
THE IMPLICATIONS OF ARTIFICIAL INTELLIGENCE AND AUTOMATION IN INDIA, SPECIFICALLY WITH REGARD TO JOB DISPLACEMENT AND OPPORTUNITIES.

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ABSTRACT

Artificial intelligence (AI) and automation are reshaping labor markets around the world, raising concerns about job loss as well as promises for new opportunities. This dualism is most evident in India, the world's most populated country with a labor force of more than 700 million people. This study examines the employment implications of AI, using national and international databases, scholarly articles, and policy reports. According to the findings, up to 69% of employment in India are at risk of automation, especially in the IT, manufacturing, and retail sectors. In contrast, forecasts indicate that 30 million new employment would be created by 2025, with 2.77 million AI-related tech jobs added by 2029. The study combines current findings from Nature, Drishti IAS, Innopharma Education, and global reporting to present a holistic picture. According to comparative global analysis, India's risk exposure is higher than that of OECD countries, yet proactive skilling, rural innovation, and inclusive digital policies have the potential to transform disruption into net employment benefits. Policy recommendations focus on reskilling, rural digital inclusion, and human-centric AI adoption.

KEYWORDS: Artificial intelligence, automation, employment, India, job displacement, job creation, reskilling, up-skilling.

I. INTRODUCTION

Artificial intelligence (AI) and automation are reshaping global economies by augmenting productivity while displacing routine work. According to the World Economic Forum (WEF), 85 million jobs may be displaced globally by 2025, but 97 million new roles will emerge, creating a net positive balance. Globally, AI is expected to add \$4.4 trillion in productivity growth by enhancing efficiency across sectors, as per McKinsey's projections.

In India, a nation with a vast workforce and a burgeoning tech sector, AI adoption is accelerating, driven by initiatives like the National Strategy for Artificial Intelligence by NITI Aayog (2018). However, India's heavy reliance on labor-intensive sectors makes it more vulnerable to disruption: the World Bank estimates that 69% of Indian jobs are susceptible to automation, far above the global average of 47%. This transformation raises concerns about job displacement, particularly in labor-intensive industries, while also presenting opportunities for new roles through reskilling and technological adoption.

The paradox of India's employment future lies in its ability to transform risk into opportunity. While millions of jobs face automation, initiatives by the Ministry of Electronics and Information Technology (MeitY), NASSCOM, and global AI investment trends project unprecedented opportunities for new employment. This paper synthesizes recent data from authoritative sources, including Nature and Drishti IAS, to explore AI's dual impact on India's employment landscape and propose strategies to balance risks and opportunities.

II. LITERATURE REVIEW

The existing body of scholarship reflects the dual-edged nature of artificial intelligence (AI) and automation, particularly in relation to employment outcomes. Shen and Zhang describe AI as a driver of —virtual agglomeration,¹ wherein economic activity becomes increasingly concentrated in digital hubs, leaving peripheral regions at risk of marginalization. This spatial concentration highlights the uneven distribution of AI benefits, especially relevant for India with its vast rural workforce.

The IoT Academy underscores AI's productivity-enhancing potential while cautioning against widening skill mismatches. Their findings suggest that 61% of Indian employees fear job loss due to AI within the next five years, despite India's global leadership in adoption, where 92% of employees already report using AI-based tools (BCG, 2025). Similarly, Drishti IAS, draws attention to India's reskilling challenge, reporting a decline in employability to

42.6% in 2024. Their analysis, supported by IMF estimates, indicates that 40% of global employment is vulnerable to AI-driven disruption, with India's emerging economy status reflecting comparable levels of exposure.

Other contributions offer a more optimistic perspective. Innopharma Education estimates that AI could create 20–50 million new jobs globally by 2030, particularly in healthcare and pharmaceuticals. Complementing this view, SAGE University [8] reframes AI not as a replacement technology but as a collaborative tool that augments human capability, allowing workers to transition toward creative and strategic roles.

Further evidence is provided by recent applied studies. An IEEE paper (2025) employs Gradient Boosting Machines to predict employment displacement in India's IT and manufacturing sectors, while the International Journal of Economics and Statistics (2025) emphasizes socio-economic disparities, noting that rural and semi-urban regions remain disproportionately at risk due to limited reskilling infrastructure.

