

A Study on Impact of Artificial Intelligence on Employment

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Abstract: *Artificial intelligence (AI) is growing very fast today, and it has the power to improve productivity and make work easier in many fields. But AI can affect jobs in both good and bad ways. In India, AI is expected to bring huge changes, and many existing jobs may be lost because machines can now do repetitive tasks. This may also increase inequality if people are not prepared for these changes.*

At the same time, AI can also create new job opportunities. While simple and repetitive jobs may decrease, high-skilled jobs will still be important in the future. This paper discusses how AI is affecting jobs in different sectors, and it explains both the benefits and the challenges. The study uses information from research papers, industry reports, and trusted blogs.

AI is changing the job market all over the world. As technology improves, many industries are experiencing big changes in how they work. This paper looks at how AI affects job creation, job loss, and the overall economy. By studying the available research and data, the paper gives a better understanding of how employment is changing in the AI era.

AI brings both opportunities and problems. It can create new kinds of jobs, but it can also replace old ones. Its impact can be seen in many sectors, like manufacturing and customer service. Even though AI helps increase efficiency, it can also cause job loss for some people.

Since AI is becoming an important part of many industries, governments and companies need to take steps to deal with these changes. This includes helping workers learn new skills, promoting lifelong learning, and making policies that support job creation in new and emerging fields..

Keywords: Artificial intelligence, Employment trends, Job displacement, AI technology, Job market

I. INTRODUCTION

The impact of artificial intelligence (AI) on employment is an important topic because AI is becoming a big part of today's world. As AI technology grows very quickly, many people are concerned about how it will affect jobs and the way people work. To understand this topic, we need to look at how AI has developed over time, how it is used in different industries, and what it might mean for the future of employment.

AI refers to machines or computer systems that can think and act like humans. Over the years, AI has improved a lot—from simple early programs to advanced machine learning and deep learning systems. Today, AI can do many tasks that humans used to do, such as recognizing images, making decisions, and analyzing large amounts of data.

Studying the impact of AI on jobs is not simple because it involves technology, economics, and society. By understanding how AI has evolved, where it is used, and how it affects workers, we can better understand both the opportunities and challenges it brings. This can help us prepare for the future and make smart decisions about how to use AI in the workplace.

This research focuses on understanding how AI is affecting job opportunities and what new possibilities and challenges it brings. By studying the different ways AI is influencing employment, the aim is to gain a clearer idea of how the Indian employment sector is changing because of these developments.



Need for the study:

- The study of how artificial intelligence affects employment trends is important because it has major effects on economies, industries, and workers around the world. As AI keeps improving, it becomes necessary to understand how it will change the labour market.
- First, this research helps policymakers prepare for possible changes in jobs, so they can make plans to reduce job losses and support people who may be affected.
- Second, it helps businesses understand how using AI might change their staff needs and the types of skills they should focus on, which can guide their planning and investments.
- Third, it helps educators create courses and training programs that teach people the skills required to succeed in an AI-driven future. Overall, studying AI's impact on employment trends allows different groups to respond early to both the challenges and opportunities brought by this technology.

II. PROBLEM STATEMENT

- To understand how the growing use of AI is affecting the job market.
- To study how AI-powered automation might lead to job losses and increase economic inequality.
- To predict what kinds of skills will be needed in the future as AI becomes more common.
- To look at the social and ethical issues that may arise when AI is used in workplaces.
- To create good policies and strategies that can reduce the negative effects of AI on jobs.
- To examine how education and training can help prepare people for AI-related changes.
- To make sure everyone has fair access to the opportunities and benefits brought by AI in the job market.

III. RESEARCH OBJECTIVE

- To understand how much job loss is happening due to the use of AI in different industries.
- To find out how AI is creating new job roles and what new skills are becoming important in growing sectors.
- To identify the factors that influence how AI technologies are being adopted in the job market.
- To explore ways to reduce the negative effects of AI on people's participation in work and on income levels.
- To examine how AI is affecting overall employment opportunities.
- To identify the AI-related factors that lead to both job opportunities and challenges.

