

## **IMPACT OF ARTIFICIAL INTELLIGENCE ON THE GLOBAL ECONOMY : ANALYSIS OF EFFECTS AND CONSEQUENCES**

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### **ABSTRACT**

This paper studies the growing influence of artificial intelligence (AI) on the global economy. AI is a simulation of human intelligence by machines that has emerged as a solution to the technological shortcomings of different sectors of the economy. AI subfields, including machine learning, computer vision, and knowledge-based systems, are essential to improve the performance, capability, efficiency, and reliability of these sectors.

In recent months, there has been a significant upsurge in the adoption of AI, particularly due to the availability of AI software like ChatGPT and Bard. While the current developments of AI are already quite profound, significant advancements are yet to come. This research paper proposes that AI will gradually become the dominant force driving human activities, transforming human life into a virtual world. This AI takeover will influence all aspects of life and business, from sources of income to modes of entertainment, transportation, and communication.

This research paper aims to provide a comprehensive account of how AI currently affects and may affect the global economy. It explores the diverse sectors impacted by AI, including manufacturing, healthcare, and finance, along with the labour market and the changes AI brings to employment opportunities and skill development. This study also discusses the challenges and ethical concerns that may come up with the upsurge of AI.

**Keywords:** artificial intelligence, global economy, technology, market, upsurge.

### **Introduction**

It's a trendy issue to discuss how artificial intelligence (AI) technologies and approaches will affect business and the world economy. Given that AI may bring about profound, maybe unparalleled changes in how humans live and work, this is not surprising. Although the AI revolution is not just beginning, the majority of its economic effects are still to come. The

McKinsey Global Institute makes an effort to simulate how AI will affect the global economy. First, it develops a bottom-up perspective on how to accept and absorb AI technology by building on an understanding of business behaviour and the dynamics of diverse industries. Second, it considers the potential disruptions that nations, businesses, and employees may encounter when they adopt AI. Costs will undoubtedly arise during this transition phase, and any estimate must take them into account. The research looks at how economic advantages and losses are expected to be split among businesses, workers, and nations and how this distribution may or may not make it more difficult to reap the rewards of AI. Third, in order to provide a more comprehensive picture, the research looks at the dynamics of AI for a variety of nations that have been grouped together based on shared traits.

In contrast, emerging nations frequently have other methods for increasing productivity, such as catching up with best practices and reorganizing their businesses. They may therefore be less motivated to promote AI (which may, in any event, provide them with substantially less economic value than it does for advanced nations). This generalization may not apply to all emerging nations. For instance, China is making significant investments and has a national policy in place to dominate the AI supply chain globally.

The analysis should be seen as a roadmap for the prospective economic effects of AI based on the most up-to-date information. The following are a few of the key conclusions:

### **1. AI has a significant potential to impact the global economy**

The McKinsey Global Institute examined five major subcategories of AI: advanced machine learning, virtual assistants, robotic process automation, natural language understanding, and computer vision. These tools will probably be utilized in different ways by businesses. Some will adopt an opportunistic strategy, evaluating just one technology and piloting it in a single function (a strategy we refer to as adoption in our modeling). Some people could be more daring than others, embracing all five and then fully integrating them across the entire organization. Many businesses at various phases of adoption will exist between these two poles; the model also accounts for this limited influence. Approximately 70% of businesses may have accepted at least one form of AI technology by 2030, according to the average simulation, but fewer than half will have fully absorbed all five types. At the top end of what has been seen with previous technologies, the pattern of acceptance and full absorption may be rather quick.

However, our modeling suggests that at the average worldwide level of adoption and absorption, AI has the potential to generate an extra \$13 trillion in global economic activity by 2030, or a 16 percent increase in cumulative GDP over today. This equates to an annual GDP growth increase of 1.2 percent more. This influence, if realized, would be on par with previous general-purpose

technologies throughout history.

AI-driven productivity increase is influenced by a variety of variables, including labor automation, innovation, and new competitors. The rate of AI adoption is a micro element; the extent of the effect is influenced by macro variables like a country's labor market structure or the degree of global connectivity.