Taken together, these studies highlight the paradox facing India: AI-driven automation poses significant threats to existing employment structures while simultaneously opening pathways for job creation, contingent upon proactive skilling, inclusive policies, and equitable access to opportunities.

These insights provide the conceptual basis for analyzing India's employment paradox, corroborated by studies such as an IEEE paper (2025) using Gradient Boosting Machines to predict job displacement and the International Journal of Economics and Statistics (2025) highlighting socio-economic disparities.

III. Job Displacement Risks

AI-driven automation presents substantial risks to employment, particularly in roles involving routine and repetitive tasks. In India, the IT-BPM sector faces potential disruption in 20–35% of jobs, with similar vulnerabilities observed in automotive, retail, textiles, and banking sectors. Surveys indicate that a majority of white-collar employees anticipate partial or full automation of their roles within the next five years, with heightened concerns in education, healthcare, IT, and manufacturing industries. These trends point to a growing uncertainty among the workforce about the stability of traditional employment structures.

Recent analyses suggest that the manufacturing sector is particularly susceptible to

automation, especially through the deployment of industrial robots, with up to 69% of jobs potentially automatable over the next two decades. The impact is uneven, disproportionately affecting low-skill and mid-career workers, while rural and semi-urban regions face higher displacement risks due to limited access to reskilling and training resources. Although the pace of disruption in India may be slower than in some advanced economies, the structural and socio-economic vulnerabilities underline the urgent need for proactive workforce planning, skill development, and inclusive policies to mitigate job losses.

Table I: Sectoral Job Displacement Risk In India.

Sr. No.	Sector	% Jobs at Risk	Source
1	IT-BPM	20–35%	NASSCOM-FICCI-EY (2024)
2	Automotive	15–20%	Drishti IAS (2025)
3	Retail	15–20%	PwC India (2024)
4	Textiles	10–20%	McKinsey Global Institute (2024)
5	Banking & Finance	20–25%	RBI/NASSCOM (2024)
6	Education (perception)	78%	IIM Ahmedabad (2024)
7	Healthcare (perception)	70%	IIM Ahmedabad (2024)
8	Manufacturing (overall)	62%	McKinsey India (2024)

The IT-BPM sector illustrates India’s vulnerability: as a global outsourcing hub, automation threatens 20–35% of jobs, but with reskilling, displaced workers can shift into AI-enhanced service delivery. Perception-based risks in education and healthcare (70–78%) are higher than actual feasibility, highlighting the role of misconceptions in workforce anxiety.

IV. Job Creation Opportunities

Despite the risks of displacement, artificial intelligence (AI) offers considerable potential for job creation in India. Projections indicate that digital interventions, including AI, are expected to generate millions of new jobs over the coming decade, while simultaneously enabling large-scale workforce redeployment through reskilling and upskilling initiatives. Estimates suggest that India could see substantial growth in AI-related employment, with new opportunities emerging for software developers, data engineers, and other technology specialists.

Beyond the technology sector, AI is anticipated to create employment in rural regions through applications in agriculture, logistics, and healthcare. The integration of AI and the Internet of Things (IoT) into farming, supply chains, and community health services has the potential to generate millions of jobs while also driving inclusive development.

AI is also contributing to the rise of entirely new job categories, such as AI trainers, data scientists, and AI ethicists, reflecting the growing need for specialized skills to manage and govern advanced systems. In India, a large share of employees express optimism that AI will create new roles within the next five years, particularly in industries such as information technology and manufacturing. Companies are already leveraging AI to establish positions in consulting, predictive maintenance, and medical diagnostics, underscoring the technology's ability to stimulate economic expansion.

National strategies and policy initiatives further reinforce this trajectory. Programs targeting sectors like healthcare, agriculture, and urban development are expected to create jobs in precision farming, AI-driven diagnostics, and smart city solutions. At the same time, AI is enhancing job quality by augmenting human capabilities. In healthcare, for example, AI systems are improving diagnostic accuracy, which increases the demand for skilled professionals capable of collaborating with these technologies. Similarly, the rapid growth of AI-driven startups is fostering innovation in niche markets, thereby broadening the landscape of employment opportunities.