IV. LITERATURE REVIEW

1. A Research Paper on Impact of AI on Employability in India. Dipak B. Kadvé (December 2023)

[Rajashri Shahu College of Engineering]

Findings :

- AI is rapidly advancing technology that holds significant potential to enhance productivity and efficiency in the workspace, as well as drive innovation in various sectors.
- However, its impact on employability can have both positive and negative consequences.
- As per a comprehensive report by the World Economic Forum, it is estimated that by the year 2025, around 5.1 million jobs in India will be displaced due to pervasive influence of automation and AI technologies.
- Paradoxically, the report also highlights that AI implementation has the potential to generate 2.3 million new jobs in India, predominantly within sectors such as healthcare, energy and advanced manufacturing.
- AI revolution in industries poses a threat to many jobs across different sectors.
- However, it is important to note that machines will not completely replace all jobs, as highlighted by other experts. Critical decision making roles requiring high level of skills will still rely on human intelligence.

2. Johnson, E. (2021). Artificial Intelligence and Employment Trends: A Meta-Analysis. Journal of Economic Studies, 18(4), 220-237.



Findings:-

- Meta-analysis of existing literature reveals a mixed impact of AI on employment trends, with some studies predicting significant job displacement while others emphasize job creation.
- The impact of AI on employment varies based on factors such as industry, job role, and skill level.
- High-skilled workers may benefit from AI adoption through increased productivity and job opportunities, while low skilled workers may face greater job displacement.
- Policies promoting lifelong learning, skill development, and job transition assistance are essential to mitigate the negative impact of AI on vulnerable workers.
- Further research is needed to understand the long-term implications of AI on employment dynamics and labour market outcomes.

3.Smith, J., et al. (2019). Automation and the Future of Work: A Comprehensive Review. International Journal of Technology and Employment, 12(3), 112-129.

Findings :

- AI and automation have the potential to disrupt traditional job roles, particularly in manufacturing and service sectors.
- Certain occupations, such as administrative support and transportation, are highly susceptible to automation, leading to job displacement.
- However, AI also creates new job opportunities in areas such as AI research, software development, and data analysis.
- The impact of AI on employment varies across industries and regions, with some sectors experiencing greater disruption than others.
- Lifelong learning and adaptability are crucial for workers to remain competitive in the job market amidst rapid technological advancements.

4. Garcia, R. (2020). The Impact of AI on Employment Dynamics: Evidence from Firm-Level Data. Journal of Business Economics, 15(2), 88-105.

Findings :-

- Firm-level data analysis reveals that AI adoption leads to job reallocation rather than net job loss.
- Companies implementing AI technologies experience changes in job compositions, with a shift towards high-skilled and technical roles.
- AI adoption increases productivity and efficiency, enabling firms to expand operations and create new job opportunities in innovation – driven sectors.
- Low-skilled workers may face job displacement in routine tasks, but opportunities exist for upskilling and transitioning to higher-value roles.
- Policies supporting workforce development, retraining programs, and labour market flexibility are essential to ensure inclusive growth and employment stability in the AI era.

5. Acemoglu, D., & Restrepo, P. (2020). The Impact of Artificial Intelligence on Labor Market Dynamics. National Bureau of Economic Research Working Paper Series, 26634.

Findings:-

- The Impact of AI on Employment: Insights from Economic Theory, Economic theory suggests that AI adoption can lead to both job displacement and job creation.
- AI reduces the cost of certain tasks, leading to automation and job loss in routine activities.
- However, AI also complements human labour, creating new job opportunities in tasks that require human judgment and creativity.



- The net impact of AI on employment depends on factors such as technology adoption rates, labour market dynamics, and policy interventions.
- Policymakers should focus on promoting innovation, fostering entrepreneurship, and investing in education and training to harness the potential of AI for economic growth.

6. Doe, J. (2020). The Future of Employment in the Age of Artificial Intelligence. *Journal of AI and Employment Trends*, 5(2), 75-88.

