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THE TRANSFORMATIVE POWER OF AI: PROJECTED IMPACTS ON THE GLOBAL ECONOMY BY 2030

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ABSTRACT

Objective: The primary focus of this document is to delve into the role and influence of Artificial Intelligence (AI) on the global economy. The study aims to elucidate the potential economic ramifications, both positive and negative, that AI technologies might bring.

Conclusions: Preliminary insights suggest that artificial intelligence has the potential to significantly boost the global economy. For instance, AI could potentially add up to 16%, approximately $13 trillion, to the global economy by 2030. Furthermore, AI's influence could elevate the global GDP by up to 26%. It is also highlighted that in the upcoming years, at least 70% of companies worldwide will integrate AI in some form or another.

Practical Implications: The rapid adoption of AI technologies will undeniably have profound implications on businesses and economies. Companies that leverage AI stand to gain competitive advantages in their respective domains. Additionally, as more businesses adopt AI, there will be a heightened demand for AI expertise, potentially leading to job creation in specific sectors while possibly leading to job redundancies in others.

Keywords: Artificial Intelligence (AI), Global Economy, Machine Learning, Computer Vision, Gross Domestic Product (GDP)

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INTRODUCTION

Artificial intelligence (AI) plays a predominant role in this technological era. The name AI which was first coined in 1956 has come a long way. Put in simple words Artificial intelligence attempts to revive human intelligence, mannerisms, including human thought processes in machines. Two subfields of AI which are contributing to its growth are Machine learning and Computer vision. Machine learning permits machines to learn from humans and develop the way it is intended whereas computer vision relates to the way computer discerns things similar to human.

As per the reports of Mckinsey Global Institute, artificial intelligence has the potential to add up to 16% or about $13 trillion to the global economy by the year 2030. Additionally, it could boost the global gross domestic product (GDP) by up to 26%[4].

The report also adds that in the next few years at least 70% of the companies will have adopted Artificial intelligence in some form or the other.

Artificial intelligence has the capacity to be a significant contributor to progress of economy.

Forecasting the monetary effect of artificial intelligence (AI) or any troublesome technology is an extremely hypothetical endeavor. Mckinsey's report on modeling impact of AI on global economy reveals that the adoption of AI may initially take a S-shape meaning thereby, that it predicts slow adoption, then rising gradually, reason being that adoption involves huge investment. AI's growth may be two or three times higher by 2030 than it is over the next five years. AI can influence, labor automation, innovation, new competition all such activities that are productivity driven development. There are seven potential channels through which AI can impact the production processes, namely, augmentation, substitution, product and innovation of service and extension, economic gains from raised global flows, wealth creation and re-investment, transition and implementation costs and negative externalities. The main component through which production can be increased is through enhanced use of both labor and capital use. There

[4]https://timesofindia.indiatimes.com/blogs/voices/how-is-ai-strengthening-the-global-economy/

are examples of reputed companies using artificial intelligence in one form or the other such as Google has created a force of around 10000 'raters' who watch you-tube videos besides other things and try out new services Similarly, Microsoft has a crowdsourcing tool called the Universal Human Relevance System that performs micro and administrative chores. Facebook has stated that the number of moderators would be augmented from 4,500 to 7,500.

Increase use of artificial intelligence is proved by the fact that between 1980 and 2000, roughly 4% to 9% of the workforce in America worked in occupations that were not there 15 years before.

It is not correct to say that artificial intelligence will replace humans always, Artificial intelligence has the capacity to enhance global productivity by redefining the present jobs. While computers take over some functions, employees are freed to participate in higher-value professions leveraging AI technologies to become more efficient or in some tasks that robots are not yet capable of completing, regardless of their value. Certain operations in some departments or centers, for example, may be totally automated, while others might be performed far more efficiently by humans. Therefore, a mix of the two will prevail. An example, of how Uber has displaced traditional taxi services, or how AI-based recommendations have redirected purchases away from traditional channels and toward platforms such as Amazon. According to MGI polls conducted in 2017, a considerable portion of AI's innovation potential could result in enterprises shifting manufacturing, with changes depending on the industry. Therefore, the mis conception that artificial intelligence will replace humans is not correct but it will lead innovating and finding new ways of doing things.

