

## IMPACT OF ARTIFICIAL INTELLIGENCE (AI) ON THE INDIAN EMPLOYMENT

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### **Abstract:**

Artificial Intelligence (AI) is increasingly transforming industries and reshaping labor markets worldwide, including in India. This paper examines the impact of AI on employment in India, exploring both the challenges and opportunities it presents. While AI-driven automation is displacing low-skilled jobs in sectors such as agriculture, manufacturing, and customer service, it is also creating new roles in fields like data science, machine learning, and AI development. The need for reskilling and upskilling the workforce is critical to ensure that workers are prepared for an AI-driven economy. . In India AI used in various sectors has led to a significant increase in employment such as Agriculture, Health, IT, Banking, Insurance, Retail and Manufacturing. This study synthesizes research by scholars like G. Shankar, Akshay Kumar, and Keshav Mishra, shedding light on AI's potential to either exacerbate or alleviate employment challenges in India. The paper also discusses policy measures, including government initiatives like Skill India and Digital India, aimed at addressing workforce disparities and promoting inclusive growth. By fostering innovation, enhancing skill development, and ensuring equitable access to opportunities, AI can drive India's economic development while mitigating job displacement risks. The research provides crucial insights into managing the transformative impact of AI on employment and creating a future-ready workforce in India.

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## 1. INTRODUCTION:

Artificial Intelligence (AI) has become increasingly integrated into various aspects of our lives, revolutionizing industries and impacting daily routines. Here are some examples illustrating the diverse applications of AI: Virtual Personal Assistants, Autonomous Vehicles, Healthcare Diagnosis and Treatment, Recommendation Systems, Fraud Detection. This article examines the complex relationship between AI and employment, using an interdisciplinary approach to explore issues such as job displacement, the importance of skills acquisition, and the impact on various industries and populations. It also discusses policy recommendations to mitigate AI's negative effects and promote inclusive growth. Through this analysis, we aim to inform policy decisions and strategies for managing AI's impact on the labor market.

## 2. REVIEW OF LITERATURE:

1. G.Shankar1 , Dr.Sambathkumar,(2024),he has studied The Impact of Artificial Intelligence on Employment: A Comprehensive Analysis. he has focused on This article attempts to address this need by looking deeply at the multifaceted relationship between AI and employment. Using an interdisciplinary approach that draws on economics, sociology and computer science, we seek to shed light on the complex dynamics of the era of AI-based automation. Synthesizing existing research and empirical evidence, we explore key questions such as the scope of work. displacement caused by artificial intelligence, the role of skills acquisition and retraining in adapting to technological change, and the impact on different industries and populations. In addition, we discuss policy considerations aimed at mitigating the negative impact of AI on employment and promoting inclusive growth.

2.2. Akshay Kumar,2024,he has studied Impact of Artificial Intelligence on Employability in India. the main objective of the study has To investigate how artificial intelligence (AI) may affect India's employment prospect and determine the elements of AI that influence the nation's employment prospects and difficulties. He has concluded that the predict that the emergence of AI will usher in the fourth Industrial Revolution, transforming the industrial and services industries alike. Numerous professions in a variety of industries are at risk due to the AI revolution.

3. Keshav Mishra1 , AparnaSrivastava 2024,Impact of Artificial Intelligence (A.I.) on Employment of Indian Workers,the main objective of the studies is enhance knowledge of artificial intelligence's (AI) complexity and investigate in detail the substantial impact of AI on employment prospects across several Indian industries.

4. According to Capgemini's (2017) research, which was based on a comprehensive survey conducted in nine countries, including India, the country with the highest percentage of companies (58%) was India.

5. According to CIS (2018), in its study titled "AI and the Manufacturing and Services Industry in India.

## 3. IMPORTANCE OF THE STUDY:

The study of AI's impact on Indian employment provides critical insights into the country's economic future, workforce transformation, and societal challenges. By identifying risks and opportunities, such research can guide policy decisions, ensuring AI's potential is harnessed for inclusive and sustainable growth, Job Creation in New Sectors Regional and Socioeconomic Inequalities, IT & Software Development and policy development.

