IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 8, April 2025
Impact Factor: 7.67

Impact of AI and Automation on Jobs in India's IT Sector

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Abstract: *The global transformation brought about by Artificial Intelligence (AI) and automation is significantly impacting India's IT sector. While these technologies offer improved efficiency, cost savings, and innovation, they also raise concerns about job displacement and the necessity for workforce adaptation. This research delves into the dual impact of AI and automation on IT jobs in India, focusing on both the roles that are being automated and the new opportunities arising from these advancements. Through analysis of industry trends, company reports, and expert opinions, this study provides a comprehensive understanding of how India's IT workforce is evolving in response to AI and automation, highlighting the challenges and adaptive strategies required for a sustainable future.*

Keywords: Artificial Intelligence, Business Strategy, Automation, Data Analysis, Decision Making, Innovation

I. INTRODUCTION

India's IT sector, a cornerstone of the national economy, has seen exponential growth in recent decades. Accounting for approximately 8% of India's GDP in 2022, it is a global leader in software development, outsourcing, and tech services. However, the rise of Artificial Intelligence (AI) and automation is transforming the sector. AI systems can perform complex tasks like language processing, decision-making, and pattern recognition, while automation tools replicate routine
work without human input. This brings both efficiency and cost benefits, but also significant concerns about job displacement.

This research investigates the dual impact of these technologies—automation of traditional roles like data entry, testing, and customer support, and the simultaneous creation of new roles in AI development, cybersecurity, and analytics. The study explores how employees, businesses, and institutions are adapting to this shift, with an emphasis on reskilling and upskilling. The goal is to understand how India's IT workforce can transition into a sustainable, AI-enabled future

II. LITERATURE REVIEW

Recent studies reveal that automation is reshaping the Indian job market, particularly in the IT sector. Reports by NASSCOM and McKinsey estimate that up to 15% of IT jobs may be automated by 2030. Positions involving repetitive tasks, like software testing and data entry, are being replaced by AI tools.

However, new roles have emerged—AI engineers, machine learning specialists, and data scientists are now in high demand. Studies by Patel & Bhattacharya (2019), Kumar & Singh (2019), and Sharma & Gupta (2021) all stress the need for reskilling to adapt to these changes. Early adoption of AI is evident in banking and retail sectors, with key concerns centered around data privacy, ethics, and security.

As AI becomes mainstream, companies and workers must evolve together. The literature emphasizes not just the challenges but the potential of AI to drive innovation, provided the transition is supported with the right educational and policy frameworks

III. DATA COLLECTION

Multiple data sources were used to capture a broad view of how AI is transforming the IT workforce in India. These data sources include:

DOI: 10.48175/IJARSCT-25598

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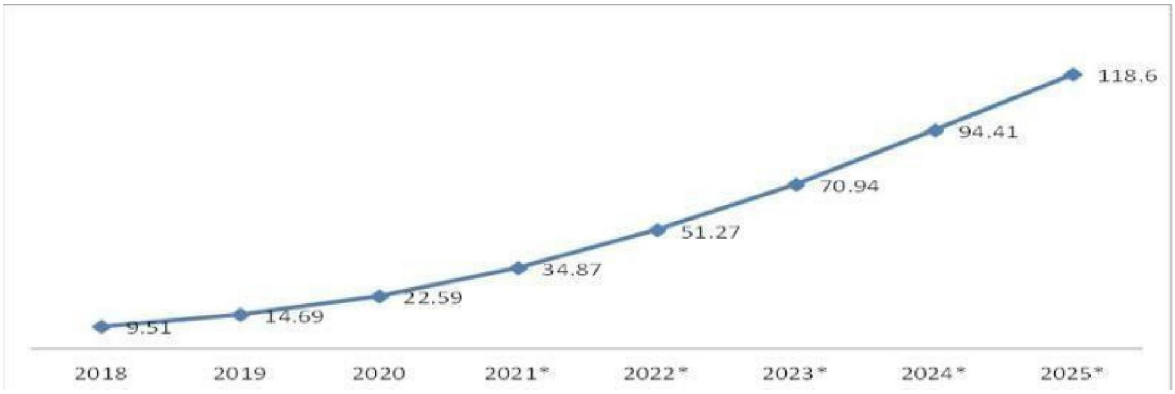
- **Industry Reports:** Data from NASSCOM, McKinsey, and Gartner on job automation and emerging roles in AI, data science, and cloud.
- **Government Publications**: Employment and reskilling data from Ministry of Labour and Skill Development.
- **IT Professional Interviews**: Secondary sources shared insights on skill demands and AI's impact on roles.
- **Company Case Studies**: TCS, Infosys, and Wipro case studies revealed AI adoption, job automation, and reskilling practices
- **Data Analysis Methods:** Once data was collected from various sources, it was subjected to rigorous analysis to derive meaningful conclusions about the impact of AI and automation on jobs. The analysis can be categorized into two major approaches:
- **Employment Trends Analysis:** The employment trends analysis aimed to explore how AI adoption has influenced job creation and job displacement in the Indian IT sector. The data collected from industry reports, government publications, and company case studies were analyzed to identify trends in employment before and after the introduction of AI technologies. The analysis focused on:
- **Job Displacement:** The number and types of jobs being automated in the IT sector were assessed. This included routine jobs like data entry, software testing, and certain back-office operations, which are increasingly being automated through AI. Statistical trends were examined to quantify job displacement across various IT sub-sectors.

Following figure shows how India is adopting AI :



Job Creation: The analysis also looked at emerging job roles resulting from AI adoption. These new roles include data scientists, AI specialists, machine learning engineers, and cybersecurity analysts. Employment trends data was used to estimate how many new positions are being created in AI- driven fields and to track the demand for such roles over time.

Job Transition and Reskilling: Data was analyzed to understand the extent to which workers displaced by AI are transitioning into new roles within the IT sector, thanks to company- sponsored reskilling initiatives.

Government data on the success of reskilling programs was also incorporated to assess how effective these efforts have been in helping workers adapt to the changing job landscape**.**

Automation Impact Analysis

The second key area of analysis focused on understanding the broader impact of automation on the workforce. This analysis took a more qualitative approach, looking at how automation is reshaping the day-to-day functions of IT workers and the overall structure of IT companies. The **following areas were explored**

Employee Adaptation:

Interviews with IT professionals provided insight into how workers are adapting to automation in their roles. The qualitative data from these interviews revealed the challenges employees face, such as learning new skills, adjusting to

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working alongside AI technologies, and dealing with the uncertainty of job security. Common themes were identified through thematic analysis, helping to highlight key concerns and areas where additional support may be needed.

Organizational Strategies:

Case studies from leading IT companies shed light on the strategies being used to manage the workforce transitions caused by AI. For instance, companies have started investing in upskilling programs and are promoting a culture of continuous learning to help employees keep pace with technological changes. These strategies are part of a broader organizational shift towards AI integration, which impacts how teams are structured, how tasks are assigned, and how performance is measured.

Opportunities for Growth:

In addition to job losses, automation is also creating new opportunities for growth, particularly in high-tech fields like artificial intelligence, machine learning, and cybersecurity. This analysis explored which sectors are seeing the most significant growth in job opportunities and what skills are in highest demand. It also looked at how companies are preparing their workforces to take advantage of these new opportunities.

Justification for Methodological Choices:

The choice of a mixed-methods approach is justified by the complexity of the research topic. Relying solely on quantitative data would provide an incomplete view of the situation, as it would fail to capture the nuanced experiences of workers and the specific ways in which companies are responding to automation. Conversely, focusing only on qualitative data would limit the scope of the research, preventing an accurate assessment of the larger employment trends in the industry. By combining both approaches, this study ensures a comprehensive analysis that takes into account both the broader industry trends and the personal, human impact of AI-driven changes in the IT workforce.

Ethical Considerations:

This study primarily relied on secondary data sources, so ethical considerations were focused on ensuring the accuracy, reliability, and proper citation of the data used. Data was sourced from reputable industry reports, government documents, and media articles to maintain credibility.