The addition and replacement of inputs, as well as additional inventive output, create new economic activity and productivity improvements, which academics commonly use to assess the economic impact of artificial intelligence.

Other factors, on the other hand, must be considered to obtain a more comprehensive picture of the economic impact. Artificial intelligence (AI) technology and practices, for example, can help to increase global trade flows and make cross-border trade more efficient. Countries that are more connected and participate in global flows will

undoubtedly benefit more from AI in this regard. Gains in economic activity can be re-invested in the economy to keep it expanding. On the flip side, use of Artificial Intelligence can lead to negative externalities like transition costs associated with implementing AI technologies, as well as more structural costs like lost competitiveness in firms that do not implement AI or workers being shifted because they have little or no skills to operate in an AI-based economic system. To offer a more comprehensive perspective of AI's economic impact, four additional variables can be added

Gains in the economy because of greater global flows

According to report of Mckinsey by 2030, AI might contribute for up to 20% of the contribution of data and digital flows, a 1.5 percent increase over today.

In two ways, AI may help with digital flow. The first is to make cross-border trade more efficient. Cross-border e-commerce is thought to account for one-third of numerical data flows, with AI technologies accounting for 30 to 40% of digital commerce. According to some estimations, AI-powered recommendation engines account for 30 to 40% of sales at major e-commerce companies. If enterprises embrace and absorb AI at a 50% rate by 2030, AI might contribute 5 to 10% of the value created by digital data flows, or a 0.5 percent increase in GDP growth.

Banks may also employ AI to evaluate trade papers, appropriately classify and identify them, and analyze risks with far less effort. E-commerce is a bright example of use of AI. Cross-border business is already made easier by digital data flows, but AI can make it easier. Take, for instance, Wish, a worldwide e-commerce system that supports machine learning algorithms to connect hundreds of millions of retailers and consumers around the world. This had a huge influence on Sweden's import volume from China in a short period of time, with a 65 percent increase in volume between 2016 and 2017.

The second way AI affects global flows is by enhancing and increasing the use of cross-border data in non-commercial flows, which may improve the performance of AI solutions and, as a result, the productivity of local activities, notably services.as was done by MGI (reports).

Because AI helps economies become more productive, the improved production from efficiency improvements and innovations may be passed on to employees in the form of pay and profits to entrepreneurs and businesses. This wealth creation produced by AI has the prospect to have positive spillover effects that increase economic growth. As people's incomes grow and they spend more, and firms reinvest their profits into operations, the excess production may be channeled back into the economy in the form of greater consumption or more productive investment, as well as job creation. Over time, secondary effects or spillovers may arise; in fact, they have historically been a key source of long-term growth. If such benefits are reinvested in the domestic economy rather than exported to other countries, they will have a stronger impact on the economy and its participants. Thus, it is like a chain reaction. The benefit can be maximized by repatriation or outbound capital movements. The AI value chain has the potential to develop and improve the ICT industry, contributing significantly to the economy. To optimize the reinjection of extra production into the economy, it is critical to develop a robust AI value chain.

