e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:07/Issue:03/March-2025 Impact Factor- 8.187 www.irjmets.com

IMPACT OF ARTIFICIAL INTELLIGENCE ON EMPLOYMENT

Nasreen Karishma R[*1], Aravinthan CS[*2], Dr. Thiyagarajan C[*3]

[*1,2]Student, Department Of Computer Applications (PG) PSG College Of Arts & Science, India.

[*3]Associate Prof., Department Of Computer Applications (PG) PSG College Of Arts & Science, India.

ABSTRACT

Artificial Intelligence (AI) has evolved very rapidly, revolutionary in its impact on industries and the character of work. In this paper, the multifaceted impact of AI on work is presented, both the opportunities and the challenges it presents. While AI is driving productivity, innovation, and the development of new jobs in new areas, it is also reshaping the character of jobs, calling for transformation by the workers and the policymakers. While it is creating opportunities in data science, cybersecurity, and AI ethics, it emphasizes the need for increased workforce training and skill development. The study emphasizes the need for strategic action to harness AI's potential and address its adverse effects.

Keyword: Artificial Intelligence, Employment, Job Loss.

I. INTRODUCTION

Artificial Intelligence (AI) refers to the simulation of human intelligence by machines, enabling them to perform functions such as problem-solving, decision-making, and pattern recognition. The creation of AI technologies has revolutionized industries, boosting productivity and creating new opportunities. The transformation, however, brings with it some fundamental questions regarding its effect on employment. The double-edged sword nature of AI as a creator and eliminator of jobs necessitates the need to study its operation in depth.

1.1 Historical Context of AI in Employment

The convergence of Artificial Intelligence (AI) and work has evolved with advancements in technology, starting with the initial phases of automation and slowly emerging as modern advanced AI systems. The development of AI started during the 1940s-1960s, when mechanical automation of manufacturing sectors transformed productivity, reducing the necessity for human labor. During this period, early scientists such as Alan Turing and John McCarthy laid the foundation of modern AI, envisioning machines that could mimic human intelligence. The 1970s-1980s saw the arrival of computers in the workplace revolutionize work, substituting manual data entry and accounting operations with automated systems. Early applications of AI, such as rule-based expert systems, were implemented in specialized areas such as medical diagnosis and financial analysis.

The 1990s-2000s saw advancements in computing power and algorithms in machine learning pushing AI applications to more sophisticated levels. Automated telephone centers, customer care robots, and recommendation systems became pervasive in service industries such as retail, banking, and e-commerce, while robots in industries replaced human assembly line workers, creating new job roles for robot maintenance and programming. The 2010s saw the AI boom, fueled by deep learning, big data analytics, and cloud computing. During this decade, AI permeated daily work with applications in marketing, finance, logistics, and clinical healthcare, and looming fears of job automation, particularly for routine cognitive and physical tasks. Now (2020s and onwards), AI is redesigning industries in a manner that facilitates human-AI collaboration and not outright job displacement, establishing spaces for human-AI interaction. Emerging fields like AI ethics, machine learning engineering, and data science have generated specialized demand for skills, and governments and institutions are investing more and more in ethical AI implementation and reskilling efforts to neutralize the detriments of AI-led disruption.

1.2 Changing Job Roles in AI in Employment

The evolution of Artificial Intelligence (AI) is revolutionizing work functions in a broad spectrum of industries, while AI technologies are changing how the work is performed, creating new opportunities, but making some traditional work obsolete. This shift is propelling the redefinition of current work functions and the creation of completely new ones, and this necessitates workers' adjustment to the increasing role of AI in the workplace.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:07/Issue:03/March-2025 Impact Factor- 8.187 www.irjmets.com

1.2.1 Automation of Repetitive Tasks:

AI's ability to undertake repetitive and mundane tasks is making certain work obsolete. For instance, work that is mostly data entry, straightforward customer service, and repetitive work on an assembly line is being automated. This change allows human labor to be focused on work that requires creativity, emotional intelligence, and strategic thinking, which are less suited to automation.

1.2.2 AI-Augmented Roles:

In most sectors, AI is not replacing jobs but augmenting them, enabling employees to accomplish work quicker and more accurately. For example, in medicine, AI computer programs assist physicians in diagnosing disease by reviewing medical images or patient data, enabling medical doctors to focus more on treatment planning and patient care rather than data analysis. Similarly, in finance, AI programs assist analysts in the identification of trends and risk monitoring, enabling human personnel to focus on decision-making and client relations.