Table No.-II: Job Creation Projections (India and Global).

SrNo	Source/Organization	India (Jobs Created)	Global (Jobs Created)	Time Horizon
1	MeitY (2024)	20M new jobs	—	By 2025
2	PwC (2024)	9M	100M+	By 2035
3	Service Now (2024)	2.73M tech jobs	—	By 2028
4	Broadband India Forum	2.8M rural jobs	—	By 2030
5	WEF (2025)	—	97M	By 2025
7	McKinsey (2030)	—	170M	By 2030
8	Innopharma Education	—	20–50M	By 2030

India's opportunity landscape in the age of artificial intelligence (AI) and automation can be understood through two primary dimensions: the urban technology sector and rural inclusion. In urban centers, the rapid expansion of AI-related industries is projected to generate millions of jobs, particularly in software engineering, data science, and AI system development. Estimates suggest that this sector alone could contribute more than 2.7 million specialized roles, reflecting the growing demand for technical expertise to support digital transformation and innovation. At the same time, rural India offers a parallel avenue for employment growth, where AI and Internet of Things (IoT) applications in agriculture, logistics, and healthcare have the potential to create nearly 2.8 million jobs, thereby contributing to inclusive development and reducing the digital divide.

A comparative review of projections reveals the contrast between optimistic and conservative estimates. Government-led initiatives anticipate the creation of approximately 20 million jobs by 2025, while independent analyses suggest a more modest outcome of around 9 million jobs by 2035. This divergence underscores that India's ability to realize AI-driven employment gains will not depend solely on technological advancements but also on the effectiveness of execution. The scale and success of skilling initiatives, policy frameworks, and ecosystem readiness will ultimately determine whether India can transform its AI potential into sustainable and widespread employment opportunities.

V. Global Perspectives and Integrative Analysis

Globally, AI's impact mirrors India's dual narrative. The WEF's Future of Jobs Report 2025 projects that AI will create 11 million jobs while displacing 9 million by 2027, with 75% of companies adopting AI [1]. McKinsey (2025) estimates 92 million jobs displaced globally by 2030 but 170 million new ones created, necessitating new skills [9]. A Nature study (2024) on China's labor market shows that AI-driven robotics increased jobs by enhancing productivity and deepening labor specialization, offering a model for India [3]. However, global trends also indicate challenges, with 300 million jobs (9.1% of total) at risk of automation, particularly in repetitive tasks.

Table No-III: Comparative Global Job Displacement Projections.

Sr.No.	Region / Source	Jobs Displaced	Jobs Created	Notes
1	World (WEF, 2025)	85M	97M	Net +12M
2	McKinsey Global (2030)	92M	170M	Net +78M
3	OECD Countries	14% (avg)	N/A	Mid-skill jobs most affected
4	India (World Bank, 2024)	69% at risk	20M by 2025	Highest vulnerability
5	USA (ILO, 2024)	47% at risk	N/A	Service sector at risk
7	China (PwC, 2030)	200M	250M	Net +50M

India's risk exposure to AI-driven automation is significantly higher than that of many advanced economies, with 69% of jobs considered vulnerable compared to 47% in the United States and just 14% across OECD countries. This highlights the structural fragility of India's labor market, which remains heavily dependent on routine and labor-intensive sectors. In contrast, China projects a net gain of 50 million jobs through strategic modernization of its manufacturing sector, offering a potential roadmap for India. At the same time, global outsourcing trends—such as U.S. firms leveraging India's cost-effective workforce—create both competitive pressures and new opportunities in AI-supported fields, including cybersecurity and generative AI. India's demonstrated leadership in AI adoption further

positions it to capture a substantial share of the expanding global AI services market.

