

THE IMPACT OF AI ON INDUSTRIAL PRODUCTIVITY

IMPACTUL IA ASUPRA PRODUCTIVITĂȚII INDUSTRIALE

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Abstract. *The aim of this work is to explore the impact of the extremely dynamic development of AI on the industry. Between 2015 and 2019, the number of businesses utilizing AI services grew by 270%[1]. This proves that the extension of this service system is continuously increasing and should be researched in order to optimize most industrial processes. The work focuses especially on raising the question regarding the risk of eradicating human work because of the explosive success of AI-powered systems. The main methods used in order to research this subject were the profound analysis of data and statistics regarding the effectiveness of AI compared to humans and the consequences of its implementation in different fields. The obtained results confirmed that there is still a long way until the similarity of the AI and human actions will be equaled and despite its rapidly spreading success it still remains a tool created by humans, its main task being to only simulate human behavior.*

Key words: *AI, industrial growth, digitized work, natural language processing, machine learning*

JEL CLASSIFICATION: E23, O31, O33

INTRODUCTION

As AI continues to evolve and become more advanced, studying its development will become crucial. Understanding the impact of AI can help us optimize industrial processes, value the full potential of our resources.

AI technology drives much of what we do, therefore automation, data science and the use of AI will only continue to expand. Forecasts for the data analytics industry predict exponential expansion in the big data gathering sector. Knowing how to correctly use AI tools offers you the opportunity to have a better work performance. This research proves the importance of being aware of the innovative AI systems and their power to change the industry.

IMPACT AND DYNAMIC OF AI

For this project, we researched statistics about the changes brought by the continued growth of AI use in industry, expressed through different quantitative and qualitative economical indicators. Some of the discovered data includes: nearly 77 % of devices today use AI technology in one form or another, forecasts indicate that there will be 8.4 billion AI-powered digital voice assistant units in the world by 2024, which surpasses the total global population.[2] These facts are clear evidence that AI growth is developing unimaginably fast.

The more AI will be implemented in the industry, the more the productivity is going to increase, forecasts estimate that by 2035 we'll have a 37% growth in the productivity due to quick development and expanded usage of AI powered machines.[4]

AI will impact radically the productivity, therefore affecting the annual growth rate of the global GDP, which is expected to increase with 1,2% each year (Figure 1).

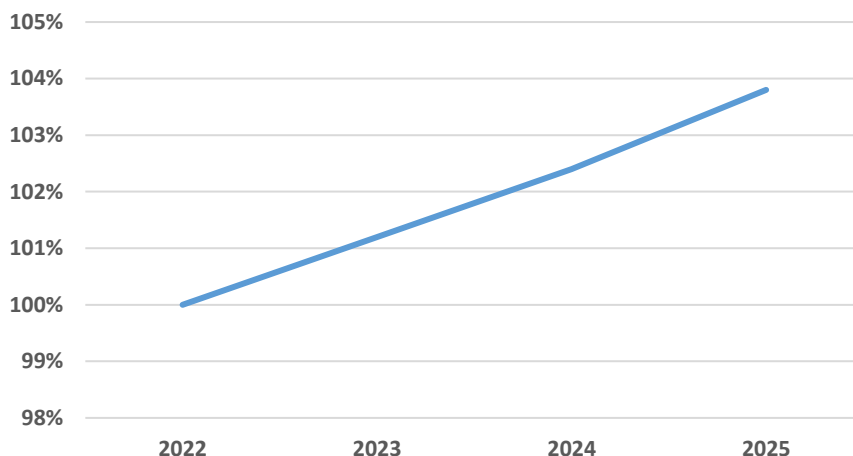


Fig.1 Estimated growth of global GDP

Elaborated by the author based on source [1]

Data also suggests that around 85 millions jobs will be lost because of the AI rapid development, top five jobs that will gradually that will substitute human work with AI are considered the following (generated by chatGPT):

1. Data Entry Clerk

AI systems can be programmed to automatically extract and input data, reducing the need for manual data entry, so there will be no need for doing these processes manually.

2. Bank Teller

AI-powered chatbots and virtual assistants can handle customer queries and perform basic transactions, further reducing the need for human tellers.

3. Customer Service Representative

AI-powered chatbots and virtual assistants will be able to fully cover all the customer requests in much shorter time and with much less resources.

4. Telemarketer

AI-powered marketing systems can analyze customer data and target specific audiences with personalized marketing messages, reducing the need for human telemarketers.

5. Manufacturing Worker

As more manufacturing processes become automated with the use of AI and robotics, the need for human workers in manufacturing will decrease since AI-powered systems can perform repetitive and dangerous tasks more efficiently and with greater precision than human workers.

All the above mentioned data may sound unpleasant at first, but the benefits actually outweigh this loss, experts predict that AI will create 97 million new jobs, here are top five jobs that will appear in the near future due to AI (generated by chatGPT):

1. AI Ethics Consultant

As AI becomes more prevalent in society, it's important to ensure that it's being used in an ethical and responsible manner. AI Ethics Consultants will help organizations navigate the complex ethical considerations around AI use and ensure that it's being used in a way that aligns with society's values.