1.2.3 New Job Creation in AI Development and Maintenance:

With ongoing development in AI, there are new job opportunities in AI research, development, and maintenance. These include job opportunities for data scientists, machine learning engineers, and AI trainers. Technical skills relevant to the job, such as programming languages, statistical analysis, and algorithm development, are required for these jobs. AI also needs maintenance, and this provides opportunities for engineers and IT professionals to maintain AI systems in running order and optimized.

1.2.4 AI Ethics and Oversight:

As increasingly large portions of the population embrace AI, AI ethics, fairness, and regulatory compliance professionals are in greater demand. These professionals are not only interested in making sure AI systems are responsibly created and implemented but in fixing issues of bias, privacy, and social impacts of automation as well. They work together with developers, businesses, and policymakers to develop ethical guidelines for AI technologies.

1.2.5 Shift Toward Creative and Strategic Roles:

With more of the routine and data-intensive work being done by AI, there is more need for creative and strategic employees. Marketing, product design, and content creation careers are being transformed to involve working alongside AI tools. AI analytics inform marketers what consumers are doing and how to make campaigns better, for example, but human imagination and strategic mind are still essential in coming up with engaging stories.

1.2.6 The Need for Reskilling and Upskilling:

As the influence of AI on jobs grows, workers must upskill to stay relevant in the modern workplace. Empowerment through reskilling is required to help workers transition to AI-driven work or working with AI tools. Upskilling in data literacy, machine learning basics, and human-AI collaboration is becoming increasingly important to stay in sync with the changing workforce.

1.2.7 Human-AI Collaboration:

The partnership between human labor and AI is stronger today. In areas such as law, education, and research, AI tools are utilized to sift through large amounts of data, produce insights, and perform repetitive processes. Human labor then interprets the insights, uses critical thinking, and makes decisions. The partnership enables the labor to concentrate on higher-level thinking while leveraging the speed and efficiency of AI.

II. REVIEW OF LITERATURE

The impact of automation, or artificial intelligence (AI), on employment. It compares present fears about AI with past technological revolution anxieties, i.e., mechanization during the 19th century and computers and electricity during the 20th century. Some believe new technology will lighten workers' loads, others job loss.[4]. Examining the sample of 25,156 Chinese firms (2010–2022), the paper concludes AI increases labor's share of income by increasing innovation and speeding up upgrades in technology. These positive impacts are stronger in private firms and cleaner sectors. The findings reverse the argument that AI leads to job loss mainly, and, with proper investment, AI can lead to a more balanced income distribution.[2]. Companies become more productive and more efficient as more robots are installed, increasing the demand for labor. Job opportunities

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:07/Issue:03/March-2025 Impact Factor- 8.187 www.irjmets.com

continue to rise after a tipping point for robot adoption is passed. Additional research also finds robots generate jobs as they promote cooperation among firms and reduce wage differentials.[8]. AI develops at a rapid rate and can raise productivity, generate new jobs, and stimulate innovation. It, however, can replace many jobs, especially repetitive jobs, but high-skilled jobs will definitely survive. AI will definitely bring major job changes in India, both negative and positive.[5]. AI transforms jobs worldwide, with them come opportunities and risk. While AI can automate the routine in areas such as manufacturing, retail, and customer services for job loss to happen, AI also generates new jobs in areas such as data science, cybersecurity, and AI ethics.[6].

III. EXPERIMENTAL ANALYSIS

This research attempts to create an integrated simulation model to examine the complex effect of AI adoption on employment in an imaginary economy. The study will examine the main parameters, such as AI adoption levels, labor productivity, job loss, skill formation, and policy measures, to make inferences and actionable recommendations for AI-driven changes in labor markets.

3.1 Simulation Framework

The model is centered around the effects of technology, or AI, on work and the economy. The simulation begins by establishing a baseline case without AI to capture current employment trends as they are given the current technology conditions, providing a control case for comparison purposes. The model subsequently simulates various alternative adoption scenarios of AI with varying rates of adoption, size, and sector-specific usage to analyze implications thereof. Core outcomes analyzed are aggregate levels of employment changes, composition of employment, wage dispersion, and aggregate economic inequality. Moreover, the model tests policy interventions to reverse the adverse impacts and opportunities associated with AI adoption. These cover education and training investment to master new skills, displaced workers re-skilling and up-skilling, labor regulation for a fair transition, unemployment benefit and basic income support schemes, and policies based on innovation to create new job opportunities and economic growth.