The paradox of India's AI transition lies in the phenomenon of creative destruction. On one hand, millions of existing jobs in IT-BPM, retail, and manufacturing face disruption from automation; on the other, new opportunities are emerging in AI-enabled sectors such as healthcare, education, and rural services. The balance between these opposing forces will depend largely on three factors: the speed and effectiveness of reskilling initiatives, the inclusivity of digital growth across urban and rural regions, and the adaptability of policies to global competitive dynamics. The extent to which India can manage these dimensions will determine whether AI becomes a driver of widespread opportunity or a source of deepening inequality.

VI. Challenges and Policy Recommendations

India faces several challenges in harnessing the potential of artificial intelligence (AI) while mitigating its disruptive effects on employment. A major obstacle is the significant skill gap within the workforce, with a substantial proportion of employees requiring comprehensive reskilling to adapt to AI-driven transformations. Mid-career workers, as well as employees in sectors such as healthcare and education, are particularly vulnerable due to the automation of routine and administrative tasks. The employability of Indian graduates remains limited, and the demand for AI-related skills continues to outpace supply, creating a bottleneck in workforce readiness.

In addition to skill shortages, ethical considerations present further challenges. Issues such as data privacy, equitable access to technology, and responsible AI deployment must be addressed to ensure that AI adoption promotes inclusive growth rather than exacerbating existing disparities. Effective policy responses must therefore combine large-scale reskilling initiatives, targeted support for vulnerable sectors, and frameworks to guide the ethical and equitable use of AI. By addressing these challenges, India can maximize the benefits of AI while minimizing the risks of job displacement and socio-economic inequality.

Policy recommendations include

1. Reskilling and Upskilling — Expand initiatives like NASSCOM FutureSkills PRIME, FutureSkills PRIME, and YUVAi to provide lifelong learning opportunities in AI, machine learning, cybersecurity, advanced analytics, and data science. These programs should target both urban and rural workforces, equipping employees with the skills needed to transition

into emerging roles, reduce vulnerability to automation, and remain competitive in a rapidly evolving technology landscape.

2. Public-Private Partnerships — Collaborate with leading companies to develop AI training centers that align closely with industry requirements. Such partnerships can facilitate knowledge transfer, provide hands-on training, and create employment pipelines that ensure workforce readiness for AI-driven sectors.

3. Rural Digital Integration — Promote AI and IoT applications in agriculture, rural logistics, small-scale industries, and e-healthcare. By leveraging technology in these sectors, job creation can extend beyond urban centers, fostering inclusive economic growth and bridging the digital divide between urban and rural regions.

4. Human-Centric AI — Position AI as a collaborator rather than a replacer. By augmenting human capabilities, AI can enable employees to focus on creative, strategic, and decision-making tasks. This approach not only enhances job quality but also fosters innovation and ensures sustainable integration of AI technologies.

5. Cross-Sectoral Partnerships and Global Benchmarking — Encourage collaboration among government bodies, private enterprises, and academic institutions to develop AI curricula and applied research initiatives. By adopting international best practices, such as AI-enabled manufacturing models and advanced reskilling frameworks, India can accelerate workforce preparedness and ensure that AI-driven growth translates into widespread economic opportunities.

VII. CONCLUSION

India is at a critical juncture in its employment landscape, where the dual forces of artificial intelligence (AI) and automation present both significant risks and substantial opportunities. With approximately 69% of jobs susceptible to automation, the potential for workforce displacement is considerable. At the same time, projections indicate the creation of tens of millions of new roles, including over 2.7 million technology-focused positions, highlighting the transformative potential of AI-driven growth.

The contrast between risk and opportunity underscores the importance of proactive policy measures. Comparative global evidence demonstrates that while India faces higher vulnerability than many advanced economies, it also possesses one of the largest windows for employment expansion if its workforce is effectively mobilized through reskilling, upskilling, and innovation. Human-centric AI adoption, combined with inclusive digital strategies and

targeted rural interventions, can transform AI from a disruptive force into a catalyst for equitable and sustainable development. Conversely, failure to act may exacerbate unemployment, inequality, and socio-economic disparities. Ultimately, the defining challenge for India is not the inevitability of AI-driven change but the nation's ability to shape this transformation to maximize employment, enhance human capabilities, and foster long-term economic resilience.

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