## 4. STATEMENT OF THE PROBLEM

The rapid advancement of Artificial Intelligence (AI) technologies is significantly reshaping the global labor market. In India, a country with a large and diverse workforce, AI has the potential to both create new opportunities and displace existing jobs. This transformation poses critical challenges for India's

employment landscape, particularly in sectors like IT, manufacturing, agriculture, and services. The adoption of AI may lead to job displacement for low-skilled workers while simultaneously increasing demand for highly specialized roles that require new skills. This presents a significant problem in terms of reskilling and upskilling the workforce to ensure they are prepared for the AI-driven economy. Furthermore, there are concerns about regional disparities, income inequality, and the effectiveness of current policies and educational systems in addressing these challenges. Therefore, understanding the impact of AI on Indian employment is essential for creating sustainable policies and strategies to mitigate negative effects while promoting equitable growth and development.

**5. OBJECTIVES:**

1. To study the Impact of Artificial Intelligence on Employment in India.
2. To find out the factors due to AI ,lead to job opportunities and challenges in India.

**6. METHODOLOGY:**

Data collection involves collecting relevant data from secondary sources such as Review of relevant literature, Articles, government reports, online databases and web sides.

**DISCUSSION:**

Artificial intelligence (AI) is transforming the job market, creating new opportunities while also posing challenges for certain types of employment. Here's a summary of AI's impact on employment:

**1. Positive Impacts of AI on employment. In India:**

1. Job Creation in AI-related Fields:  
The demand for AI specialists, such as machine learning engineers, data scientists, and AI ethicists, has surged. These roles often offer high salaries and growth potential.

3. Enhanced Productivity:

AI can automate repetitive tasks, allowing employees to focus on more strategic, creative, and interpersonal aspects of their jobs. This shift can lead to higher job satisfaction and productivity.

4. New Job Categories:

AI is creating entirely new job categories, such as AI trainers, explainability experts, and AI maintenance roles that ensure the ethical use and proper functioning of AI systems.

5. Improvement in Existing Roles:

AI tools enhance decision-making processes in various sectors, including finance, healthcare, and logistics, enabling professionals to work more efficiently and make better-informed decisions.

**2. Negative Impacts of AI on employment. In India:**

1. Automation of Routine Jobs:

Jobs that involve repetitive and predictable tasks, such as manufacturing, data entry, and some customer service roles, are at risk of automation, leading to job displacement.

2. Skills Gap:

The rapid advancement of AI technology creates a skills gap as many workers lack the necessary training to transition into AI-related roles. This gap can lead to unemployment or underemployment if not addressed through education and retraining programs.

3. Economic Inequality:

AI's impact can widen economic inequality as high-skill jobs become more valuable, while low-skill jobs become increasingly automated, benefiting those with advanced skills and potentially disadvantaging those without. Job Polarization: AI tends to impact middle-skill jobs the most, potentially leading to job polarization where high-skill, high-paying jobs and low-skill, low-paying jobs increase, but middle-skill jobs decline.

### **3. Impact of AI on Employability on various sectors In India**

Following various sector AI used in India:

#### **1. Agriculture**

AI is set to revolutionize Indian agriculture by addressing challenges such as lack of infrastructure, knowledge, and capital for farmers. AI applications in agriculture include pest and weed detection, agricultural robotics, precision farming, crop health assessment with drones, soil monitoring systems, AI-based crop price forecasting, and weather forecasting. AI is expected to relieve stress in the agriculture sector and promote data-driven farming, leading to increased output. Various startups and organizations are leveraging AI in agriculture, with around 72 AI in Agriculture startups in India. Government initiatives and support, along with high internet penetration, are driving the growth of technology-aided agriculture.

#### **2. IT sector:**

India's IT sector, home to major global companies like TCS, Infosys, Wipro, and Tech Mahindra, is keeping pace with evolving tech avenues such as cloud, AI, and cyber and data security. These companies are focused on cutting-edge technologies like artificial intelligence (AI) and machine learning (ML), investing in research and development to cater to client needs. The industry recognizes the importance of upgrading technology stacks, leveraging cloud infrastructure, and automating software delivery to accelerate development. The future of the Indian IT landscape is expected to be AI-driven and reliant on hybrid cloud solutions, with a strong emphasis on data privacy and security.