3.2 Simulation Execution

Simulation run involves executing the baseline scenario to determine employment patterns in the absence of AI as a benchmark. AI-based simulations are employed to model the short- and long-term impacts of AI adoption on labor patterns. Policy interventions are added to the scenarios to verify their efficacy in addressing issues such as unemployment, wage inequality, and inequality. Detailed data are gathered during simulation, with attention to employment patterns, sectoral shifts, demographic effects, shifts in wages across income groups, changes in skills demanded, and impacts of policy measures. Data are analyzed to identify trends in employment dynamics in varying AI adoption rates and policy scenarios. Through comparison of results between baseline, AI-based, and policy-mitigated scenarios, the simulation offers insight into the dynamic technology-policy relationship. The findings inform evidence-based policy to regulate AI's labor market impact while inducing inclusive economic development.

IV. RISE OF ARTIFICIAL INTELLIGENCE

AI is creating jobs by adding new industries and jobs across the economy. Demand for AI practitioners, data scientists, and machine learning engineers grows as organizations make AI-driven solutions an investment priority. New occupations, such as AI ethicists and data privacy specialists, arise. AI maximizes employees' productivity by taking on repetitive tasks and allows them to focus on innovative, value-added work—such as applying AI tools to examine customer habits in marketing or streamlining production. AI is creating jobs in self-driving vehicles, personalized health, and intelligent cities, as well as energizing the gig economy with ride-sharing and meal delivery. More so, generative AI transforms creative industries to open up new opportunities in content generation, design, and entertainment.

While AI has many benefits, it is also displacing traditional jobs. Automation is replacing the jobs of sectors such as manufacturing, retail, and customer service, for instance, self-service lanes, robot assembly lines, and automated customer service kiosks. Most of the employees in these sectors lack technical skills to transition to new AI-based jobs, thereby creating a skills gap. This transformation typically affects low-skilled workers disproportionately, increasing income inequality, since high-skilled workers can easily transition to new

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:07/Issue:03/March-2025 Impact Factor- 8.187 www.irjmets.com

technology. In addition, regions that are highly reliant on sectors such as manufacturing or agriculture are highly vulnerable to job displacement by automation.

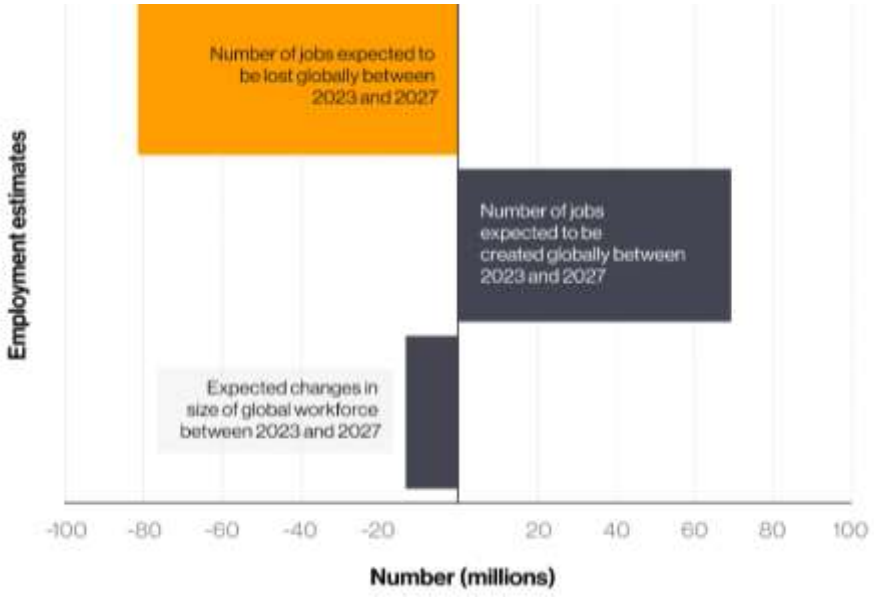

Figure 1:

Table 1: AI Effects on Job

Data Points	Percentage/Number
Employers expecting AI and information processing technologies to transform business by 2030	86%
New jobs to be created globally by 2030	170 million
Existing roles facing displacement by 2030	92 million
Increase in investment in Gen AI since ChatGPT's launch	Eightfold increase
Percentage of existing skill sets becoming outdated between 2025-2030	39%
Employers planning to prioritize workforce upskilling	85%
Employers identifying skills gaps as the primary barrier to business transformation	63%

V. THE ROLE OF EDUCATION AND RESKILLING

In order to address the impact of AI on employment appropriately, there has to be a sharp focus on education and reskilling. Promoting STEM education (science, technology, engineering, and mathematics) is the way forward in preparing future workers for the evolving demands of AI-driven jobs. By making higher involvement of various groups in these fields feasible, we can bridge the existing gender and racial gaps, so that a broad range of people receive access to these coveted professions. A strong STEM education will equip workers with the capacity to thrive in industries that are increasingly dominated by technology and AI.