## **2. Adoption of AI might expand differences between nations, businesses, and employees, which is a major concern.**

AI has the potential to expand global divides and exacerbate the present digital divide. As AI adoption rates vary, various nations may require different tactics and reactions. Leaders in AI adoption (mostly in rich nations) may extend their advantage over developing nations. Leading AI nations might increase their net economic advantages by 20 to 25 percent from where they are now, but emerging nations would only see a gain of 5 to 15 percent. As their GDP growth velocity slows, many industrialized countries may have little choice but to push AI to achieve faster productivity growth—in many cases, partially reflecting the problem caused by aging populations. Furthermore, these economies have high wage rates, which makes it more attractive to replace labor with robots than it is in low-wage, developing nations. In contrast, emerging nations frequently have other methods for increasing productivity, such as catching up with best practices and reorganizing their businesses. They may therefore be less motivated to promote AI (which may, in any event, provide them with substantially less economic value than it does for advanced nations). This generalization may not apply to all emerging nations. For instance, China is making significant investments and has a national policy in place to dominate the AI supply chain globally.

## **3. Modeling how AI will affect the global economy**

The earnings would be affected by these changes. According to our simulations, around 13% of the overall wage bill may migrate to occupations needing nonrepetitive labor and high levels of digital proficiency, where salaries may increase, while those requiring repetitive work and lower levels of digital proficiency may see salary stagnation or even decrease. The latter group's percentage of the total pay expense might drop from 33% to 20%. A direct result of this growing salary and job disparity would be a fight for talent, especially among those competent in creating and utilising AI technologies. On the other hand, there is a chance that there will be a structural surplus of labour because there are still a lot of people who lack the digital and cognitive abilities needed to operate robots.

Overall, it's possible that net employment won't be much affected by the acceptance and use of AI. The need for full-time work will undoubtedly be under a lot of pressure, but overall, the

impact may be less severe than many people anticipate. By 2030, the total demand for full-time equivalent employment might either stay unchanged or perhaps have a tiny negative net impact on jobs, according to our average worldwide scenario.

### **Literature Review**

Although AI presents a major potential, there is little question that its widespread use might result in upheaval. AI's productivity dividend most likely won't appear right away. The advantages of early investment might not be apparent in the immediate term since its influence is likely to increase at a faster rate over time. It will take persistence and long-term strategic thinking. To overcome voters' reasonable unease about the perceived danger to their employment as technology takes root, policymakers will need to display decisive leadership. Companies will play a significant role in the quest for solutions to the enormous challenge of reskilling and educating people to use AI.

People will need to adapt to a new environment where job churn may be more common, they may need to switch to different sorts of work, and they almost certainly need to constantly update and refresh their abilities to keep up with the demands of a labor market that is changing quickly. By 2030, new jobs resulting from investment in AI may increase employment by around 5%, according to historical patterns in the ratio of new jobs produced to old occupations, after compensating for a lower labor-output ratio that takes into account the potential labor-saving potential of AI technologies through smart automation. About 10% more jobs might be created as a result of the overall productivity benefit.

AI may also be utilized to enhance the results of international commercial talks. In a multiplayer scenario where trade barriers are reduced at different rates, for example, AI could be used to better analyze the economic trajectories of each negotiating partner under various assumptions, including outcomes contingent on trade negotiations (growth pathways under various forms of trade liberalization), how these outcomes are affected in this scenario, as well as predicting the trade response from countries not party to the negotiation. An intelligent technology and trade initiative that Brazil has previously formed calls for the use of AI in trade discussions.

However, if individuals are to feel comfortable living their lives online, including supplying vast quantities of personal data for AI learning, solid privacy will be necessary. According to this viewpoint, there is no intrinsic conflict between the development of AI and privacy. Designing privacy regulations that don't impose needless limitations on data access and usage will be the main difficulty. Trade regulations can help by requiring data-importing countries to respect the privacy of personal data coming from the data-exporting nation. This might be done by promoting various types of mutual recognition of privacy systems and by creating standard

regional and international privacy standards.

Access to commodities will have an impact on AI development internationally, even though most of it is centered on access to data, standards, and intellectual property. CPUs are a crucial piece of gear employed in Deep Neural Networks, as was already mentioned. Therefore, the worldwide growth of AI requires trade in CPUs. This emphasizes the continuing importance of lowering rates in facilitating access to the technology required for the advancement of AI.