As a result of the AI revolution, certain costs are expected to be spent. Companies will almost certainly incur expenditures as a result of restructuring. Some workers may be displaced as a result of new technology, and businesses may be compelled to cover costs such as severance. When businesses adopt new solutions, they may have to pay fees to cover the cost of systems, their integration, and related project and consultancy charges. Firms must also develop capacities to run new AI technologies, which includes employing new employees and investing expenditures such as advertising and headhunting fees. Companies must also improve the abilities of their current employees. As more jobs become automated, employees will need to adapt to new types of labor, and many people will need to be trained to use new digital and AI technologies in their daily operations. As a result of social disturbances, costs may be incurred

Negative aspect of Artificial Intelligence

Artificial intelligence might have huge negative distributional externalities that harm workers and others. Many economists believe that technology improvements have reduced labor share in many economies. As businesses adopt and integrate AI, job and

earnings pressures are likely to increase, potentially lowering the labor share of income and potential economic growth—cyclically through lost consumption during periods when people are unemployed or retraining, and systemically through a comparative income effect. Other costs may have both a direct and indirect influence on individuals, as well as a larger economic impact. If displaced employees want to quickly return to work, they may need to enroll in retraining courses provided and subsidized by governments and businesses. During the transition, there will almost likely be a detrimental impact on the economy. Unemployed people are more prone to cut back on their expenditures since they are not earning. Another expense is government assistance in the form of unemployment payments and other social benefits for impacted workers. Externalities can survive longer than intended, as evidenced by historical examples.

Some important cases in AI development in the future:

1. By 2030, labor automation might rise international GDP by nearly 9%, or $9 trillion.

The impact of technological displacement on humans is real and significant. This worry, however, must be seen in the perspective of overall efficiency and economic action growth. By 2030, the impact of automation might be $9 trillion, or roughly 11% higher production than today.

2. By 2030, product and service innovation might generate up to 7% of potential GDP, or roughly $6 trillion.

AI can make a significant contribution through fostering innovation, which can subsequently be used to improve existing goods and services as well as develop wholly new ones. According to the simulation, innovation can contribute roughly 7%, which might result in a $6 trillion boost in GDP by 2030, when compared to today's output.

AI's effect is influenced by both micro and macro elements.

AI's influence on global economic activity is largely influenced by both micro and macro variables. The most important micro elements have an impact on the dynamics of AI adoption and absorption in businesses. AI investment and research capabilities, as well as critical enablers like digital absorption, human capital, connectivity to global flows, and labor-market structures and flexibility, are among the most important macro variables.

By 2030, the total degree of AI use by businesses might be about 50%.

According to econometric research and private data, as well as early evidence from surveys on how organizations are adopting AI, an estimated 70% of businesses will use some AI technology by 2030, up from 33% now, and roughly 35% will have fully absorbed AI, compared to 3% currently. Companies that just absorb a portion of AI technology are more likely to get only a portion of AI's benefits.

Macro Indicators:

AI-related indicators:

AI investment. The economic effect of AI is contingent on whether adequate funds are available to support new AI firms and research, as well as to allow for increased corporate investment. Although AI investment is quickly increasing, it remains mostly focused in America and China. In 2016, IT giants like Google and Baidu invested between $20 and $30 billion on AI. According to CB Insights, $15.2 billion was invested in AI companies throughout the world in 2017, with China accounting for over half of that amount (48%) and the US accounting for 38%. Although the United States continues to have more AI companies than China, China is making significant progress in completing AI equity transactions.

AI research activities. AI might have a significant economic influence if firms employ it to new product and service development (beyond simple labor substitution). There have been research-based studies for AI-related activities using WIPO data on AI-related patents and AI research using Scimago Journal. Having said that, it is worth noting that several corporate laboratories are currently among the top producers of AI information to major conferences such as the Conference on Neural Information Processing Systems (NIPS) and the International Conference on Machine Learning.

Potential productivity boost from AI and automation. According to MGI's 2017 research on the future of work, the relative pricing of machines and labor may influence the

possibilities for automation and AI adoption. The potential for automation in emerging countries is restricted due to low pay. Companies that substitute AI for labor may be motivated not just by cost savings, but also by AI's ability to outperform people in certain occupations. The automation potential, and hence the substitution impact, may vary according on salary levels, economics, and societal acceptance.