But learning does not stop after formal education. With the changing nature of the job market, lifelong learning is the solution. Ongoing upskilling helps employees keep up with evolving job requirements so their skills are not rendered obsolete with automation and AI implementation. Web-based platforms that offer specialized

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:07/Issue:03/March-2025 Impact Factor- 8.187 www.irjmets.com

courses in AI, certifications, and training programs are leading the process of ongoing learning, enabling employees to gain knowledge and qualifications in new fields.

Public-private partnerships are also crucial in coming up with successful reskilling programs. Governments, schools, and businesses coming together ensure that effective training programs are created and provided to employees. For example, technology businesses can partner with universities to provide higher-level training programs based on AI job market needs. Through such partnerships, employees can be transitioned from vulnerable jobs to new jobs in areas that require AI-related skills.

Apart from technical competence, employees need to acquire necessary soft skills that are less susceptible to automation. Critical thinking, creativity, and flexibility are the necessary qualities that allow the employees to carry out tasks involving problem-solving, innovation, and human judgment—domains where AI is still not very effective. By prioritizing these soft skills in conjunction with technical competence, we can make employees less susceptible to job loss and keep them valuable assets to the economy.

Lastly, a balanced strategy that includes technical education, continuous learning, strategic partnerships, and soft skills will equip employees to deal with the AI-driven future and minimize the negative effect of automation on employment.

VI. FUTURE OUTLOOK OF AI IN EMPLOYMENT

The future of work with AI presents opportunities and challenges as it redefines the workplace. AI will create new jobs in technology, healthcare, and finance, with a need in programming, data analysis, and understanding AI ethics. At the same time, it will redefine work by automating routine work, enabling workers to do more creative and strategic work. For instance, healthcare professionals will use AI to enhance patient care, and financial analysts will be reliant on AI for faster decision-making. Employees in industries will have to adjust by learning to work with and use AI systems, requiring lifelong learning and reskilling. The gig economy will also expand with AI, with flexible work hours but with fears of job security and fair remuneration. Ethical concerns, such as bias in AI systems, and privacy issues, will have to be addressed with care to ensure responsible use. AI will displace some jobs, but it will also create opportunities in higher-skilled jobs, working alongside humans to enhance productivity and solve problems. Around the globe, countries that invest in AI will be at a competitive edge, underlining the importance of global cooperation to close the gaps. By prioritizing reskilling, ethical use of AI, and human-AI collaboration, we can ensure AI brings a brighter and more inclusive future for workers.

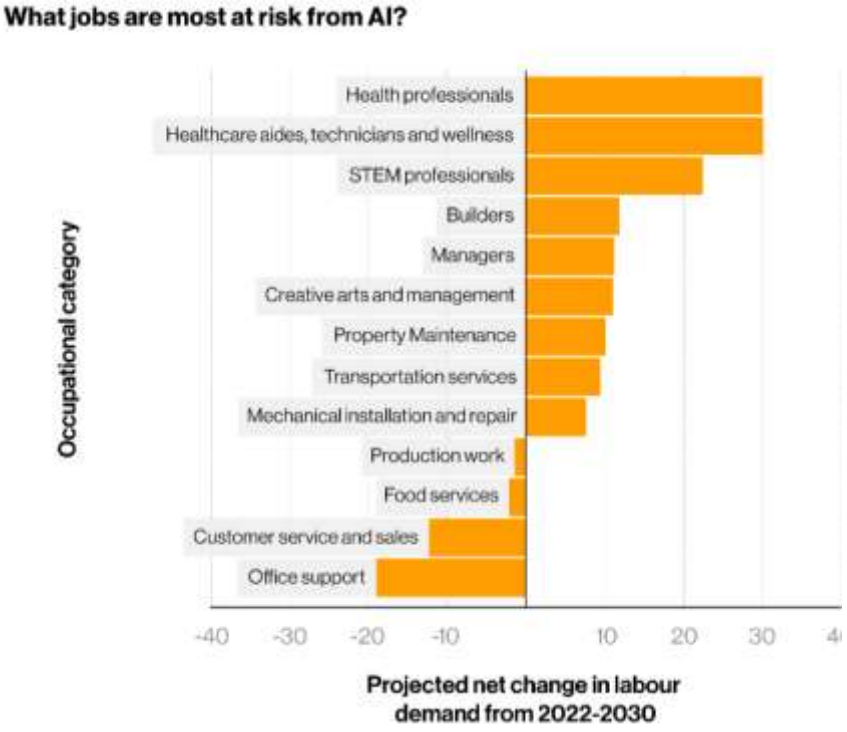

Figure 2: Risk of jobs from AI

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:07/Issue:03/March-2025 Impact Factor- 8.187 www.irjmets.com

