence. At the meeting, WIPO Director General Francis Garry said, "Artificial intelligence is a new digital frontier that will profoundly affect the world by changing the way we live and work." announced that it will support innovation and creativity.

## **LITERATURE ANALYSIS AND METHODOLOGY**

Initially, the Czech science fiction writer Karel Chapek wrote about robots with artificial intelligence in the 20s of the XX century. Different generations of robots have been created since the second half of the last century. In fact, fiction can sometimes surpass science in making predictions and new ideas.

Artificial intelligence is based on a combination of algorithmic paradigms and programs predetermined by machines, as opposed to natural consciousness based on high-level psyche and thought. That is, it is the execution and simulation of the processes performed by the human mind by machines and computer systems. It is independent, not naturally formed, but a product of human activity. That is why it is called "artificial".

According to experts, universal strong artificial intelligence independently collects information, stores it in memory, programs itself, thinks independently, draws conclusions and makes decisions by itself. Artificial intelligence with this potential does not yet exist, but some elements and features of it are emerging. Artificial intelligence, which is still average, is improving today. Google's online translation system previously translated words and sentences from one language to another. This had a negative impact on the quality of the translation. Therefore, the network independently abandoned this method and switched to translating the entire sentence. As a result, the quality and efficiency of translation increased.

"In five to ten years, we will spend a large part of our company's budget on technology that sharpens a person's eyesight, improves hearing, increases the richness of language, expands the range of thinking, in a word, rejuvenates him and serves him to live happily. we will focus on creating artificial intelligence," says Mark Zuckerberg, the founder of the Facebook platform.

The intellectual potential of robot-androids, which are becoming more and more popular, is not the level of knowledge of a high school graduate. Nevertheless, intellectual systems are already

performing tasks that cause intense mental stress, easing the human burden. An example of this is information and analysis systems that serve to coordinate flights at airports. They control the situation by summarizing hundreds of parameters, such as meteorological conditions, aircraft take-off and landing schedule, distance, speed, and provide optimal information to the human engineer. You can also add the possibility of autopilot in airplanes. He controls the liner, but cannot make independent, unusual decisions in emergency situations not foreseen in the algorithm.

"Artificial intelligence technologies will affect about 40 percent of the total number of jobs in the world by filling and replacing them," said Kristalina Georgieva, director of the International Monetary Fund. According to the IMF, the share of jobs that can be affected by artificial intelligence in economically developed countries is 60 percent. In developing countries, this figure corresponds to 40 percent, and in low-income countries to 26 percent.

Another group of scientists says that there is no reason to worry. According to them, people should not be afraid of being unemployed due to artificial intelligence. First of all, work is available to everyone. In addition, in the era of new technologies, new professions will appear, which people will have to master. In any case, artificial intelligence will remain in the role of a student, a coach, and a person will be its coach (Paul Daugherty, James Wilson. *Human+machine: Reimagining Work in the Age of AI*. Harvard Business Review Press, 2018).

How will artificial intelligence affect global security? This issue is also being discussed in UN structures. It is not for nothing that the international community assesses the near and long-term prospects with concern and hope. The fall of artificial intelligence technologies into the hands of terrorists and transnational criminal gangs is sure to have dire consequences for global security. According to experts, humanity may face unseen dangers due to artificial intelligence. "If we do not take measures to eliminate threats, we will not fulfill our duty to present and future generations," says UN Secretary General Antonio Guterres.

