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## THE IMPACT OF ARTIFICIAL INTELLIGENCE ON THE LABOR MARKET IN THE WORLD AND PARTICULARLY IN UKRAINE

**Introduction.** In the contemporary context of global environmental, economic, and epidemiological challenges, the study of artificial intelligence (AI) and its impact on the labor market is crucial.

**The purpose of this paper** is to study the impact of artificial intelligence on the labor market in the world and particularly in Ukraine.

The **results** of the research highlight a global trend of job displacement due to technological advancements, particularly in robotics and AI. The study defines AI and highlights its potential in tasks requiring human intelligence. A McKinsey Global Institute study suggests up to 300 million jobs could be lost globally by 2030, emphasizing concerns about employment stability. The paper explores industry-specific data, identifying high-risk areas like routine tasks for automation and less susceptible roles requiring creativity. The impact on the labor market is nuanced, with most jobs only partially automated, offering opportunities for complementation. Positive aspects of AI, such as creating new employment opportunities and enhancing worker safety, are underscored. Governments and businesses are urged to proactively retrain workers at risk of automation. The potential for job reduction in Ukraine is discussed, emphasizing the need for education reform.

**Conclusion.** The multifaceted impact of AI on employment necessitates careful planning and consideration. For Ukraine, the focus should be on creating competitive AI specialists through specialized education, international collaboration, and skills development, enabling the country to navigate the evolving global environment.

**Keywords:** artificial intelligence, labor market, digitalization, automation, job displacement, global economy, Ukraine, education reform, skill development, employment impact, economic development, technological innovations

### INTRODUCTION

In the current context of global environmental, economic, and epidemiological hazards, it is becoming increasingly important to study new technologies and artificial intelligence (AI) and their impact on the labor market.

The digitalization of modern society creates new dangers with unpredictable consequences, but at the same time opens up new opportunities that change the nature of the world of work, the working person in each country, and humanity as a whole [3]. Therefore, these processes require in-depth research.

The **PURPOSE** of the paper is to study the impact of artificial intelligence on the labor market in the world and particularly in Ukraine.

The **RESEARCH METHODS** are indicated: the solution of the tasks set in the work was ensured by the use of the main methods of research, namely the methods of scientific abstraction, analysis, synthesis, induction, deduction, logical analysis, system approach. The following methods were also used to solve the identified tasks: monographic – when studying literary sources and legal acts, theoretical generalization, comparison and analogies, synthesis – for forming conclusions.

### RESULTS

Today, in many countries, there is a tendency for human

staff to be forced out of production due to the introduction of technological innovations. Of course, such a colossal loss of jobs will provoke social changes that we have never had to deal with before. After all, the rapid development of robotics and AI proves that robots will be able to replace people not only in technical professions and production, but also in areas requiring mental activity [2].

First of all, it is very important to understand the question: what exactly is AI and how can it help us? AI is a branch of science that studies the creation of programs and systems capable of performing tasks that normally require human intelligence.

The main feature of AI is new opportunities. For each of us: businesses, countries, and society as a whole. To use these opportunities, you need to understand the basic essence of AI technologies, how they work, and how to apply them to your own needs.

AI algorithms can perform part of our daily work instead of us: tasks can be delegated to it partially or used as an assistant.

What exactly can AI help with? The full list of tasks is already incredibly long and continues to grow thanks to the emergence of new tools. Here are just a few of the most popular options:

- Transcribe audio.
- List the main theses, papers, meetings, etc.
- Compose a letter, social media post, or text on a topic.

- Generate ideas, abstracts, and scenarios.
- Analyze large amounts of data, filter it by certain parameters, or find specific information in it.
- Create a sports plan, a business launch strategy, a personal finance accounting scheme, a program for mastering new knowledge, etc.

The development of AI has been a topic of debate for quite some time. While some see it as a technological breakthrough that will revolutionize the world, others are skeptical about its potential impact on employment.

According to a study by the McKinsey Global Institute, up to 300 million people could lose their jobs due to AI by 2030.

