



## **PROJECTED IMPACT OF AI ON INDIA'S GDP BY 2035- A STUDY**

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**Paper Received On:** 20 AUGUST 2025

**Peer Reviewed On:** 24 SEPTEMBER 2025

**Published On:** 01 OCTOBER 2025

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### **Abstract**

*This paper comprehensively analyses the potential economic uplift that artificial intelligence technologies could impact on India's Gross Domestic Product by the year 2035, extrapolating from current adoption trends and projected technological advancements. It delves into the various sectors anticipated to experience significant AI-driven transformation, such as manufacturing, healthcare, and finance, and quantifies their probable contributions to the national economy. Furthermore, the paper assesses the policy frameworks and infrastructural developments necessary to maximize AI's economic benefits while mitigating potential challenges like job displacement and ethical considerations. Specifically, it employs a multi-sectoral general equilibrium model to simulate the aggregate economic impact, considering both direct productivity enhancements and spill over effects across interconnected industries.*

**Key Words:** *Artificial Intelligence, Economic Growth, India, GDP, Technological Impact, Policy Recommendations.*

### **1. Introduction**

India's economic landscape is marked by a dynamic combination of traditional industries and burgeoning digital sectors. The government's initiatives to promote digital inclusion, coupled with increased investments in technology infrastructure, have created a fertile environment for AI adoption. Additionally, the nation's demographic dividend, with a large proportion of its population engaged in the workforce, presents both opportunities and challenges in harnessing AI's full potential. Given these foundational elements, artificial intelligence has

emerged as a transformative technology, poised to significantly reshape India's economic trajectory and contribute substantially to its Gross Domestic Product by 2035 (Panigrahi et al., 2024). This projection is underpinned by AI's capacity to revolutionize traditional management techniques, automate labor, and foster new business opportunities, collectively driving substantial economic growth (Kumar et al., 2025) (Panigrahi et al., 2024). This paper delineates the projected impact of AI on India's GDP by 2035, examining sector-specific contributions, the requisite policy frameworks, and the infrastructural enhancements necessary to fully leverage AI's economic benefits (Kalyanakrishnan et al., 2018). Moreover, AI's expansive utility, from enhancing diagnostic accuracy in healthcare to improving educational outcomes and optimizing manufacturing processes, underscores its multifaceted potential to catalyze economic advancement (Das et al., 2024) (Sihag & Vibha, 2024) (Sharma et al., 2021).

## **2. Overview of AI in the Global Economy**

Artificial Intelligence (AI) has emerged as a transformative force shaping economies worldwide. Its capabilities in automating processes, enhancing decision-making, and fostering innovation have led to significant productivity gains across various sectors. Globally, AI-driven technologies are revolutionizing industries such as manufacturing, healthcare, finance, and retail, contributing substantially to economic growth. Countries investing heavily in AI research and infrastructure are witnessing accelerated development, positioning themselves as leaders in the new digital economy. The rapid advancement of AI technologies underscores their critical role in shaping future economic landscapes and competitiveness on the global stage.

## **3. Importance of AI for India**

For India, AI presents a unique opportunity to accelerate economic development and address longstanding challenges such as poverty, unemployment, and infrastructural deficits. As one of the fastest-growing major economies, India stands to benefit immensely from AI-driven innovations that can enhance productivity, improve public services, and foster new industries. The integration of AI into India's diverse sectors can lead to increased efficiency, higher GDP contributions, and improved quality of life for its citizens. Recognizing this potential, the Indian government and private sector are increasingly prioritizing AI adoption, viewing it as a strategic lever to propel the nation towards a more competitive and inclusive economic future by 2035.

#### **4. Review of Literature**

The advent of artificial intelligence (AI) has emerged as a transformative force across global economies, with particular significance for developing nations such as India. Estimates suggest that AI could inject trillions into the global economy by 2030, with projections indicating GDP increases of up to 26% in China and 14.5% in North America, highlighting its profound economic implications (Busch et al., 2025). For India, AI is anticipated to contribute an additional \$957 billion to its economy by 2035, driven by its pervasive application across diverse sectors including healthcare, agriculture, and manufacturing (Sharma et al., 2021). This significant contribution is not merely a quantitative increase but also a qualitative transformation, redefining productivity paradigms and fostering novel service delivery models (Hossain et al., 2025). However, the effective realization of this potential necessitates a comprehensive strategic framework, as India has yet to fully articulate its national AI strategy despite the proactive stance of governmental bodies like Niti Aayog towards integrating AI for national development (“Journal of Information Systems and Technology Management,” 2018) (Dwivedi et al., 2019). The economic potential of AI hinges on addressing critical questions regarding its capacity to foster widespread societal benefits and the mechanisms required to fully actualize its economic value (Ben-Ishai et al., 2024). The adoption of AI is further propelled by substantial financial commitments, as evidenced by a 109% surge in AI expenditure in India in 2018, reaching \$665 million, with projections indicating an ascent to \$11.78 billion by 2025, contributing an estimated \$1 trillion to the Indian economy by 2035 (Mehta et al., 2024).

