
USE OF ARTIFICIAL INTELLIGENCE ON THE GLOBAL MARKET

***Mr. Jayhind Nishad, Mr Devashish Jenna**

India.

Article Received: 04 March 2026, Article Revised: 24 March 2026, Published on: 14 April 2026

***Corresponding Author: Mr. Jayhind Nishad**

India.

DOI: <https://doi-doi.org/101555/ijarp.2457>**ABSTRACT**

Artificial Intelligence (AI) refers to the capability of machines to execute tasks that typically require human intelligence, including learning, comprehension, reasoning, and interaction. It can manifest in various forms such as technological infrastructure, components within systems, or as end-user applications. AI is increasingly expected to significantly reshape modern society and its functioning.

The primary aim of this study is to analyze the impact of AI on the economy, focusing on its effects on productivity, employment patterns, industrial structures, and overall economic development. Through multiple case studies, selected industries have been examined to understand how AI integration has transformed their operations, workforce composition, and economic performance.

This paper reviews five research studies and presents a synthesized summary of their findings. It further investigates the current role of AI technologies and explores their future potential. The application of AI in sectors such as healthcare, finance, social media, e-commerce, manufacturing, and global productivity has been thoroughly evaluated, along with projections for future developments.

INTRODUCTION

Artificial Intelligence is a technological innovation that emerged in the 1980s with the objective of simulating human behavior in machines. Over time, its capabilities have advanced considerably. AI represents a transformative breakthrough that many individuals have yet to fully grasp. Just as the invention of the wheel marked a milestone in human progress, AI is considered a comparable revolutionary advancement, as highlighted by Sundar Pichai, CEO of Google.

AI has significantly transformed the information technology sector. From ChatGPT to Google Bard, modern AI-driven tools provide advanced solutions for handling diverse queries. These technologies are not only capable of performing routine tasks but also executing complex, non-routine, and high-skill activities that were previously limited to skilled professionals.

This dual capability of AI brings both advantages and challenges, which are discussed comprehensively in this paper. Machine learning has been the core driver of AI development since the 1980s. Initially, progress was constrained due to limited computational resources. However, with advancements in computing power, machine learning models have evolved to process and analyze vast datasets efficiently.

Machine learning, a subset of AI, enables systems to learn and improve automatically without explicit programming. Researchers have utilized machine learning techniques to replicate aspects of human intelligence, enabling AI systems to recognize images, process languages, and function as virtual assistants.

Literature Review

Economic Impact of Artificial Intelligence (2019)

Artificial Intelligence involves the creation of computer systems capable of carrying out tasks that generally require human cognitive abilities. These include learning, logical reasoning, problem-solving, perception, language processing, and decision-making. AI can be broadly classified into narrow AI and general AI.

According to technology journalist Alice Bonasio, AI research has expanded at an annual growth rate of approximately 12.9% over the past five years. China is projected to surpass the United States as the global leader in AI research within the next few years. Europe remains the most diverse and collaborative region in AI development, while India ranks third globally in AI research output after China and the USA.

Applications of Artificial Intelligence

Healthcare

Many organizations and healthcare institutions are adopting AI technologies to enhance patient outcomes and save lives. Key applications include:

- **Administrative Support:** AI systems assist in routine administrative functions such as scheduling appointments and maintaining organized records, thereby minimizing human errors and improving efficiency. Natural Language Processing (NLP) is used to convert

medical notes into structured formats, making them easier for healthcare professionals to interpret.

- **Assisted Diagnosis:** AI can analyze MRI scans and detect abnormalities more rapidly and accurately than traditional methods, utilizing advanced techniques such as computer vision and neural networks.
- **Robotic Surgery:** AI-powered surgical systems offer high precision with minimal error rates. These systems can operate continuously without fatigue and are less invasive, reducing patient recovery time.
- **Health Monitoring:** Wearable devices powered by AI can track vital health indicators such as heart rate, blood pressure, oxygen levels, and calorie intake. Machine learning algorithms can predict potential health risks at an early stage.

E-Commerce

AI is increasingly being utilized by e-commerce platforms to enhance customer experience and operational efficiency. Key applications include:

- **Personalized Shopping:** AI-driven recommendation systems analyze user behavior, preferences, and past purchases to suggest relevant products. This improves customer engagement and strengthens brand loyalty.

E-Commerce and Robotics

- **AI-Powered Assistants:**

Virtual shopping assistants and chatbots contribute significantly to improving the online purchasing experience. Natural Language Processing (NLP) enables these systems to communicate in a more human-like and personalized manner. Additionally, these assistants can engage with customers in real time, enhancing interaction and customer satisfaction.

- **Fraud Detection and Prevention:**

One of the major challenges faced by e-commerce companies is credit card fraud and deceptive reviews. AI helps mitigate these risks by analyzing behavioral patterns and transaction data, thereby reducing the likelihood of fraudulent activities.

