National Research Journal of Social Sciences
Volume-11, (Special Issue: March 2026)
PP: 418-423
ISSN: 2348-473X
Peer Reviewed & Refereed Journal (IF: 6.74)
Journal Website: www.nrjss.in

POLICY IMPERATIVES OF ARTIFICIAL INTELLIGENCE IN INDIA: A MACRO ECONOMIC FRAMEWORK FOR DEVELOPMENT

Thulasiram, S.

Assistant Professor, Department of Economics, Govt. First Grade College, Gundlupet

ABSTRACT

The NITI Aayog Frontier Tech Hub's Artificial Intelligence (AI) roadmap for robust Viksit Bharat sends an unequivocal signal of India's mission to sustained 8% plus growth is anchored in bold, pervasive AI integration and tireless innovation and a core national priority. Artificial Intelligence (AI) is projected to act as a major catalyst for the fourth largest Indian economy in the world, with estimates suggest it adds roughly $500 billion to $1 trillion to India's GDP by 2035. The technology expected to drive economic growth through productivity improvements, automation, and innovation, particularly across key sectors like agriculture, healthcare, finance, and manufacturing. This transformation journey leverages sector-focused strategies and frontier technology ecosystems, positioning India to lead the global race in inclusive, responsible AI deployment and governance. The methodology entails comprehensive research of the available literature, case studies of significant Indian businesses, and an analysis of key statistical data. Insights on the future of AI in India are highlighted in the paper's conclusion, with a focus on the necessity of talent development and strategic adoption.

Keywords: Artificial Intelligence (AI), NITI, GDP

INTRODUCTION

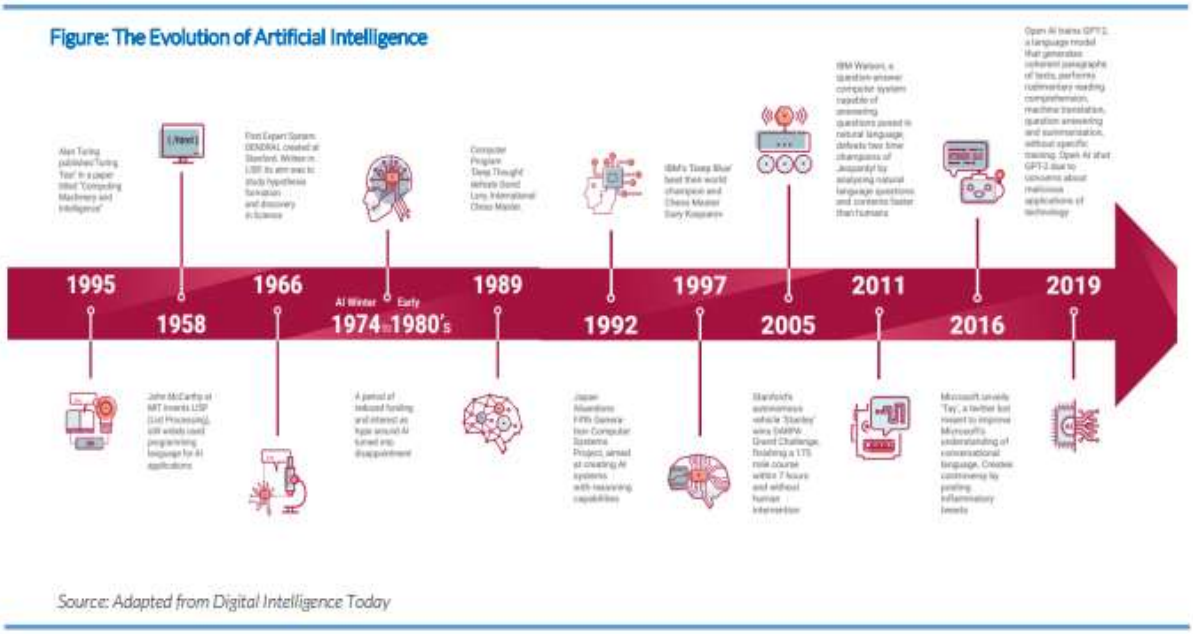
Artificial Intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think, learn, and solve problems in ways that mimic human cognitive processes. AI enables machines to perform tasks such as understanding natural language, recognizing patterns, making decisions, and adapting to new information. AI can be broken down into four main dimensions: making machines think like humans, making them act like humans, making them think logically, and making them act rationally. So, AI is about creating smart machines that can do tasks as if they were human or as if they were following a well-thoughtout plan. The Indian economy is rapidly and significantly changing due to artificial intelligence (AI), which is also revolutionising traditional management techniques. The enormous potential is shown by projections from the McKinsey Global Institute, which predict that AI will have a startling $15.7 trillion economic impact on India by 2035. Additionally, the rapidly growing AI industry is expected to be a job-creating engine. The industry association NASSCOM projects that by 2025, India will have added almost 400,000 new jobs, demonstrating the radical changes that AI has already made to the world of work. Aiming to raise AI spending to 1% of GDP by 2030, the Indian government has set lofty goals to support this. The third-largest start-up environment in the world, where several start-ups' are leading the way in cutting-edge AI-powered solutions, serves as further proof of India's strong commitment to investing in AI. The National Strategy on Artificial Intelligence and the AI for India project are only two of the major initiatives the Indian government has launched in support of this ambition, reflecting the nation's dedication to advancing the field.