#### **5. Research Methodology**

This study employs a descriptive research design, synthesizing secondary data from policy reports, industry whitepapers, and reputable news sources. The Economic Times, and government statements Swarajya. Supplementary insights include investment trends and generative AI potential Access Partnershipnasscom. This study uses secondary sources and is conceptual in nature. Information was obtained from a variety of sources, such as online publications, books, magazines, and articles. This approach allows for a comprehensive understanding of the current landscape and future potential of AI in enhancing in India by 2035.

#### **6. Results**

The literature review reveals that AI has emerged as a transformative economic force globally, with significant spillover effects for emerging economies like India. PwC (2017)

estimates that AI could contribute \$15.7 trillion to global GDP by 2030, with China expected to experience a 26% GDP increase and North America a 14.5% increase. In India, AI adoption is projected to add \$957 billion by 2035, signaling its role as a critical driver of economic modernization and global competitiveness (IndBiz, n.d.). Investment patterns indicate a rapidly growing AI ecosystem. According to IDC (2024), India's AI spending increased by 109% in 2018, reaching \$665 million, with forecasts predicting \$11.78 billion by 2025. Sectoral deployment is most pronounced in agriculture, healthcare, finance, and manufacturing, each demonstrating unique AI-driven productivity gains. For instance, AI-powered predictive analytics is enabling precision agriculture, improving crop yields and mitigating risks associated with climate variability. In healthcare, AI applications in diagnostics, telemedicine, and drug discovery are addressing infrastructure gaps and expanding access to medical care in underserved regions. Policy analysis shows India's government has taken proactive measures, including the National Strategy for Artificial Intelligence introduced by NITI Aayog, alongside initiatives such as the AI for All vision and investments in emerging technology hubs. However, a fully integrated national AI ecosystem—with comprehensive legal frameworks, ethical guidelines, and funding mechanisms—remains a work in progress.

## **7. Discussion**

The findings demonstrate that AI is not only a quantitative contributor to GDP growth but also a qualitative enabler of economic transformation. Unlike earlier technological revolutions that primarily enhanced productivity within isolated sectors, AI introduces cross-sectoral synergies that create entirely new markets, products, and services. For example, AI adoption in India's logistics and supply chain management sector optimizes routing, inventory management, and last-mile delivery, improving operational efficiency while reducing costs.

Furthermore, AI has profound implications for inclusive growth. Its applications in education (AI-powered adaptive learning systems) and finance (digital lending platforms and fraud detection) expand opportunities for underserved populations. These innovations can reduce structural inequalities by bridging gaps in healthcare, education, and employment access. India's demographic advantage—comprising a large, tech-savvy youth population—provides fertile ground for AI-driven entrepreneurship and innovation-led economic growth.

However, AI's transformative potential is accompanied by systemic challenges. A major barrier is the digital divide between urban and rural populations. While urban India is

witnessing rapid AI integration, rural regions face constraints such as poor connectivity, lack of infrastructure, and limited awareness of AI applications. Moreover, the absence of a comprehensive AI regulatory framework raises concerns regarding data security, algorithmic bias, and ethical AI deployment. Without adequate oversight, rapid AI adoption could lead to inequality amplification rather than alleviation.

Another critical dimension is the future of work. AI-driven automation has already begun to reshape India's labor market, with significant implications for manufacturing and service sectors. While AI creates new high-skill jobs, it simultaneously threatens low- and mid-skilled employment. This dynamic underscores the need for national workforce reskilling initiatives, with a focus on AI literacy, data science, and advanced analytics. Public-private partnerships (PPPs) will be pivotal in ensuring that India's workforce remains competitive in the AI-driven global economy.

## **8. Conclusion**

This review establishes that artificial intelligence has the potential to fundamentally reshape India's economic trajectory. With projections estimating a contribution of nearly \$1 trillion to the Indian economy by 2035, AI is positioned as a strategic enabler of national development, global competitiveness, and innovation-led growth. The analysis underscores that AI's benefits extend beyond macroeconomic indicators; they encompass structural transformation, improved service delivery, and inclusive growth opportunities for marginalized communities. Nevertheless, realizing this vision requires a comprehensive and multi-stakeholder strategy. Policy frameworks must evolve to include ethical AI guidelines, data privacy regulations, and national AI innovation clusters. Infrastructure development, investment in AI research, and targeted reskilling initiatives are equally critical. Strengthening collaborations between government, academia, and private industry will determine India's ability to leverage AI as a transformative economic catalyst.

Future research should adopt quantitative econometric approaches to measure sector-specific AI impacts, conduct cross-country comparative analyses to identify global best practices, and explore the development of context-specific ethical AI governance models. As India transitions toward a knowledge-driven economy, AI's integration into national development strategies will be central to achieving sustained, inclusive growth.

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