Robotics

Artificial Intelligence is playing a crucial role in advancing robotics by enabling the development of more sophisticated and efficient machines. AI-driven robots are widely utilized across multiple sectors, especially in manufacturing and packaging industries.

AI equips robots with computer vision capabilities, allowing them to perceive, navigate, and respond effectively to their surroundings. Through machine learning techniques, humanoid robots are being developed that can replicate human actions and even simulate emotional responses to some extent.

Finance

Artificial Intelligence is significantly transforming the financial sector by enhancing efficiency and decision-making processes. It supports various functions such as risk evaluation, fraud identification, financial management, advisory services, and automated trading systems.

Key applications of AI in finance include:

- AI in personal financial management
- AI in consumer banking services
- AI in corporate financial operations

Marketing

The application of AI in marketing has become highly automated, as it facilitates the analysis of customer behavior and spending patterns. This enables organizations to target specific audiences more effectively, thereby maximizing profitability. AI is widely used in marketing campaigns where rapid decision-making and execution are essential.

- In 2022, more than one-third of organizations in the United States reported utilizing AI for automation processes.
- Over half of the organizations supported the adoption of AI to enhance profitability.
- The integration of AI is also contributing to job creation and overall economic expansion.

Social Media

Research indicates that over 90% of retailers in the United States have established a presence on social media platforms, which helps increase online visibility and traffic.

AI in social media enables the automation of content updates and communication. It can automatically notify users about newly launched products, allowing them to pre-order at discounted prices. This creates mutual benefits for both businesses and consumers.

AI and the Economy (2019)

Automation and Labor Market Disruption

Automation refers to the application of technologies such as AI and robotics to perform tasks that traditionally required human effort. It has the potential to substantially reshape the labor market, leading to structural disruptions.

- **Job Displacement:**

A study by Frey and Osborne (2017) estimated that approximately 47% of jobs in the United States are at risk of automation. Similarly, the World Economic Forum (2020) projected that automation could replace around 85 million jobs globally by 2025.

- **Evolving Skill Requirements:**

As AI transforms the employment landscape, there is an increasing demand for advanced technical skills. Workers displaced by automation are encouraged to acquire new digital and technological competencies to remain employable and secure better opportunities.

The World Economic Forum's *Future of Jobs Report* (2020) highlights the emergence of new roles in areas such as data analytics, AI development, and digital content creation. These positions require a blend of technical expertise and interpersonal skills.

- **Income Inequality:**

Research by Acemoglu and Restrepo (2019) indicates that automation has contributed to widening income disparities, particularly affecting workers without higher education qualifications. While automation improves organizational productivity, the economic benefits are often unevenly distributed among employees.

- **Job Transformation and Augmentation:**

Brynjolfsson and McAfee (2014) introduced the concept of "skill-biased technological change," suggesting that AI can complement human labor rather than completely replace it. Automation can handle repetitive and physically demanding tasks, thereby enhancing overall worker productivity.

Global Economic Impact of AI

A study conducted by Accenture across 12 developed nations revealed the following insights:

- By 2035, AI has the potential to double global economic growth rates.
- Global GDP could increase by up to 14% by 2030 due to AI adoption.
- AI may improve workforce efficiency by automating repetitive tasks, potentially increasing productivity by up to 40%.

- The benefits of AI are expected to be global, with regions such as North America and China gaining the most advantages.
- AI is anticipated to transform the transportation sector through the development of fully autonomous vehicles.
- Similarly, a report by the McKinsey Global Institute highlights:
- Approximately 70% of U.S. companies are expected to adopt AI technologies by 2030, contributing to an annual global GDP growth of around 1.2%.
- Despite advancements in AI, certain sectors will continue to rely heavily on human labor, where workers are likely to receive higher compensation.

AI in the Manufacturing Industry (2022)

A study conducted by the OECD highlighted several important findings regarding the role of Artificial Intelligence in the manufacturing sector:

- AI can significantly enhance technologies such as sensors, additive manufacturing (3D printing), and robotics.
- AI-based solutions are essential for integrating machines, user interfaces, and system components, thereby improving and streamlining production processes.
- Manufacturers can expand into new markets, as AI enables the production of highly customized, diverse, and superior-quality goods.
- The full realization of Industry 4.0 may not occur until the middle of the next decade, as it requires the integration of multiple advanced technologies, which may take 20–30 years to become widely adopted.
- The impact of AI is expected to be more pronounced in developed nations with higher labor costs, where automation is more economically viable. In contrast, developing countries may retain a comparative advantage due to lower wage levels, reducing the immediate incentive to replace human labor with AI systems.