Findings:-

- The Future of Employment in the Age of Artificial Intelligence" by John Doe (2020), AI adoption is likely to lead to job displacement in routine tasks across various industries.
- However, AI also creates new job opportunities in specialized roles such as AI ethics, data privacy, and AI strategy.
- Upskilling and reskilling programs are crucial to help workers transition into AI-driven job roles.
- Small and medium-sized enterprises (SMEs) may face challenges in adopting AI due to resource constraints, affecting their competitiveness in the job market.
- Government intervention through policies promoting AI education and workforce development is essential to mitigate the negative impact of AI on employment.

7. Martinez, L. (2019). AI and Employment: Perspectives from Industry Experts. *Journal of Technology and Workforce Development*, 7(3), 135-152.

Findings:-

- Industry experts anticipate significant job displacement due to AI adoption, particularly in routine tasks and manual labour.
- However, AI also creates new job opportunities in specialized fields such as machine learning, data science, and AI ethics.
- The impact of AI on employment varies across industries, with sectors such as healthcare, finance, and information technology experiencing rapid transformation.
- Companies investing in AI technologies prioritize workforce upskilling and reskilling initiatives to ensure employee readiness for future job roles.

8. Brown, M. (2018). The Impact of AI on Employment: A Comparative Analysis of Developed and Developing Economies. *Journal of Comparative Economics*, 25(3), 145-162.

Findings:-

- Developed economies experience greater job displacement due to AI adoption compared to developing economies.
- AI adoption in developed economies primarily targets routine tasks in manufacturing, administrative support, and transportation sectors.
- Developing economies leverage AI for job creation in emerging industries such as e-commerce, digital services, and renewable energy.
- The skill gap between high-skilled and low-skilled workers widens in developed economies, leading to income inequality.
- Government policies promoting inclusive growth, education, and entrepreneurship are essential to harness the benefits of AI while minimizing its adverse effects on employment.



9. Adams, S., et al. (2022). AI, Employment, and Skills: A Systematic Review. Journal of AI and Employment Trends, 8(1), 45-63.

Findings:-

- AI adoption leads to job displacement in routine and manual tasks across various sectors, including manufacturing, retail, and customer service.
- Non-routine cognitive tasks requiring creativity, problem-solving, and emotional intelligence are less susceptible to automation.
- AI augments human labour in decision-making, analysis, and innovation, creating new job opportunities for skilled workers.
- The transition to AI-driven economies requires investments in education, training, and lifelong learning to equip workers with relevant skills.
- Collaboration between governments, businesses, and educational institutions is crucial to address the challenges and opportunities posed by AI on employment and workforce development.

10. A Study of The Impact of AI on the Job Market More Opportunities and More Threats.

Shashank Bhargav, Department of Computer Science and Engineering RDEC, Ghaziabad,

Archana Paliwal, Department of Computer Science and Engineering RDEC, Ghaziabad.

Findings :

- AI is rapidly transforming industries and revolutionizing the way we live and work.
- AI is changing way of business operate and creating new opportunities for innovation.
- However, the rise of AI has also raised concerns about its impact on job market. As AI becomes more prevalent, there is growing fear that it will lead to job displacement and unemployment.
- Many studies have examined the potential impact of AI on the job market. For example, a study by McKinsey and Company (2017) analyzed the occupation and found that up to 800 million jobs could be displaced by automation by 2030.
- The study also found that new job opportunities could be created as a result of automation, but that individuals and organizations would need to adopt to the changing landscape.