## **RESULTS**

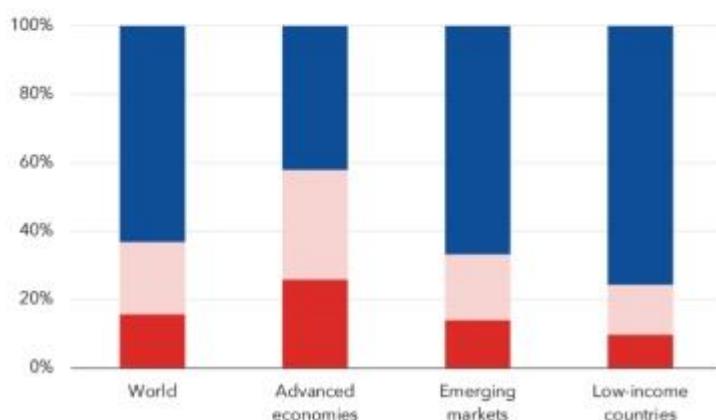
In a new analysis, IMF staff examines the potential impact of AI on the global labor market. Many studies have predicted the possibility of jobs being replaced by artificial intelligence. However, we know that in many cases AI can complement human work. IMF analysis captures both of these forces. The results are staggering: nearly 40 percent of global employment is affected by AI. Historically, automation and information technology have tended to influence routine tasks, but one of the things that makes AI different is its ability to influence highly skilled jobs. As a result, developed economies face more risks from AI than developing and emerging economies, but have more opportunities to benefit from it. About 60% of jobs in developed economies could be affected by artificial intelligence. About half of affected workplaces could benefit from AI integration and improve productivity. In the other half, AI applications could perform basic tasks currently performed by humans, which could reduce labor demand, lower wages, and reduce hiring. In the most extreme cases, some of these jobs may be lost. In contrast, the impact of AI in emerging markets and low-income countries is expected to be 40 and 26 percent, respectively. These results suggest that emerging markets and emerging economies are less likely to face direct AI disruption. However, many of these countries lack the infrastructure or skilled workforce to take advantage of AI, raising the risk that the technology will exacerbate inequality between countries over time.

### **AI's impact on jobs**

Most jobs are exposed to AI in advanced economies, with smaller shares in emerging markets and low-income countries.

#### **Employment shares by AI exposure and complementarity**

■ High exposure, high complementarity      ■ High exposure, low complementarity  
 ■ Low exposure



AI can also affect income and wealth inequality within countries. We can see polarization across income groups, with AI-enabled workers seeing increased productivity and wages that won't be far behind. Research shows that artificial intelligence can help less experienced workers become more productive more quickly. Younger workers may find it easier to take advantage of opportunities, while older workers may have difficulty adjusting.

The impact on labor income will largely depend on the extent to which AI replaces high-income workers. If AI significantly replaces high-income workers, it could cause their labor incomes to rise disproportionately. In addition, the increased productivity of AI-enabled firms could increase capital gains, which could also benefit high-income workers. Both of these phenomena can increase inequality.

In most scenarios, AI could exacerbate overall inequality, a worrying trend that policymakers must proactively address to prevent the technology from exacerbating social tensions. It is essential that countries create comprehensive social safety nets and offer retraining programs for vulnerable workers. This is how we can make the transition to AI more inclusive, protect livelihoods and end inequality.

### **DISCUSSION**

Artificial intelligence is rapidly being integrated into businesses around the world, highlighting the need for action by policymakers. To help countries develop the right policies, the IMF has developed an AI Readiness Index that measures readiness in areas such as digital infrastructure, human capital and labor market policies, innovation and economic inclusion, and regulation and ethics.

For example, the human capital and labor market policy component assesses elements such as years of schooling and labor market mobility, as well as the share of the population covered by social safety nets. The Regulatory and Ethical component assesses the adaptability of the country's legal framework to digital business models and the existence of strong governance for effective implementation. Using the index, IMF staff assessed the readiness of 125 countries. The results show that rich economies, including developed and some developing economies, are more willing

to adopt AI than low-income countries, although there are significant differences between countries. Singapore, the US and Denmark scored the highest on the index, based on their strong performance in all four categories tracked.

## **CONCLUSION**

In addition to the economy, AI will also affect national security, politics, and culture. In economics, it promises to transform many occupational functions, as well as the division of labor and the relationship between workers and physical capital. While the impact of automation has affected repetitive tasks, the impact of AI will affect tasks typically performed by skilled workers. In workflow segments where human control over AI is required, the trend can be expected to see a significant increase in productivity and work demand. In other segments, artificial intelligence can lead to significant changes or simply eliminate jobs.

A steady increase in gross productivity can mainly boost economic growth and thus support growth in aggregate demand, creating employment opportunities that compensate for job losses. This evolution can also lead to the emergence of new sectors and occupational functions and the disappearance of others, in a dynamic that goes beyond simple redistribution between sectors.

In addition to the impact on employment and the distribution of wages and income, the distribution of income will also depend on the impact of AI on capital gains. This tends to increase activity that creates and uses AI technologies or has a stake in AI-based industries. Depending on the consequences in terms of the "market power" of firms, there will be effects on the distribution of income from capital and between capital and labor.

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