#### **3. Healthcare:**

AI is transforming India's healthcare sector, with the AI in healthcare market projected to grow significantly. AI is being applied in areas like diagnostics, personalized treatment, remote monitoring, enhanced patient experience, and predictive analytics. It is addressing the shortage of radiologists by enabling faster and accurate diagnoses. AI algorithms are developing personalized treatment plans based on patient data, leading to better outcomes. Remote monitoring tools are allowing healthcare providers to monitor patients remotely, especially those with chronic conditions.

#### **4. Backing and Insurance:**

AI is rapidly transforming the Indian banking industry, enhancing efficiency and customer service. Start-ups are leveraging AI for chatbots and data analysis. However, India's AI industry lags behind global leaders. AI revolutionizes asset management, hiring, and customer service in banking. The Reserve Bank of India promotes new technologies, such as blockchain, to improve customer experience. India's technology landscape and fintech sector contribute to its position as a hub for innovation. AI has immense potential in banking, but further investment is needed.

#### **5. Manufacturing:**

AI is automating certain repetitive tasks in the manufacturing sector, leading to job displacement in certain areas. However, it also creates opportunities for skilled workers to manage and maintain AI-powered systems and robotics.

#### **6. Retail:**

AI is impacting the retail sector through personalized marketing, inventory management, and customer service. It can automate certain tasks, such as stock tracking and replenishment, and enable personalized recommendations. However, it may also lead to job displacement in traditional retail roles.

7. **Education:** AI is transforming the education sector by enabling personalized learning experiences, intelligent tutoring systems, and automated grading. It may impact teaching roles by automating certain administrative tasks, but it also creates new opportunities for educators to leverage AI technologies.

#### **4. Factors Leading to Job Opportunities:**

##### **1. Emergence of New Sectors and Industries:**

AI has given rise to entirely new sectors and industries, many of which were previously non-existent. For instance, sectors such as AI research and development, machine learning, data science, robotics, and automation are now expanding rapidly. These industries have created a significant demand for professionals in specialized roles such as AI engineers, machine learning specialists, data scientists, AI project managers, and software developers. As AI technologies continue to evolve, the demand for professionals skilled in these areas is expected to increase, thereby opening up fresh job opportunities.

##### **2. Transformation of Traditional Industries:**

AI is not only creating entirely new sectors but is also transforming traditional industries like healthcare, manufacturing, finance, retail, and agriculture. In healthcare, AI-driven diagnostics, treatment plans, and personalized care have opened up new job roles for AI specialists in medical technologies. Similarly, in agriculture, AI-powered precision farming tools are creating roles for agritech professionals who can manage AI applications to improve crop yields and sustainability. In manufacturing and services, AI is improving production processes through automation and predictive maintenance, creating roles related to AI implementation, management, and quality control. Thus, AI has the potential to improve productivity in traditional sectors while creating higher-value jobs that require new skills.

##### **3. Improvement in the IT and Software Industry:**

India is one of the leading global players in the IT and software development industry, and AI is further strengthening this sector. With the increasing demand for AI-driven applications, cloud computing, and big data analytics, the IT and software sectors are thriving. Companies are hiring AI specialists to develop and deploy intelligent systems, resulting in a growing job market for highly skilled IT professionals. Additionally, startups focusing on AI, particularly in cities like Bengaluru, Hyderabad, and Pune, are rapidly expanding and contributing to employment growth in the tech ecosystem.

**4. Upskilling and Reskilling Initiatives:** As AI becomes more integrated into the workforce, there is an increasing need for upskilling and reskilling the existing workforce. Institutions, corporations, and the government are offering training programs that focus on AI, data analytics, machine learning, and other relevant fields. These initiatives enable workers to transition into new roles and meet the demand for skilled professionals in AI-driven industries. This opens up job opportunities for people who may have otherwise been excluded from the AI revolution by offering them the tools to thrive in an AI-powered economy.

##### **5. Entrepreneurship and Innovation:**

AI has also led to the rise of new startups and entrepreneurial ventures, particularly in the field of technology. Entrepreneurs are harnessing AI to create innovative solutions, products, and services across industries. For example, AI-based apps for healthcare, financial services, and customer service are being launched, contributing to job creation. Startups working in sectors like robotics, AI-powered analytics, and automation are expanding, offering a wide range of opportunities for innovators, technicians, and business professionals.