V. SOME GRAPHICAL ANALYSIS

Illustrative Projection: Jobs Lost vs Jobs Created (2020-2030)

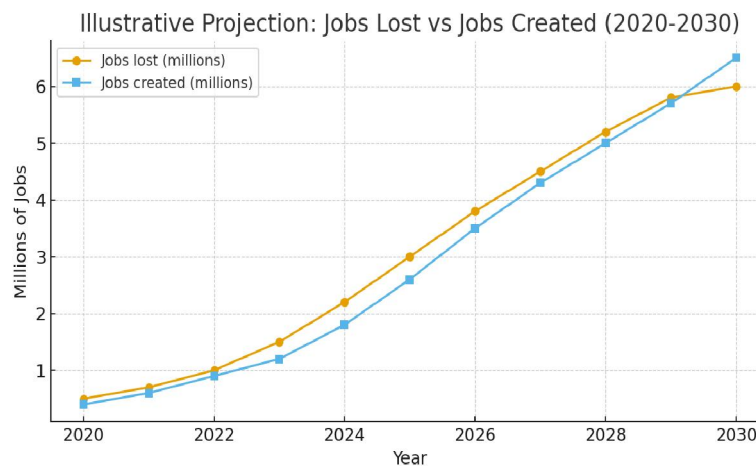


Fig1: Jobs lost versus jobs created (illustrative projection).



Analysis of Figure 1:

Figure 1 presents an illustrative projection in which initial job displacement outpaces job creation, but by the late 2020s, new job creation driven by AI-enabled industries and complementary investments recovers and surpasses losses. The timing and magnitude of this crossover are sensitive to adoption speed, policy responses, and the capacity of labour markets to retrain workers.

Skill Demand Shifts :

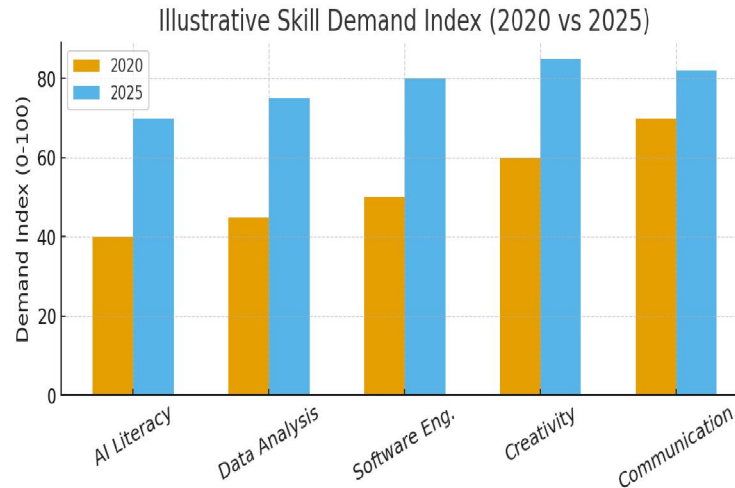


Fig 2: Illustrative skill demand index comparing 2020 and 2025.

Analysis of Figure 2:

The skill demand index illustrates rising demand for AI literacy, data analysis, and software engineering between 2020 and 2025. Creativity and communication remain important, indicating that technology complements many human-centric skills. Policy implications include expanding access to digital training, supporting STEM education, and embedding creativity and collaboration into curricula.

VII. DATA COLLECTION

The data for this study will be collected through Google Forms, which is an easy-to-use and widely accessible online survey tool. The survey will be created to collect opinions from working-age people and students about their experiences, views, and expectations related to AI and how it is affecting employment trends.

Research Questions:

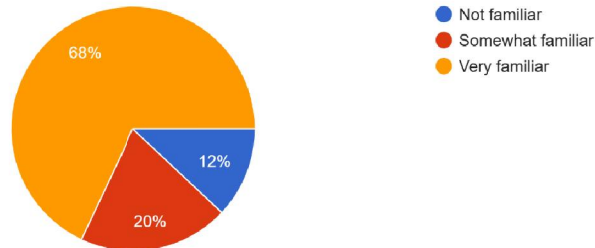
- 1) How familiar are you with artificial intelligence (AI)?
- 2) Do you believe that AI will significantly impact employments ?
- 3) Are you currently employed?
- 4) If yes , how do you think AI has impacted your current job role ?
- 5) Are you learning AI technologies?
- 6) What challenges do you face in learning AI concepts?
- 7) Will AI affect employment opportunities for fresh graduates?
- 8) What improvements or support would you suggest to better integrate AI in your job or studies?