ISSN: 2348-473X
Peer Reviewed & Refereed Journal (IF: 6.74)
Journal Website: www.nrjss.in

GOVERNMENT INITIATIVES

The Government of India is heavily promoting AI to drive economic growth: NITI Aayog: Developed the "National Strategy for Artificial Intelligence" to foster AI adoption. AI for All: A program aiming to train 1 million people in AI capabilities by 2025. Digital Infrastructure: Significant investments in improving rural digital infrastructure and promoting open data frameworks. Businesses are using AI to improve operations across all industries, including the financial industry, retail, and manufacturing. Indian banks are using AI, for instance, to strengthen fraud detection systems and improve customer service, delivering a more secure and seamless experience. Similar to this, Indian retailers are using AI to improve supply chains, personalise recommendations, and ensure maximum efficiency. AI is being used by Indian manufacturers to raise quality control standards and promote cost effectiveness, demonstrating the many benefits that AI can provide. Despite the myriad advantages of AI, worries about potential negative effects loom large. Concerns like job loss and the rise of moral conundrums demand considerable thought and proactive policy formulation. Maintaining a balance that maximises AI's positive effects while reducing its hazards remains essential for long-term growth and development.This study article aims to present a comprehensive analysis of AI's effects on the Indian economy and management practises, taking into account both its advantages and potential drawbacks. This study aims to illuminate the complex dynamics of AI's impact on India's managerial and economic environments by gleaning knowledge from a variety of trustworthy sources, such as academic papers, industry reports, and government publications.

Figure: The Evolution of Artificial Intelligence



Source: Adapted from Digital Intelligence Today

THE ECONOMIC PROJECTIONS AND GROWTH RATE

GDP Impact: AI is expected to contribute nearly 10% to India's goal of reaching a $5 trillion economy. Some estimates indicate a 7.4% increase in GDP growth in the coming years due to AI, with a potential to add $957 billion to the economy by 2035. Productivity Boost: AI adoption could increase total factor productivity (TFP) growth by 0.05% for every unit increase in AI intensity, with the potential to add 2.5%

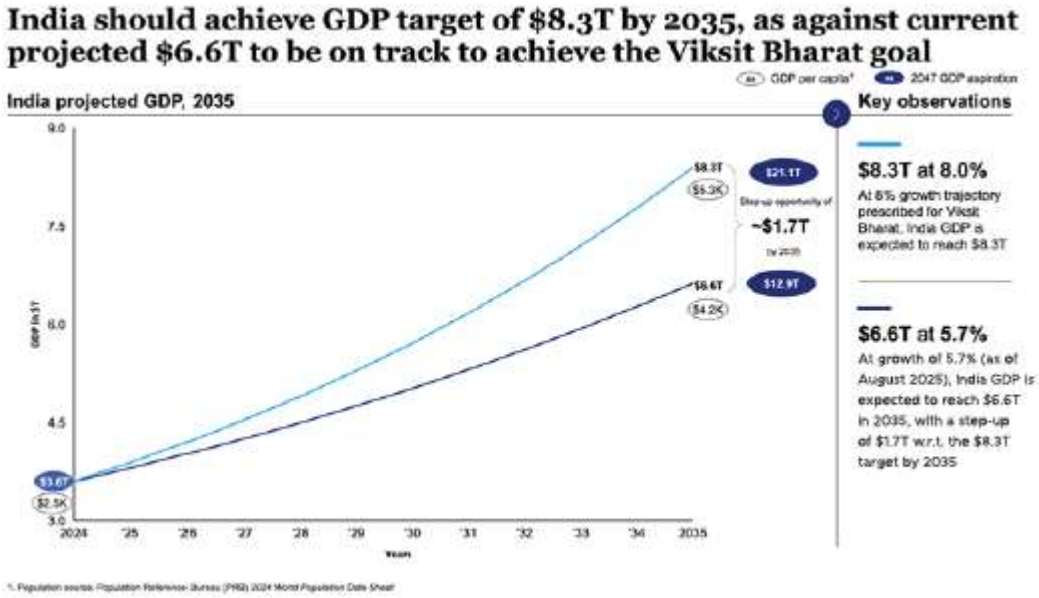
ISSN: 2348-473X
Peer Reviewed & Refereed Journal (IF: 6.74)
Journal Website: www.nrjss.in

to 3.2% to the economy in the near term. Sectoral Gains: Financial services and manufacturing are expected to see the highest impact, with 20-25% of their sectoral GDP possibly attributed to AI by 2035.