Full citations and attributions were provided for all secondary sources to avoid any issues of plagiarism. Moreover, the research aimed to maintain a balanced perspective by highlighting both the potential benefits of AI (e.g., job creation) and the challenges (e.g., job displacement)

Limitations of the Methodology:

Although the mixed-methods approach offers a thorough analysis, it is important to note some limitations:

Dependence on Secondary Data:

Since the study is primarily based on secondary sources, it depends on the accuracy, timeliness, and completeness of data reported by third parties.

Lack of Direct Interviews:

While existing interviews from media and reports were used, this research did not conduct any primary interviews or surveys with IT professionals directly, which may limit the immediacy and specificity of the qualitative data.

Focus on Larger IT Firms:

The case studies primarily involved large companies like TCS and Infosys, which may not reflect the experiences of smaller or mid-sized IT firms, where the impact of AI and automation could be different.

Feedback Form Link:- https://forms.gle/LhibTUZ3jj622RpV7

III. METHODOLOGY

A mixed-methods research design was employed, combining quantitative data from government and industry reports with qualitative insights from secondary interviews and corporate case studies. Reports from NASSCOM, McKinsey, and Gartner provided statistical data on job displacement and AI adoption.

Case studies from leading IT firms such as Infosys, Wipro, and TCS revealed organizational strategies for reskilling employees. Secondary interviews published in industry media gave perspective on employee experiences.

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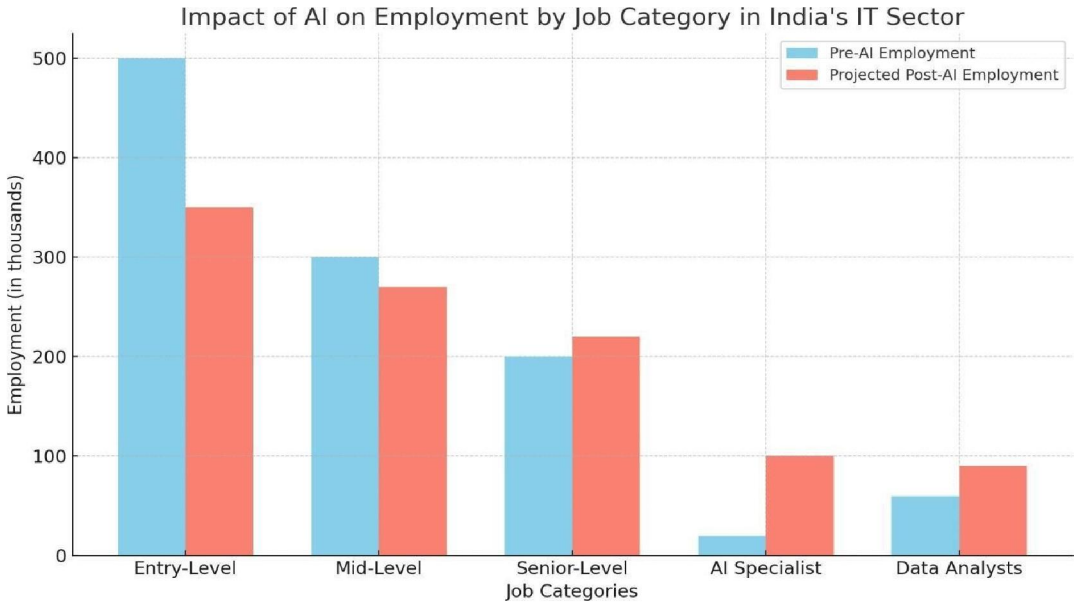
This approach allows triangulation of data and ensures a robust understanding of how AI is changing India's IT workforce

IV. FINDINGS AND DISCUSSION

Our findings show that routine jobs like customer support and software testing are rapidly being automated. However, AI is also creating new opportunities. There's growing demand for professionals in AI, machine learning, data science, and cybersecurity. Companies are investing heavily in reskilling programs, targeting both experienced employees and freshers.

Freshers now need proficiency in Python, R, machine learning frameworks, and analytics tools. Beyond technical skills, soft skills such as problem-solving and adaptability are also increasingly valued.