Survey of AI in Finance (2022)

A significant case study illustrating the impact of Artificial Intelligence in financial services is the adoption of AI-powered algorithmic trading in stock markets. Algorithmic trading, often referred to as high-frequency trading, utilizes advanced computational algorithms to execute trading decisions at extremely high speeds.

The economic implications of AI in financial services, particularly in algorithmic trading, can be summarized as follows:

- **Enhanced Trading Efficiency:**

AI-driven algorithmic trading has greatly improved operational efficiency by automating decision-making processes and executing trades within milliseconds. This has led to lower transaction costs and increased liquidity in financial markets.

A study by Brogaard, Hendershott, and Riordan (2014) examined the effects of algorithmic trading on market performance. Their findings indicate that algorithmic trading contributes to increased market liquidity, narrower bid-ask spreads, and improved price discovery in equity markets. As a result, capital allocation becomes more efficient, benefiting the overall economy.

Enhanced Market Liquidity

AI-driven trading systems contribute significantly to improving market liquidity by continuously generating buy and sell orders, enabling smoother and more efficient trade execution. This increased liquidity benefits market participants by enhancing price discovery and lowering transaction costs.

A study conducted by the Federal Reserve Bank of New York (2014) examined the effects of high-frequency trading on equity market liquidity. The findings indicated that such trading practices positively influence liquidity by increasing trading volumes and narrowing bid-ask spreads.

Volatility and Risk Management

Artificial Intelligence algorithms are capable of processing vast amounts of data rapidly and responding to market fluctuations in real time, thereby improving volatility control and risk management in financial systems. AI-based models can detect patterns, relationships, and irregularities, facilitating more accurate risk evaluation and mitigation strategies.

A report published by the International Monetary Fund (IMF) in 2019 analyzed the role of AI in financial stability. It emphasized that AI technologies, including machine learning and natural language processing, can strengthen risk management by enhancing the prediction of market trends and identifying systemic risks.

Concerns of Market Instability

Despite the numerous advantages of AI-driven algorithmic trading, concerns have been raised regarding potential market instability and systemic risks. The complex interactions among trading algorithms, combined with their high execution speed, can intensify market volatility and trigger abrupt price movements.

The **Flash Crash of May 6, 2010** serves as a notable example of such instability. During this event, automated trading systems caused a rapid and significant decline in stock market prices, followed by a swift recovery. This incident highlighted the potential risks associated with algorithmic trading and underscored the importance of effective regulatory oversight and risk management mechanisms.

AI in Healthcare Applications (2020)

Artificial Intelligence has demonstrated considerable potential in enhancing diagnostic precision, minimizing medical errors, and improving overall patient care. The following case study illustrates the economic impact of AI in healthcare:

AI in Diagnostic Imaging

A study published in the journal *Nature* in 2020 examined the economic implications of AI in diagnostic imaging, particularly within the field of radiology. The research focused on the potential cost savings and productivity improvements associated with the use of AI algorithms for breast cancer detection in mammograms.

The findings suggested that integrating AI into radiological analysis could yield substantial economic benefits. It was estimated that implementing AI in breast cancer screening could generate annual cost savings of up to \$3.2 billion in the United States alone. These savings would primarily result from reduced diagnostic inaccuracies, earlier disease detection, and more efficient utilization of healthcare resources.

Furthermore, the study projected that AI-assisted mammography could significantly enhance patient outcomes by lowering breast cancer mortality rates. By identifying suspicious lesions with greater accuracy, AI enables earlier diagnosis and timely medical intervention, ultimately saving lives and reducing long-term treatment costs.

In addition to cost reductions and improved clinical outcomes, the study highlighted productivity gains for radiologists. With AI supporting the initial interpretation of imaging data, healthcare professionals can manage higher workloads more efficiently, thereby increasing overall system capacity.

This case study demonstrates that the integration of AI into healthcare, particularly in diagnostic imaging, can lead to improved accuracy, enhanced efficiency, better patient outcomes, and optimized resource allocation.

CONCLUSION

In summary, the impact of Artificial Intelligence on the global economy is extensive and multidimensional. AI has the capacity to transform industries, improve productivity, reshape employment structures, and drive economic expansion. The case studies discussed in this research highlight the diverse applications and economic implications of AI across manufacturing, financial services, and healthcare sectors.

Within the manufacturing industry, AI has enhanced production efficiency, optimized resource utilization, and redefined workforce roles. Although concerns regarding job displacement persist, AI has simultaneously generated new employment opportunities and contributed to increased productivity levels.

In the financial sector, AI has improved risk assessment, fraud detection, and customer engagement. Its influence on employment varies, with the emergence of new roles driven by technological advancements.

In healthcare, AI has shown remarkable potential in diagnostics, treatment planning, and personalized medicine. It has improved accuracy, operational efficiency, and patient outcomes. Additionally, AI has supported healthcare professionals in decision-making processes and enabled the expansion of remote healthcare services. The economic and social benefits include reduced costs, enhanced accessibility, and improved quality of care.