OPPORTUNITIES OF IA IN INDIA

Potential AI opportunities for India are presently spread across three levers:

Accelerating AI adoption across industries to improve productivity and efficiency, potentially bridging 30–35% of the gap: Higher output, lower costs of goods and services, and improved access for underserved markets. These effects are expected to materialize across both domestic consumption and export markets. Transforming R&D, through generative AI, could help India leapfrog into innovation driven global opportunities, bridging a minimum 20–30% of the gap: Can generate new AI-led market opportunities within traditional industries, support commercialization, reshape legacy value chains, and strengthen long-term competitiveness 3. Innovation in technology services, strengthening India's reputation as a technology services leader, contributing another 15-20% to the step up: Could drive the development of higher-value solutions and new business models, enhancing India's competitiveness in the global market.



Employment and Jobs

Job Creation: AI is expected to create 40 million new jobs in India by 2030. Job Transformation: While automation will replace routine tasks, it is expected to generate 4 million new jobs in customer service by 2025 and 950,000 new jobs in manufacturing by 2030. Skills Demand: There is a high demand for AI talent, with 80% of Indian IT firms planning to hire AI professionals.

Key Results from the Econometric Estimation

The results find a positive and significant relation between AI using firms and total factor productivity growth. In fact, given that the firm is an AI using firm, total factor productivity growth increases with

ISSN: 2348-473X
Peer Reviewed & Refereed Journal (IF: 6.74)
Journal Website: www.nrjss.in

increase in AI intensity. The estimate suggests that a unit increase in AI intensity will increase the TFP growth by 0.05%. The growth co-efficient suggests that on average a unit increase in AI intensity, measured as the ratio of AI to total sales, can return USD 67.25 billion or 2.5% of GDP to the Indian economy in the immediate term. The business as usual growth in AI investments is unlikely to increase current levels of AI intensity. In order to trigger a positive growth shock, AI intensities should be sharply increased. For example, the investment of Rs. 7000 crore approved by the Ministry of Finance towards an Artificial Intelligence program could increase AI investments at rates higher than the business as usual rates. This increase in investment will lead to an approximate 1.3 times increase in AI intensity, translating into spillover benefits of USD 85.77 billion for the Indian economy (3.2% of GDP).

Imperatives of Artificial Intelligence in Indian Economy

1. **High Cost of AI Implementation**

   Developing and maintaining AI models requires high computing power and storage. Small businesses and startups struggle with high AI infrastructure costs. India relies on foreign companies (Google, Microsoft, Nvidia) for AI hardware and cloud computing. Example: Indian AI startups depend on cloud-based AI models from foreign providers, increasing costs and data privacy risks. Solution: Invest in India-based AI hardware startups and encourage affordable AI solutions for local businesses.

2. **Data Privacy & Cybersecurity Risks**

   India lacks a strong AI-specific data protection law. AI models rely on huge amounts of personal data, increasing the risk of data breaches. Cyberattacks on AI-driven systems (such as banking fraud and identity theft) are rising. Example: Aadhaar-based AI authentication faces concerns about data leaks and privacy violations. Solution: Strengthen data protection laws (like the Digital Personal Data Protection Act) and invest in AI cybersecurity research.

3. **AI Regulation & Government Policies**

   India lacks clear AI regulations on ethics, accountability, and safety. There are no clear laws on AI in criminal justice, surveillance, and misinformation. Over-regulation may slow down innovation, while under-regulation risks misuse. Example: China and the EU have strict AI governance laws, but India is still developing a clear framework.

DEPENDENCE ON FOREIGN AI TECHNOLOGIES

India imports most AI chips, cloud infrastructure, and software from the US, China, and Europe.

Over-reliance on foreign AI models reduces self-sufficiency and security. Limited investment in India-based AI research slows down innovation. Example: India's AI research funding is much lower than China’s or the US’s, limiting domestic advancements.