2. AI Trainer

As AI systems become more advanced, they need to be trained on larger and more diverse datasets. AI Trainers will work to create and curate these datasets, ensuring that they're representative of different populations and free from bias.

3. Data Protection Manager

With the increasing use of AI, there will be a growing need for individuals who are experts in data protection and privacy. Data Protection Managers will help ensure that organizations are

complying with data protection regulations and that individuals' personal data is being used appropriately.

4. AI-Augmented Healthcare Professional

AI can assist healthcare professionals in diagnosing and treating diseases more accurately and efficiently. AI-Augmented Healthcare Professionals will work alongside AI systems to provide better patient care, and may even develop and program AI systems themselves.

5. AI System Maintenance Engineer

As more organizations adopt AI systems, there will be a growing need for individuals who can maintain and repair these systems. AI System Maintenance Engineers will work to ensure that AI systems are functioning optimally and are kept up to date with the latest software updates and patches.

By Analyzing the evolution of global GDP, the dynamic of the engagement of human work after the AI-powered systems implementation and the increased risk of disappearance for some jobs I discovered that AI will definitely be a game-changer in every economy on the globe, but its effects mostly depend on us, on the way we are open to embrace this change.

Overall, there is a widespread adoption of AI in business, at the moment, 91.5% of leading businesses invest in AI on an ongoing basis. Most companies are using it to automate processes, enhance customer service and personalization, increase output, and analyze data, therefore trying to obtain a competitive advantage.

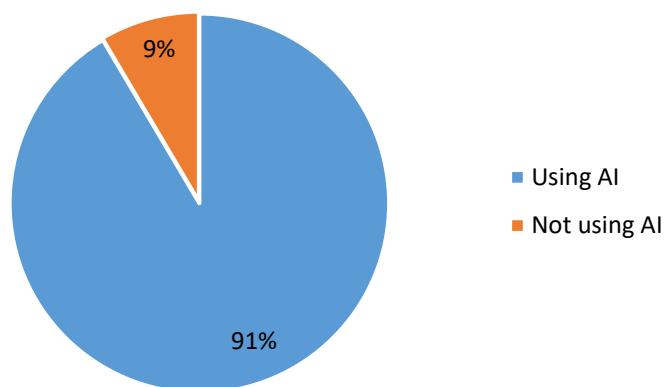


Fig.2 Business tendency for AI use

Elaborated by the author based on resource [3]

The market size of AI is gaining momentum. Precedence Research evaluated the AI software market size at \$138.4 billion in 2022. According to Semrush, the forecasted annual growth rate of AI between 2020 and 2027 is 33.2%. [5]

Legislation is bound to change, and technology is bound to progress. Yet, as technology progresses and more advanced forms of AI become a reality, humanity will be presented with some difficult questions which will impact the future of our personal and professional lives. One of the most concerning subjects regarding AI is the huge job loss risks that humans are afraid of, I chose to research this question and identified that even if some jobs will indeed disappear, that will not necessarily mean something bad, since the processes that they suppose will only be optimized by AI, therefore industry will still need human engagement, which will lead to the emergence of new jobs, that are safe and suitable for humans, but driven by AI's ability to accomplish dangerous or more unpleasant tasks. The data discovered through doing this research allowed me to better understand the advantages of using AI in the industry and how exactly new machines controlled by AI will help us deliver personalized products to each customer and enhance their experience by making an

optimal variant of services that will be created based on a vast amount of detailed data collected by the system.

The results of this research highlight the necessity for strong collaboration between human and artificial intelligence in order to achieve the best possible outcomes. Human-machine collaboration enables companies to interact with employees and customers in novel, more effective ways. As AIs increasingly reach conclusions through processes that are opaque (the so-called black-box problem), they require human experts in the field to explain their behavior to non expert users. These explainers are particularly important in evidence-based industries, such as law and medicine, where a practitioner needs to understand how an AI weighted inputs into, say, a sentencing or medical recommendation.

CONCLUSIONS

Questions of liability are great concerns as the autonomous vehicles cannot be punished if they cause an accident, a person will have to be fined or sentenced, but which person, the driver, the producer, or the programmer? It is due to this great moral dilemma that autonomous AI is advancing slowly when it comes to real-world interaction.[3]

After doing the research required for writing this article, I came to the conclusion that AI is both as powerful as weak compared to humans, and my argument for that is that despite its explosively rapid spreading success it still remains a tool created by humans, its main task is to only simulate human behavior. In my opinion, there is still a long way until the similarity of the AI and human actions will be equaled, to be honest I am still not convinced that would be even possible, but I don't exclude the chance for this to happen. But its huge contribution towards our daily lives is of course undeniable, it has the possibility to do anything from making our homes and workplaces more efficient and comfortable to improving our health and safety.

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