#### **5. Factors Leading to Job Challenges:**

##### **1. Job Displacement Due to Automation:**

One of the most significant challenges posed by AI is the automation of jobs that were traditionally performed by humans. In India, industries like *manufacturing, agriculture, and customer service* are highly susceptible to job displacement due to automation. In manufacturing, the increasing use of AI-powered robots for assembly line work is leading to a reduction in demand for manual labor. Similarly,

in customer service, the use of AI chatbots for routine inquiries and troubleshooting is replacing human workers in call centers. Workers engaged in low-skill, repetitive tasks are particularly at risk. For example, a large portion of the Indian workforce is employed in sectors such as retail and agriculture, where tasks like stocking, packaging, and basic analysis are increasingly being handled by AI and robotics. This has led to concerns about unemployment, especially for individuals with limited educational qualifications or technical skills.

### **2. Impact on Low-Skilled Workers:**

In India, a significant portion of the labor force is employed in low-skill jobs that AI and automation can replace. In industries like *construction, agriculture, and informal services*, where routine manual tasks are common, workers face the threat of job loss due to AI-driven automation. The challenge here is not only job displacement but also the inability of these workers to transition into new roles that require advanced skills and technical knowledge. Without access to education or reskilling opportunities, these workers are at risk of being left behind.

### **3. Skills Gap and Lack of Education:**

AI is creating a demand for specialized skills that are often not widely available in the Indian workforce. Many job seekers lack the necessary qualifications to fill the high-skill, high-paying positions emerging from AI-driven industries. This skills gap is a major challenge, as India's education system is not fully equipped to provide training in areas like machine learning, robotics, and AI algorithms. Without adequate access to AI-focused education and training programs, a large segment of the workforce will struggle to find new employment opportunities in AI-powered industries.

**4. Regional Disparities in AI Adoption:** India's workforce is geographically diverse, with significant differences in technological access and infrastructure between urban and rural areas. The adoption of AI technologies has largely been concentrated in urban centers, where industries like IT, fintech, and healthcare are expanding. However, rural areas, where agriculture and informal labor dominate, are at risk of being left behind in the AI revolution. As a result, rural workers face greater challenges in terms of job displacement due to a lack of access to AI-driven job opportunities and reskilling programs. This urban-rural divide could exacerbate existing inequalities in the job market, creating a significant challenge for inclusive growth.

### **5. Economic Inequality and Job Polarization:**

As AI technologies are adopted, there is the potential for job polarization, where high-skilled workers enjoy the benefits of AI while low-skilled workers are displaced. This could increase economic inequality in India. The rich and well-educated population, with the skills to thrive in AI-driven roles, may benefit from higher wages and job security, while those who cannot access or afford training in AI-related fields may struggle to find meaningful employment. Addressing this issue requires targeted policies to ensure that AI adoption benefits all segments of society, particularly those in vulnerable positions.

### **6. Resistance to Technological Change:**

In some sectors, there may be resistance to the integration of AI due to concerns about job security and the unfamiliarity with new technologies. Workers and trade unions may oppose AI adoption, fearing mass layoffs and unemployment. This resistance can slow down the widespread adoption of AI in certain sectors, hindering overall productivity growth and making the transition more challenging for both workers and employers.

## **8. CONCLUSION:**

The adoption of Artificial Intelligence (AI) in India is rapidly transforming various sectors, including Information Technology (IT), manufacturing, agriculture, and healthcare. The research paper has

explored the multifaceted impact of AI on employment in India, shedding light on both the opportunities and challenges presented by this technological shift. AI has the potential to significantly enhance productivity and economic growth by automating routine tasks, optimizing business processes, and creating new, specialized job roles. In India AI used in various sectors has led to a significant increase in employment such as Agriculture, Health, IT, Banking, Insurance, Retail and Manufacture. In the IT sector, AI is driving a demand for new skills and roles, particularly in areas like machine learning, data science, and cybersecurity, fostering innovation and expanding business opportunities. Similarly, AI's role in manufacturing, healthcare, and agriculture is improving efficiency and creating new avenues for growth. AI presents both risks and rewards for India's labor market. With the right policy interventions, investment in skill development, and inclusive growth strategies, India can leverage AI to drive economic development, create new job opportunities, and transform its workforce for the future.

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