The report estimates that automation and AI could replace about 375 million jobs worldwide. However, at the same time, the new technology will create about 135 million new jobs, resulting in a net loss of about 300 million jobs. This is equivalent to about 10% of the global workforce.

It is important to note that we believe that the impact of AI on employment will vary depending on the industry and type of work. E.g., jobs that involve routine and repetitive tasks, such as data entry, accounting, and administrative support, are at high risk of being automated. Similarly, jobs that require physical labor, such as manufacturing, may also be replaced by machines.

On the other hand, jobs that involve creativity, critical thinking, and emotional intelligence, such as teaching, nursing, and social work, are less likely to be automated. These jobs require skills that are difficult to replicate in machines, such as empathy, compassion, and adaptability.

E.g., in the United States (Fig. 1) office and administrative support has the largest share of tasks that can be automated – 46%, followed by 44% for legal work and 37% for architecture and engineering.

The life, physical and social sciences sector follows with 36%, and business and financial operations round out the top five with 35%.

On the other hand, only 1% of tasks in the building and grounds cleaning and maintenance sector are vulnerable to automation. Installation, maintenance, and repair work is the second least affected industry with 4% of potentially affected tasks, and construction and extraction sector comes in third from the bottom with 6%.

The data for Europe is somewhat broader, but paints a similar picture, with clerical support workers being the most affected, as 45 % of their work could be automated, and only 4 % of jobs in the craft and related trade sector being vulnerable.

Overall, 24% of work in Europe can be automated (Fig. 2), slightly below the US average of 25% (Fig. 1).

While the impact of AI on the labor market is likely to be significant, most jobs and industries are only partially automated and thus likely to be complemented rather than replaced by AI. In Figure 3 we assume that jobs with at least 50% of tasks weighted by importance and complexity being automated are likely to be replaced by AI, while jobs with 10-49% automation are likely to be complemented, and jobs with 0-9% automation are unlikely to be affected.

However, the impact of AI on employment is not all negative. The technology can create new jobs in areas such as AI development, robotics, and data analysis. These jobs require specialized skills and education, which can lead to higher salaries and better working conditions.

Furthermore, AI can help improve the quality of life for workers by taking over dangerous or unpleasant jobs, such as extracting minerals or handling waste. This can reduce the risk of accidents and injuries in the workplace and free workers to pursue more fulfilling careers.

In our view, to mitigate the impact of AI on employment, governments and businesses should take proactive steps to retrain and re-train workers whose jobs are at risk of being automated. This may involve investing in education and training programs that equip workers with the skills they need to thrive in the new economy.

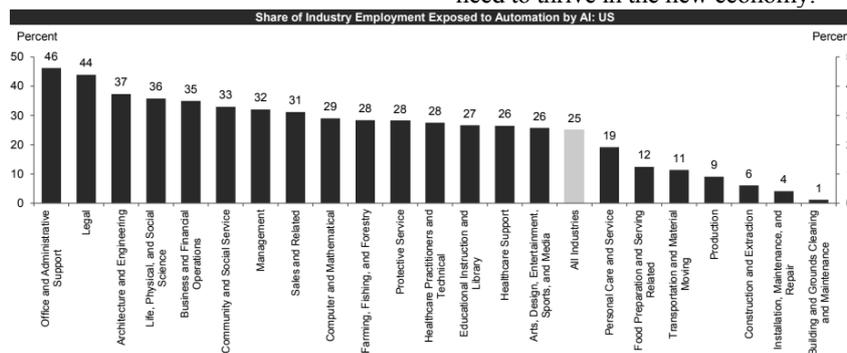


Fig. 1. Share of Industry Employment Exposed to Automation by AI: US (Goldman Sachs Global Investment Research [5])