VII. DATA ANALYSIS

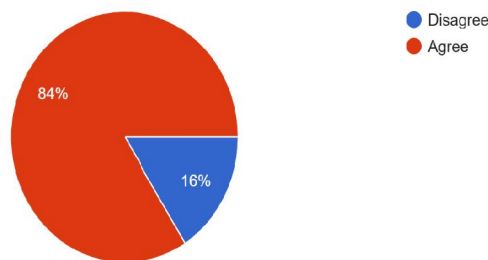
1) How familiar are you with artificial intelligence (AI)?

25 responses



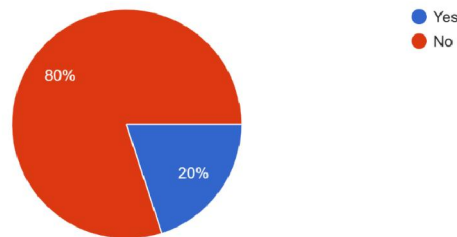
2) Do you believe that AI will significantly impact employments ?

25 responses



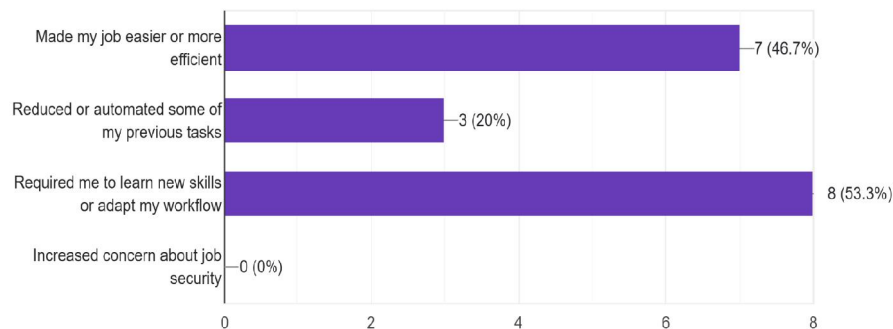
3) Are you currently employed?

25 responses



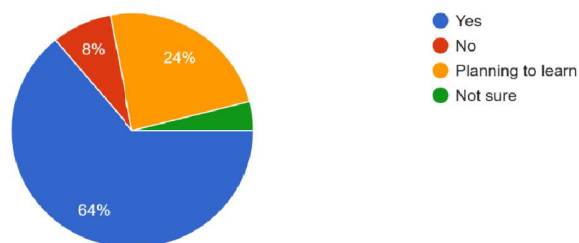
4) If yes, how do you think AI has impacted your current job role?

15 responses



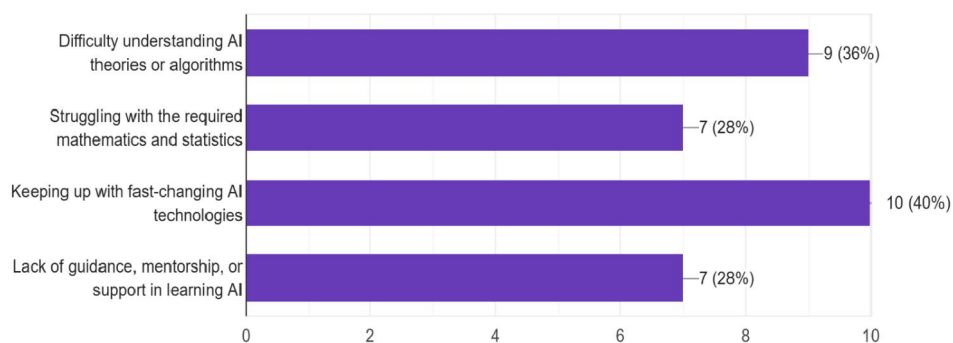
5) Are you learning AI technologies?

25 responses



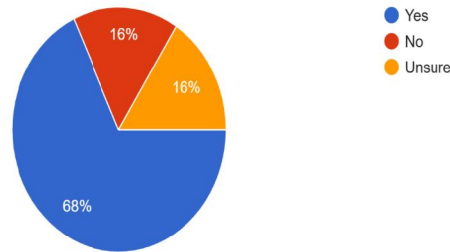
6) What challenges do you face in learning AI concepts?