However, the widespread adoption of AI also presents ethical and societal challenges. Issues such as algorithmic bias, data privacy, and unequal distribution of economic gains require careful consideration. Governments and policymakers play a critical role in addressing these concerns through appropriate regulatory frameworks, fostering innovation, and ensuring a balance between economic growth and social welfare. Collaboration among governments, industries, and academic institutions is essential for responsible AI implementation.

Looking forward, AI holds immense potential for future development. Emerging technologies such as reinforcement learning and advanced natural language processing are expected to further influence economic systems. It is imperative to invest in education and skill development initiatives to prepare the workforce for an AI-driven economy. Strategic partnerships and collaborative efforts will be key to maximizing the benefits of AI while minimizing associated risks.

Overall, Artificial Intelligence represents a transformative force with far-reaching economic implications. Effectively managing its challenges and opportunities is essential to achieving inclusive growth and building a more equitable and sustainable society.

REFERENCES

1. Acemoglu, D., & Restrepo, P. (2019). Artificial intelligence, automation, and work. *National Bureau of Economic Research Working Paper No. 24196*.
2. Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. W.W. Norton & Company.
3. Frey, C. B., & Osborne, M. A. (2017). The future of employment: How susceptible are jobs to computerisation? *Technological Forecasting and Social Change, 114*, 254–280.
4. World Economic Forum. (2020). *The future of jobs report 2020*. Geneva: WEF.
5. OECD. (2022). *Artificial intelligence in society*. Paris: Organisation for Economic Co-operation and Development.
6. McKinsey Global Institute. (2018). *Notes from the AI frontier: Modeling the impact of AI on the world economy*.
7. Accenture. (2017). *Why artificial intelligence is the future of growth*. Accenture Research Report.
8. International Monetary Fund (IMF). (2019). *Artificial intelligence and financial stability*. Washington, DC: IMF.
9. Federal Reserve Bank of New York. (2014). *High-frequency trading and market liquidity*.
10. Brogaard, J., Hendershott, T., & Riordan, R. (2014). High-frequency trading and price discovery. *Review of Financial Studies, 27*(8), 2267–2306.
11. OECD. (2019). *Artificial intelligence in society*. OECD Publishing.
12. Bonasio, A. (2019). AI research growth statistics and global trends. *MIT Technology Review Insights*.
13. Nature Journal. (2020). Economic impact of AI in diagnostic imaging and radiology. *Nature Medicine*.
14. Topol, E. (2019). *Deep medicine: How artificial intelligence can make healthcare human again*. Basic Books.
15. Davenport, T. H., & Ronanki, R. (2018). Artificial intelligence for the real world. *Harvard Business Review, 96*(1), 108–116.
16. Russell, S., & Norvig, P. (2021). *Artificial intelligence: A modern approach* (4th ed.). Pearson.
17. Goodfellow, I., Bengio, Y., & Courville, A. (2016). *Deep learning*. MIT Press.
18. Kshetri, N. (2020). The role of artificial intelligence in e-commerce. *IT Professional, 22*(4), 63–69.

19. Chui, M., Manyika, J., & Miremadi, M. (2016). Where machines could replace humans—and where they can't (yet). *McKinsey Quarterly*.
20. Autor, D. (2015). Why are there still so many jobs? The history and future of workplace automation. *Journal of Economic Perspectives*, 29(3), 3–30.
21. Bessen, J. (2019). AI and jobs: The role of demand. *NBER Working Paper No. 24235*.
22. Kaplan, A., & Haenlein, M. (2019). Siri, Siri in my hand: Who's the fairest in the land? *Business Horizons*, 62(1), 15–25.
23. Huang, M. H., & Rust, R. T. (2018). Artificial intelligence in service. *Journal of Service Research*, 21(2), 155–172.
24. Wamba, S. F., et al. (2020). Impact of AI on firm performance. *International Journal of Information Management*, 50, 98–113.
25. Bughin, J., et al. (2018). Skill shift: Automation and the future of the workforce. *McKinsey Global Institute*.
26. Silver, D., et al. (2016). Mastering the game of Go with deep neural networks and tree search. *Nature*, 529, 484–489.
27. Esteva, A., et al. (2017). Dermatologist-level classification of skin cancer with deep neural networks. *Nature*, 542, 115–118.
28. Jordan, M. I., & Mitchell, T. M. (2015). Machine learning: Trends, perspectives, and prospects. *Science*, 349(6245), 255–260.
29. Varian, H. R. (2019). Artificial intelligence, economics, and industrial organization. *NBER Working Paper*.
30. Cockburn, I. M., Henderson, R., & Stern, S. (2018). The impact of artificial intelligence on innovation. *NBER Working Paper No. 24449*.