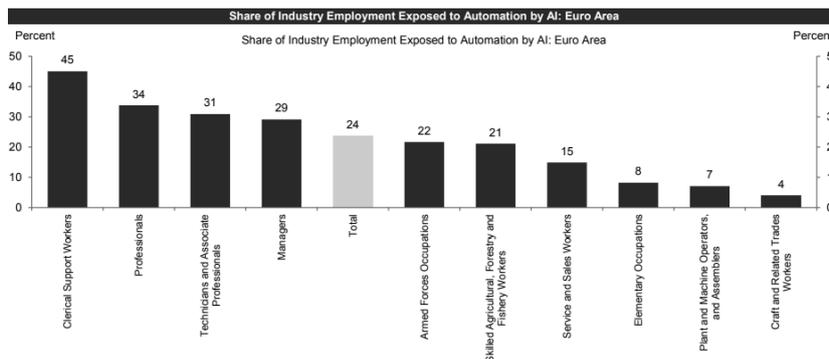


Fig. 2. Share of Industry Employment Exposed to Automation by AI: Euro Area (Goldman Sachs Global Investment Research [5])

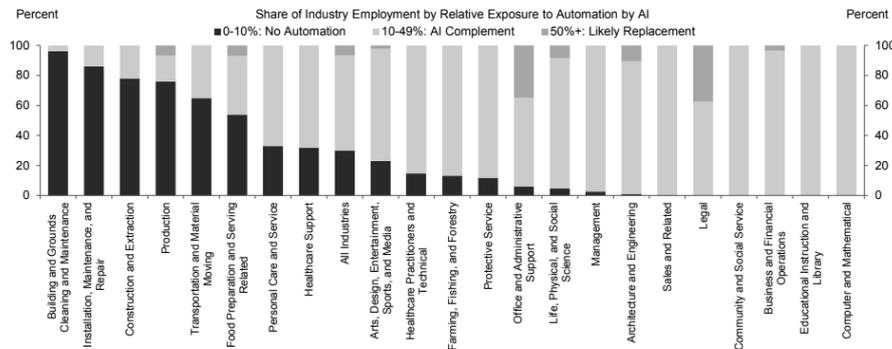


Fig. 3. Share of Industry Employment by Relative Exposure to Automation by AI (Goldman Sachs Global Investment Research [5])

It should be noted that technology will not replace human labor, but will complement and enhance it. According to the study, AI and machine learning will help increase labor productivity by 37% by 2025. Technology will also help to create a space that will unite heterogeneous teams – employees, freelancers, outsourcers, and others – and allow them to be effectively managed.

For Ukraine the impact of AI development, in particular, on employment, may still seem like a problem of the distant future, as we are still far from large-scale robotization. However, such processes will affect not only developed countries but also the entire global economy. Therefore, Ukrainian society cannot stand aside.

The situation on the labor market in Ukraine will change when the largest number of vacancies predicted for the near future will not require a human worker, as the labor of an individual will be replaced by a “smart robot.” Given this, the question arises: will the number of unemployed grow at a new, “inhuman” rate, or will the scale of automation still not affect the Ukrainian labor market?

Currently, Ukraine has an AI development strategy formed and approved by the Cabinet of Ministers of Ukraine “National Strategy for the Development of AI in Ukraine 2021-2030” [1]. This strategy should ensure the prerequisites for sustainable economic development of the state and, accordingly, the growth of the welfare and quality of life of its population, bringing Ukraine to a leading position in the world in the field of information and computer technologies by effectively using the advantages and opportunities for the widespread introduction of AI in all spheres of public life.

Despite the fact that the government understands the importance of developing AI, Ukraine is not yet properly prepared to study AI, develop it, or formulate strategies and principles for its implementation.

The trends of the modern labor market are maximizing robotization and minimizing physical labor.

As in many countries around the world, there is a risk in Ukraine that working with new technologies and AI will lead to a reduction in the areas in which humans will need to work. The sociological and social implications of generative AI are not easy to predict. Workers with less experience who cannot compete with AI may find it harder to find their place in the market. They will need to develop to a higher level to be able to bring value.

If we look at the situation from the side of opportunities, namely the growing demand for professions related to AI, then in Ukraine, there is no surge in demand for AI specialists yet and it is unlikely to be expected in the near future. Unfortunately, the war continues to affect the development

of the tech sector, so our country’s demand is primarily focused on security and safety. But there is no doubt that AI development is driving tectonic IT trends. Savvy companies are already preparing for a new future that cannot be imagined without AI.