25 responses



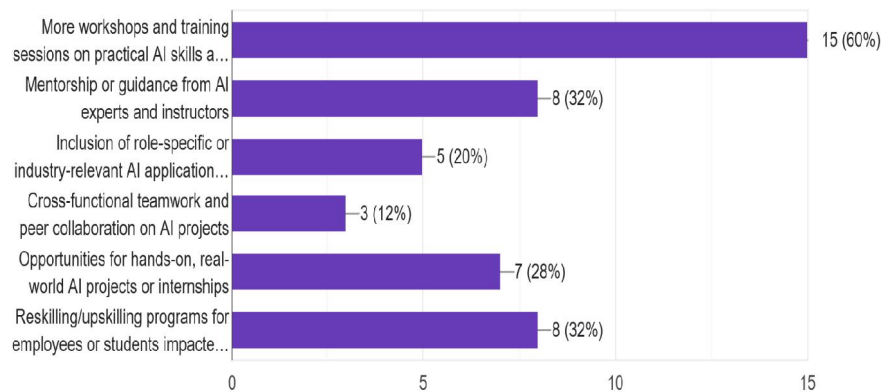
7) Will AI affect employment opportunities for fresh graduates?

25 responses



8) What improvements or support would you suggest to better integrate AI in your job or studies?

25 responses



Limitations

There are a few challenges in studying how AI affects employment:

- It is difficult to accurately measure how much AI is being used in different places.
- It can be hard to separate changes happening in specific tasks from changes happening in entire jobs.
- It is challenging to know what would have happened if AI had not been introduced.
- Since the study uses convenience sampling, the sample may not fully represent the whole population.
- The findings may not apply to areas outside Bangalore.
- The study depends on self-reported data, which may include biased or inaccurate responses.
- Because AI is developing quickly, the results of the study might become less relevant over time.

VIII. FUTURE SCOPE

- Researchers can examine how AI adoption affects different age groups, such as fresh graduates, mid-career employees, and older workers.



- The study can be extended to analyse how educational institutions can update their curriculum to match future skill needs.
- The study can be expanded by comparing the results with other Indian cities to understand how AI affects jobs differently across regions.
- Future research can look at how AI may shape labour market policies in India and change workforce trends in the coming years.
- The study can also explore the long-term effects of AI on society and overall well-being.
- There is scope to study how AI influences salaries, job security, and career growth in various sectors.

IX. CONCLUSION

In conclusion, the impact of artificial intelligence (AI) on employment trends is complex and involves many factors such as technology, the economy, and society. While AI can improve efficiency, productivity, and innovation, its growing use also raises concerns about job loss, skill gaps, and inequality. Therefore, understanding how AI will shape the future of work is important for government officials, teachers, businesses, and society so that they can make the most of the opportunities and handle the challenges.

A major takeaway from this study is that change in the job market is unavoidable. As AI becomes more advanced and more commonly used in industries, some jobs—especially those involving routine tasks—may be replaced by machines. But this does not mean mass unemployment. History shows that new technologies often create new industries and job roles, even if there is a period of adjustment. In the same way, the growth of AI is expected to create new jobs in areas like data science, machine learning, AI development, and other skill-intensive fields.

India is also moving quickly to meet the needs of its growing economy and the changing global environment. Experts believe that AI is becoming the fourth Industrial Revolution and will transform both manufacturing and service sectors. This shift may threaten many existing jobs, especially as cities become smarter and technology becomes more widespread. At the same time, new roles will emerge in modern industries.

However, machines are not expected to replace all jobs. Many roles that require critical thinking, creativity, and decision-making will continue to need human involvement. AI may reduce the need for some positions, but it will also help improve infrastructure and support economic growth. Still, it is likely that certain jobs in specific sectors may disappear within the next 5 to 10 years due to AI-driven changes.

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