### Methods

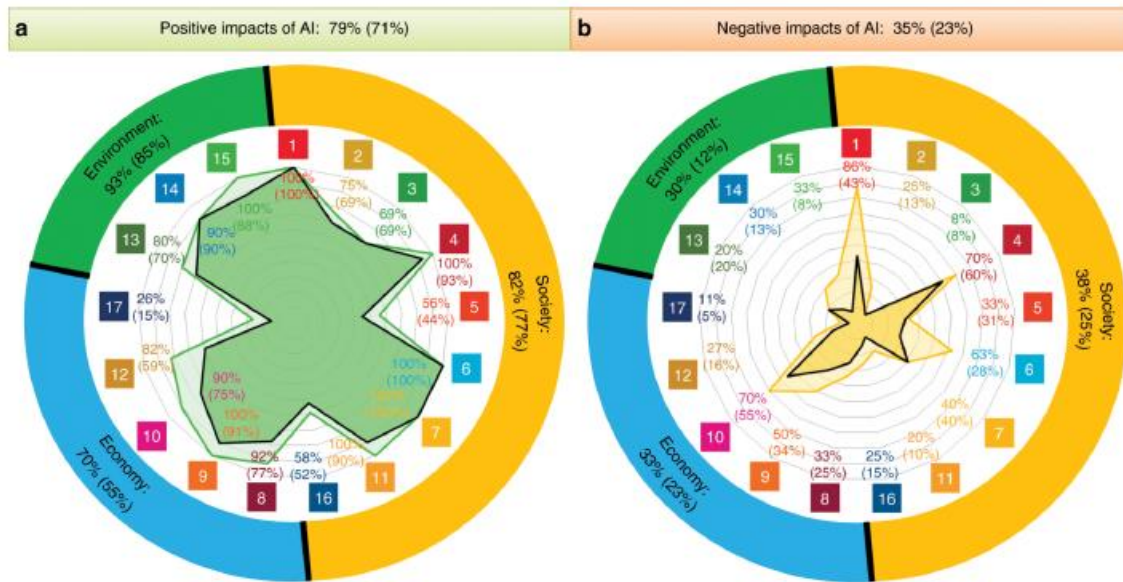
Figure: 1



Source: <https://www.linkedin.com/pulse/applying-ai-towards-better-world-gdp-jobs-growth-less-imitiaz-adam/>

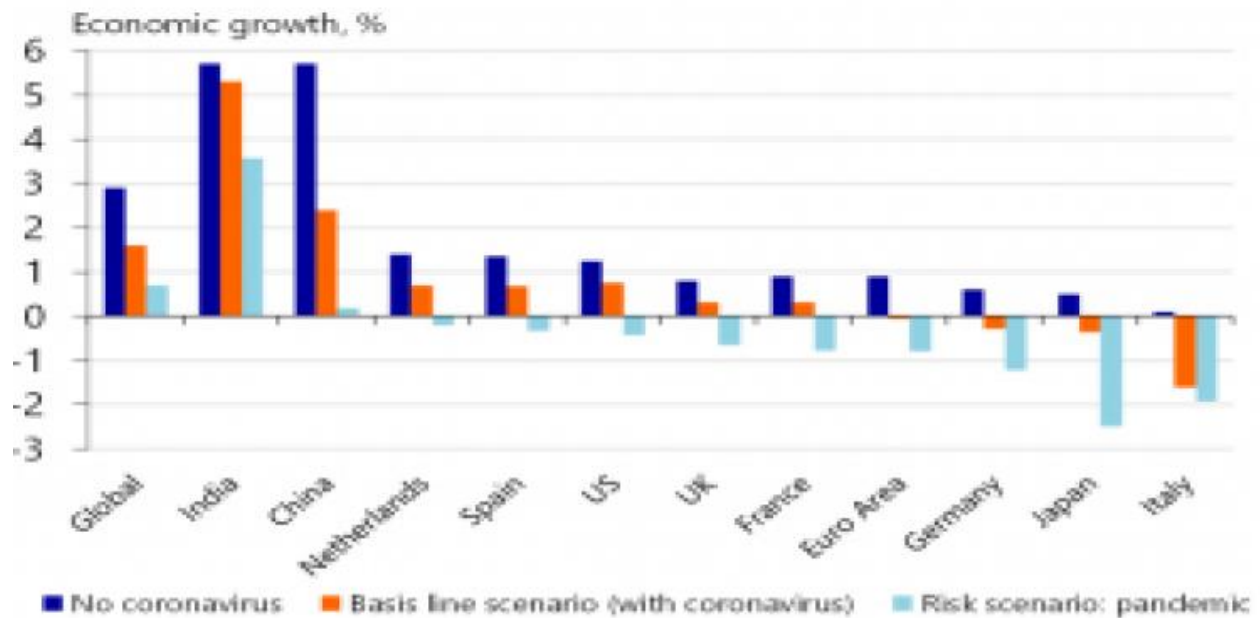


Figure: 2



Source: <https://www.nature.com/articles/s41467-019-14108-y>

Figure: 3



Source: <https://artificialintelligence.oodles.io/blogs/world-economy-with-ai-machine-learning/>