Despite this, Ukraine has a huge potential. Ukraine has a strong fundamental and technical education – math and physics. This is what is important for a deep understanding of AI.

In our vision the Ukrainian government should now start introducing new specialties in higher education institutions that will meet the needs of the modern labor market. Increasing the number of specialists who can manage technological innovations will not only increase productivity, but will also allow us to formulate the basic principles of a responsible approach to working with technology and AI. This, in turn, will facilitate the further creation of high-quality and safe technological products.

Most European Union countries are already implementing AI departments, experimental laboratories, and research centers at universities, which allows students to acquire new skills and increases the productivity of each of them. It also contributes to the formation of specialized specialists who meet the requirements of the modern labor market [3].

What is more, Ukraine should actively cooperate with international experts and exchange experience in areas related to manufacturing, the use of new technologies and AI, and develop its own specialists in these areas. It is important to invest in new tools and incentives to develop skills and abilities among both youth and adults. Because modern challenges require modern solutions. If a person has experience and confidence in his or her work, and receives social protection from the state, we will be able to form a new society that can lead Ukraine to a new intellectual development of society.

## CONCLUSION

Overall, the impact of artificial intelligence on employment is a complex and multifaceted issue that requires careful consideration and planning. While the technology has the potential to revolutionize the world and create new opportunities for growth and innovation, it also has the potential to cause significant disruption and displacement of workers. By adopting a proactive approach to retraining and re-education, we can ensure that the benefits of artificial intelligence are distributed evenly so that no one is left behind in the transition to the new economy. As for Ukraine, one of the priorities at the moment is to create new specialties that will be able to grow young AI specialists in the Ukrainian labor market and be competitive with economically developed countries.

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## **ВПЛИВ ШТУЧНОГО ІНТЕЛЕКТУ НА РИНОК ПРАЦІ У СВІТІ ТА В УКРАЇНІ ЗОКРЕМА**

**Вступ.** У сучасному контексті глобальних екологічних, економічних та епідеміологічних викликів вивчення штучного інтелекту (ШІ) та його впливу на ринок праці має вирішальне значення.

**Метою** цієї статті є дослідження впливу штучного інтелекту на ринок праці у світі та, зокрема, в Україні.

**Результати** дослідження висвітлюють глобальну тенденцію до витіснення робочих місць через технологічний прогрес, зокрема, у сфері робототехніки та ШІ. У дослідженні подано визначення ШІ та підкреслено його потенціал у вирішенні завдань, що потребують людського інтелекту. Дослідження McKinsey Global Institute припускає, що до 2030 р. у світі може бути втрачено до 300 млн робочих місць, підкреслюючи занепокоєння стосовно стабільності зайнятості. У статті досліджено галузеві дані, визначено сфери високого ризику, такі як рутинні завдання для автоматизації та менш вразливі ролі, що вимагають креативності. Вплив на ринок праці є неоднозначним, оскільки більшість робочих місць автоматизовані лише частково, що відкриває можливості для їхнього доповнення. Підкреслено позитивні аспекти ШІ, такі як створення нових робочих місць і підвищення безпеки працівників. Уряди та бізнес закликають проактивно перекваліфіковувати працівників, які перебувають під загрозою автоматизації. Обговорено потенціал скорочення робочих місць в Україні, підкреслено необхідність реформи освіти.

**Висновок.** Багатогранний вплив ШІ на зайнятість потребує ретельного планування та аналізу. Для України основну увагу має бути зосереджено на створенні конкурентоспроможних фахівців зі штучного інтелекту через спеціалізовану освіту, міжнародну співпрацю та розвиток навичок, що дасть змогу країні орієнтуватися в мінливому глобальному середовищі.

**Ключові слова:** штучний інтелект, ринок праці, діджиталізація, автоматизація, витіснення робочих місць, глобальна економіка, Україна, реформа освіти, розвиток навичок, вплив на зайнятість, економічний розвиток, технологічні інновації