Policy Recommendations

Government has an active role to play in creating institutions and enabling an AI ecosystem, while also encouraging private players to innovate and thrive. Action-oriented policy recommendations are critical for the implementation of a large-scale AI program. Identifying a Nodal Agency Within the Government for Development and Diffusion of AI, the design and workings of which will be critical to push wide-

ISSN: 2348-473X
Peer Reviewed & Refereed Journal (IF: 6.74)
Journal Website: www.nrjss.in

scale AI adoption in India • Identify and monitor a nodal agency for coordinating all AI related activities in India. •Nudge Government departments to develop capabilities to adapt to AI enabled governance mechanism. • Priorities resources to build pockets of excellence for sectors that have already demonstrated positive economic and social impacts from AI. • Offer government handholding to socially relevant applications.AI as a General Purpose Technology (GPT) AI's ability to lend itself to diverse range of applications across a range of sectors, resembles that of GPT The economic impact of AI led innovations are not only reflected as direct contribution to sectors but also as indirect effects on productivity that GPTs trigger. The report uses a capabilities framework as a guide to understand the causes that underline success or failure of India's ecosystem in conducting AI-based innovation Capabilities of firms developing AI applications in India Investment Capabilities Production Capabilities Linkage Capabilities Impact of AI on firms adopting AI-based solutions Economic Implications for business adopting AI Social Implications of AI Applications.

CONCLUSION

The Path Forward AI has huge potential for India's growth, but challenges must be addressed for sustainable adoption. Key Steps for India: Invest in AI education & training to build a skilled workforce. Improve data infrastructure with standardized and accessible datasets. Ensure AI accessibility for small businesses and rural areas. Strengthen AI regulations focusing on ethics, privacy, and security. Develop India-made AI solutions to reduce dependence on foreign technology. With strong policies and investments, India can become a global AI powerhouse while addressing these challenges. AI's transformational potential stems from its ability to lend itself to diverse range of applications across a range of sectors. The study is based on the understanding that the implications of AI can be best understood by viewing AI as a General Purpose Technology (GPT). AI as a GPT implies that AI led innovations will be reflected not only as direct contribution in any given sector, but also inspire complementary innovations and spillover benefits across the economy. The objective of this report is to estimate the impact of AI on Indian economy. The report also provides policy recommendations that can enable the sustainable growth of the AI ecosystem in India. These include actionable policy steps that are individually important to the implementation of a large-scale AI program.

REFERENCES

1. Bhattacharya S, Ravindran A. The impact of artificial intelligence on the Indian economy: A review of the literature. J Econ Perspect. 2021;35(3):175–202.
2. Chandra V, Kumari S. The impact of artificial intelligence on management practices in India: A systematic review. J Enter Inf Manag. 2017;35(1):23–40. Available from: https://hbr.org/2025/07/ the-business-of-artificial-intelligence.
3. Chui M, Manyika J. Where machines could replace humans—and where they can't (yet)." McKinsey Quarterly.; 2016.
4. Dumbill E. Artificial Intelligence: What Every Manager Needs to Know About How AI Is Changing Business." E. Dumbill (Ed.). O'Reilly Media.; 2018.
5. Flipkart AI: Empowering Customer Experience with Artificial Intelligence.; 2022. Available from: https://www.analyticssteps.com/ blogs/how-flipkart-uses-artificial-intelligence-ai.

ISSN: 2348-473X
Peer Reviewed & Refereed Journal (IF: 6.74)
Journal Website: www.nrjss.in

6. Gartner. (2022). Forecast Analysis: Artificial Intelligence Software, Worldwide, 2022-2025, 1Q22 Update. Available from: https://www.gartner.com/en/newsroom/press-releases/2021-11-22-gartner-forecastsworldwide-artificial-intelligence-software-marketto- reach-62-billion-in-2022.
7. How Artificial Intelligence Can Be Used For Legal Services. Available from: https://pro.bloomberglaw.com/insights/technology/ai-in-legalpractice-explained/#whatAI .
8. https://kpmg.com/in/en/home/insights/2022/05/customerexperience sustained-valuecreation.html.
9. Joshi V, Panigrahi A. Exploring Use of Artificial Intelligence and Blockchain Technologies in Achieving 'Sustainable Development. PENSEE. 2018;50(12):1–10.
10. Kedia S, Sekhani M. The impact of artificial intelligence on the total factor productivity of Indian firms. IARIW J. 2022;62(3):293–316.
11. KPMG. (2019). AI and the Future of Jobs in India. Available from: https://info.kpmg.us/newsperspectives/technology-innovation/fact-or-fiction-episode-six.html .
12. McKinsey Global Institute. (2020). AI and the Future of Work: India. Available from: https://www.mckinsey.com/mgi/our-research/generative-ai-and-the-future-of-work-in-america.
13. NITI AAYOG National Strategy for Artificial Intelligence 2026.
14. NASSCOM Portal and Report 2026.