## **Findings and Discussions**

The technical benefits that AI offers might also help with the attainment of a number of SDGs within the Economy group. From these SDGs, we have detected positive impacts of AI on 42 objectives (70%) whereas negative implications are documented on 20 targets (33%). In the context of the Economy group of SDGs, the economic gap may be significantly increased due to the newly introduced inequalities, significantly impacting SDGs 8 (decent work and economic growth), (industry, innovation, and infrastructure), and 10 (reduced inequalities). If future markets rely heavily on data analysis and these resources are not equally available in low- and middle-income countries. According to Brynjolfsson and McAfee, AI can aggravate inequality both across and within countries. Technology unfairly compensates the educated by displacing old professions with ones demanding more skills: from the mid-1970s, in the United States (US), earnings climbed around 25% for those with graduate degrees, while the average high school dropout experienced a 30% pay fall. The SDG India Index & Dashboard's efforts to track the SDGs have received widespread acclaim and praise from all across the world. Using a composite index that is specifically focused on the SDGs to assess the states and union territories is currently a rare statistical endeavor. The SDGs are under the supervision of NITI Aayog, which also has the responsibility of encouraging states and UTs to cooperate and compete in their federalism. The index articulates the overarching nature of the Global Goals of the 2030 Agenda while paying attention to national issues. The endeavor to extend and improve this essential tool with each edition has been motivated by the requirement to routinely review performance and monitor progress as well as take into consideration the accessibility of the most recent SDG-related data on States and UTs. Throughout the selection process for these 115 indicators, several conversations with Union Ministries took place. All states and Union territories were asked for their opinions, and as the main audience and stakeholders for this localization resource, they were instrumental in the creation of the index by adding localized opinions and information from reality to the performance rating.

While some experts applaud the remarkable increase in AI capability, others are concerned. AI has two sides to it; depending on how it is applied, it may either help or hurt humans. Artificial intelligence (AI) is inherently neutral, and humans—both its creators and users—decide how it will be used. AI can speed up the development of novel materials and vaccines, improve traffic management on the internet, and increase factory efficiency. However, as examined and addressed in the articles that follow, AI may also cause unanticipated economic and social unrest, including disruptive industrial restructuring that results in job loss and rising income disparity, malicious usage by terrorists, privacy abuses, and offenses against human dignity.

## **Conclusions**

The global economy has undergone a profound transformation because of artificial intelligence (AI). Automation and sophisticated data analysis have improved production, efficiency, and innovation across sectors. Processes have been simplified, supply chains have been improved, and operating costs have dropped for firms thanks to AI-powered solutions. In addition, AI has opened up new career paths, notably in the areas of machine learning, data analysis, and AI development. By encouraging the establishment of new sectors and business models, it has also boosted economic growth. The rapid deployment of AI has, however, prompted worries about job displacement and ethical issues, needing strict regulation and reskilling campaigns to prevent possible negative effects. Overall, AI is now a vital engine for economic growth, enabling firms and countries to adjust to the digital age and prosper.

Automation powered by AI has simplified operations, increasing effectiveness, cutting costs, and raising production in a variety of industries. AI helps companies to get useful insights, make data-driven choices, and customize client experiences with sophisticated data analytics and machine learning algorithms. Increased innovation and competition have resulted from this. Furthermore, AI has produced new employment prospects, notably in sectors linked to the research and use of AI. In addition, the use of AI and machine learning algorithms brings up moral dilemmas such as privacy problems, prejudiced judgment, and lack of transparency. These drawbacks of AI can impede economic progress, aggravate social inequality, and erode public confidence in technology if they are not adequately controlled and handled. These issues must be resolved in order to ensure that AI advantages are shared fairly and that any possible negative effects are kept to a minimum.

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