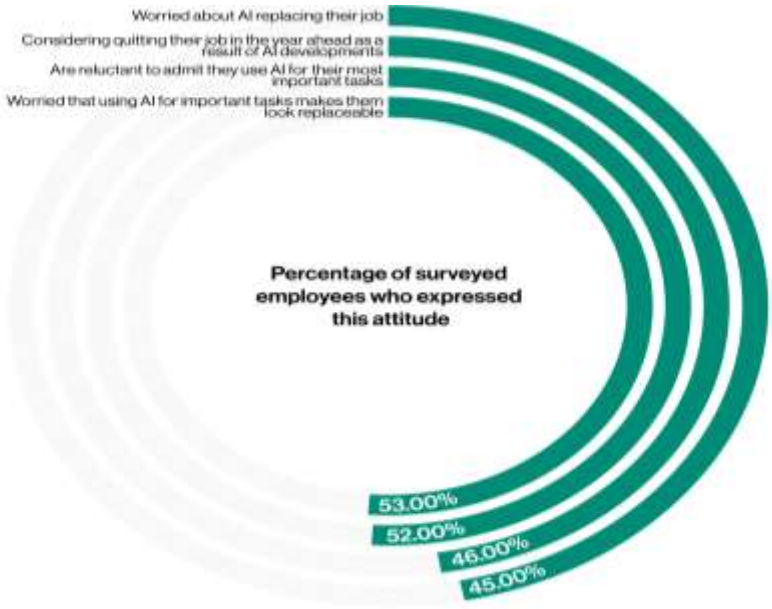

Figure 3: Attitudes around AI in work place

VII. CONCLUSION

The impact of artificial intelligence, or AI for short, on the workplace can be described as a double-edged sword with positive and negative implications. On the one hand, it offers unparalleled opportunities that can lead to gigantic growth and innovative developments in many sectors of the economy. On the other hand, it is also a major challenge, particularly to those possessing lower skills or qualifications. In order to ensure that society can fully enjoy the benefits of AI while substantially diminishing its negative implications, it is essential to support education, ensure reskilling processes, and implement inclusive policies. This will empower all sections of the workforce. Apart from this, an inclusive program involving stakeholders from all sectors is essential to achieve this revolutionizing process successfully. As we move forward, preparing the workforce for an AI-dominated world is not merely an economic imperative; it is also a moral imperative that we must all embrace and strive for.

VIII. REFERENCES

[1] Aggarwal, Swapnil & Kathuria, Payal. (2023). IMPACT OF ARTIFICIAL INTELLIGENCE ON HUMAN RESOURCE MANAGEMENT: A REVIEW OF LITERATURE. 11. 2320-5083.

[2] Changlin Wang, Du Jiao, Impact of artificial intelligence on the labor income distribution: Labor substitution or production upgrading?, Finance Research Letters, Volume 73, 2025, 106674, ISSN 1544-6123

[3] Dipak Bapurao Kadve, A Research Paper on Impact of AI on Employability in India, Vol. N X, Issue- II (I) July – December 2023 , ISSN: 2277- 7067.

[4] Hicham Sadok, Hasna Chaibi, Abdellah Chehri, Rachid Saadane, The Effects of Artificial Intelligence on the Future of Employment: Looking for a Trend from a Literature Review, Procedia Computer Science, Volume 246,2024,Pages 4194-4203,ISSN 1877-0509

[5] Kadve, Dipak, A Research Paper on Impact of AI on Employability in India, 2023, 57. 23.

[6] Patil, Dimple, Impact of artificial intelligence on employment and workforce development: Risks, opportunities, and socioeconomic implications, 2024.

[7] Sharif, Adam & Gurbuz, Esad & Ay, Senih. (2023). The impact of AI on employment and jobs: A comprehensive analysis. Proceedings of London International Conferences. 173-178. 10.31039/plic. 2023.8.179.

[8] Yang Shen, Pengfei Zhou, Technological anxiety: Analysis of the impact of industrial intelligence on employment in China, Chinese Journal of Population, Resources and Environment, Volume 22, Issue 3, 2024, Pages 343-355, ISSN 2325-4262