Emerging roles include:

- **AI Product Managers** – bridge business needs with technical development
- **AI Ethicists** – ensure fairness, transparency, and accountability in AI systems
- **AI Trainers** – help improve natural language and machine learning models

While challenges remain—such as unequal access to training—India's IT workforce is showing strong adaptability. Government and private collaboration in skilling is key to long-term sustainability.

Workforce Upskilling and Job Creation

Metric	Value	Source
Workers needing upskilling by 2027	16.2 million	ServiceNow (2023)
New tech jobs by 2027	4.7 million	ServiceNow (2023)
AI market size by 2027	$17 billion	Reuters (2024)
AI growth rate (2024-2027)	25-35%	Reuters (2024)

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Sector-Specific Job Growth Projections by 2028

Sector	Projected Job Growth
Retail	6.96 million
Manufacturing	1.5 million
Education	0.84 million
Healthcare	0.8 million
TMT	0.48 million

Employee Sentiments on AI Adoption

Sentiment	Percentage	Source
Fear of redundancy	82%	Indian Express (2023)
Use AI at work	70%	Economic Times (2025)

Demand for AI-Related Roles by 2027

Role	Additional Positions
Application Developers	75,000
Data Analysts	70,000
Platform Owners	65,000
Product Owners	65,000
Implementation Engineers	55,000

AI's Impact on Call Centers

According to K Krithivasan, CEO of Tata Consultancy Services, AI advancements are expected to significantly reduce the need for call centers within a year, as chatbots and AI-driven analytics become more prevalent. (Financial Times, 2023)

AI Adoption Among Indian Knowledge Workers

India leads in AI adoption among knowledge workers, with 92% reportedly using generative AI at work, significantly above the global average. (Time, 2023)

V. RESULTS AND DISCUSSION

The integration of AI into Indian IT companies is significantly reshaping job roles across the industry. AI technologies, such as machine learning algorithms, robotic process automation (RPA), and natural language processing (NLP), are being widely implemented to improve efficiency, reduce operational costs, and enhance customer experiences. However, this rapid transformation brings both challenges and opportunities for the IT workforce. The results from our research highlight several key trends regarding the impact of AI on job roles, skill demands, and workforce dynamics. Job Displacement and Automation of Routine Tasks: A significant number of low-skilled and routine job positions are at high risk of being automated. These jobs typically involve repetitive tasks, which can be easily handled by AI-powered systems. For instance, customer service roles that require answering basic queries and responding to repetitive customer requests are increasingly being replaced by AI-driven chatbots. These chatbots can process natural language queries, deliver real-time responses, and operate 24/7 without human intervention, which reduces the need for human agents in call centers and support roles.

Rising Demand for Highly Skilled Professionals: On the other side of this transformation, the demand for highly skilled professionals has risen sharply. As companies adopt AI to optimize operations, there is an increasing need for experts who can design, develop, and maintain these systems. Our research shows that AI engineers, data scientists, and machine learning (ML) specialists are among the most sought-after roles in the IT industry today.

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Shifts in Entry-Level Job Roles: For freshers entering the IT sector, the landscape of job opportunities is shifting. Traditionally, entry-level roles such as software development and manual testing have served as the starting point for many professionals in the industry. However, the introduction of AI has led to changes in these roles. Freshers now need to acquire new skill sets to stay competitive in the job market. The demand for software developers remains, but companies are increasingly looking for individuals with expertise in AI/ML, data analytics, and automation frameworks.

VI. CONCLUSION & RECOMMENDATIONS

AI and automation are fundamentally reshaping the Indian IT landscape. While they pose risks to routine jobs, they also offer significant growth opportunities in high-tech domains. The transition demands proactive adaptation through upskilling and strategic support.

We recommend:

- Continuous learning frameworks for all employees
- Government–industry partnerships in reskilling
- Investment in education and AI research
- Further research into long-term trends and impacts on mid-tier and small IT firms
- By embracing change with strategic foresight, India can lead the world in responsible AI adoption

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