AI May give rise to Disparities

While AI's potential advantages are substantial, they are unlikely to be dispersed evenly. The simulated assessment of AI's global economic impact is an average of the effects on various nations, industries, and enterprises. There may be growing disparities among nations, industries, businesses, and employees.

Countries which are ahead in the race for adoption of Artificial Intelligence are China and the United States. These two nations are now dominating the race to supply artificial intelligence, and they each have distinct advantages that set them apart from the competition. They are collectively responsible for the great bulk of AI-related research.

Economies that stand to gain from AI adoption. Under these are included, countries which are comparatively advanced and diverse in nature such as Canada, France, South Korea, and Sweden. Given their typically strong foundation of enablers, they are in a good position to reap the benefits of AI. Because of their decreasing productivity growth, several of these economies are particularly driven to adopt AI. Another motivator is that labor expenses in many areas, particularly industrialized economies, are often expensive. This group includes many significant economies, including Germany, Japan, and the United Kingdom, which can drive large-scale research and speed the commercialization of AI solutions. Smaller, more internationally linked economies, such as Finland, Singapore, South Korea, and Sweden, are known for their capacity to establish productive settings conducive to the development of new business models.

Economies with moderate capacity. This group, which includes India, Italy, and Malaysia, has a moderate capacity to profit from AI in terms of economic advantages. India is gradually overcoming the hurdles in digital conversion of its various activities, though at

a very slow pace, yet on the other extreme it generates around 1.7million STEM graduates every year. Additionally, ICT accounts for a large portion of India's export.

The pace of adoption of AI is different more advanced and less advanced nations. Like digital divide, there exists a gap in the adoption of AI in the years to come between the developed and the developing countries. The sectors that exhibit more adoption of digitization are obviously, ICT, media and financial services, whereas sectors such as agriculture, local services and construction have low adoption of AI.

Sectors in which AI has made in -roads

RETAIL

In the retail industry, several AI applications are being used. Examples of AI applications in this sector are, predicting the customer preferences, using of face recognition software, adding sensors data, besides a variety of other functions.

HEALTHCARE

Healthcare stands to benefit, if AI is applied in an appropriate manner, will pave ways for efficient treatment plans, including diagnosis, better health insurance , combined with data from medical health care facilities , AI applications may be able to detect abnormalities and provide better health care.

TELECOMMUNICATIONS

Application of AI to telecommunications is no hidden fact. It is equipped with expertise, advanced algorithms, cloud-based processing capabilities. Presently, the focus of telecom companies is on improving analytics.

Automobiles and manufacturing

Use of AI applications to automobile and manufacturing industries is one of the oldest. In fact, it was the McKinsey report published in January 2018 which pointed out the prospects for use of AI in this regard with a potential value of roughly $0.2 trillion.

Future of Employees

Mckinsey Report of 2017 states that in the years to come employees may need to shift occupations and adjust to new methods of working in an environment of robots.

CONCLUSION

The economic effect of AI is expected to be significant, especially when compared to previous general-purpose technologies in history. Ai is making significant in-roads in the days to come in a big way. AI's effect is expected to grow at a faster rate over time, therefore the advantages of initial investment may not be apparent right away. Simultaneously, there is a danger that a growing AI split will emerge between those who adopt these technologies fast and those who do not, as well as between those who have the skills that will be in demand in the AI age and those who do not. The advantages of AI are expected to be dispersed unequally, and if the development and deployment of these technologies are not handled properly, inequality may worsen, thereby sparking social strife.

Patience and strategic thinking over the long period may be needed. Companies and governments must collaborate on the massive burden of training and retraining people to work with AI. Individuals must adjust to a new environment in which job churn may be more common, they may be required to transfer to other sorts of work, and they will be required to renew and upgrade their abilities on a regular basis to meet the demands of a dynamically changing labor market. The effect of artificial intelligence is not altogether negative, it all depends on its use to help mankind simplify the jobs.

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