

# The Role of AI in Employment

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**Abstract**—This research paper examines the impact of artificial intelligence (AI) on employment, focusing on the role of AI in shaping the workforce. Research on AI technologies in the workplace examines the impact of automation, robotics and decision-making algorithms on job opportunities and skill requirements. The application of artificial intelligence also takes into account ethical aspects related to bias, privacy and justice. Analyzing case studies and discussing future implications, this article highlights the evolving landscape of working life in the age of artificial intelligence. Ultimately, the research aims to provide insight into the challenges and opportunities that artificial intelligence presents to individuals and organizations in working life.

## I.INTRODUCTION

A. Impact of Artificial Intelligence (AI) in the workforce: Artificial Intelligence (AI) is dramatically changing the workforce landscape and profoundly impacting industries and workplaces. One of the most important effects of artificial intelligence is the automation of routine and repetitive tasks, enabling organizations to increase efficiency and productivity. While this automation will simplify operations, there are concerns about potential job displacement as AI technology

takes over some functions. However, it is important to recognize that the introduction of artificial intelligence will also lead to new job opportunities that clearly require human skills such as creativity, critical thinking and emotional intelligence. As artificial intelligence shapes job requirements, the importance of continuous learning and upskilling to adapt to the changing demands of the workforce is constantly emphasized.

## B. Automation and Efficiency :

AI automation is revolutionizing industries by optimizing the way tasks are performed. Businesses use artificial intelligence technologies to simplify operations and improve efficiency by automating routine and repetitive tasks. This automation not only speeds up processes, but also reduces errors, improving the overall efficiency of organizations. By allowing artificial intelligence to handle everyday tasks, employees can focus their attention on more strategic and additional responsibilities, increasing productivity and innovation in the workplace.

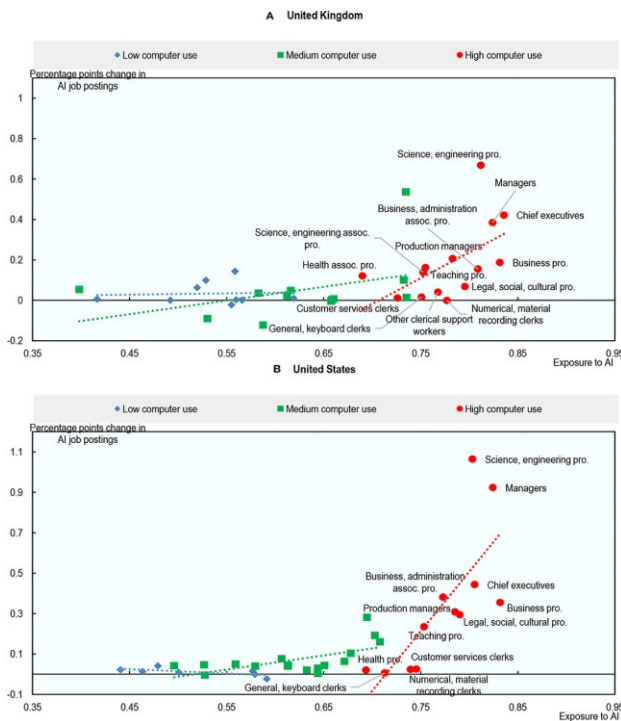


Fig 1. Artificial Intelligence and Employment

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### C. Job Displacement and Creation :

The introduction of artificial intelligence has raised concerns about potential job displacement, especially in automated roles. Traditional jobs that rely heavily on repetitive tasks may fall away as AI systems take over those responsibilities. However, it is important to note that the application of AI will also create new job opportunities in roles that require uniquely human qualities such as critical thinking, emotional intelligence and creative problem solving skills. As AI completes certain tasks, people have the opportunity to move into roles that require the human touch, promoting a workforce that combines AI technology with human expertise.

### D. Skills Transformation :

As artificial intelligence increases in the workforce, there will be a demand for certain skills. Key skills such as critical thinking, adaptability and digital literacy are increasingly important in a technology-driven work environment. People are encouraged to engage in continuous learning and upskilling to remain competitive in an AI-influenced job market. Taking advantage of lifelong learning opportunities will not only improve the career prospects of individuals, but also ensure that the

workforce is qualified to effectively use AI technology in the workplace.

### Industry-Specific Effects :

The impact of AI adoption varies across industries, showing the different ways in which AI will shape the workforce. Industries such as healthcare will benefit from AI applications in diagnostic tools, resulting in more accurate diagnoses and personalized treatment plans. Similarly, the manufacturing sector is witnessing an increase in efficiency due to automation technologies streamlining production processes. Service industries use AI to improve the customer experience through personal interaction and efficient service delivery, which ultimately increases customer satisfaction and loyalty.

### E. Collaborative Workforce :

The synergy between humans and AI technologies fosters a collaborative work environment where both entities complement each other's capabilities. Artificial intelligence tools provide employees with valuable insights through data analysis, decision support systems and task automation. This collaboration increases productivity and fosters innovation in organizations, emphasizing the importance of teamwork between humans and AI to achieve optimal results. By working harmoniously together, humans and AI technologies can leverage each other's strengths to drive organizational success and foster a culture of continuous improvement.

### F. Training and Reskilling Programs :

Due to the changing nature of work with AI, organizations are implementing training and retraining programs to equip employees with the skills needed to succeed in a technology-integrated workplace. These programs focus on developing skills that complement AI technologies, such as data analysis skills, machine learning and effective interpersonal communication. By equipping employees with the necessary skills, organizations ensure a smooth transition to a technology-enabled work environment and grow a workforce that knows how to effectively use AI tools and technologies to drive innovation and business success.

TABLE I

Sr.no	Impact of AI on Different Industries		
	Profession	Current Impact of AI	Future Outlook
1.	Radiologists	AI can analyze MRI scans faster than humans	Potentially less demand for human radiologists
2.	Journalists	AI can generate news articles	Decrease in entry-level journalism jobs
3.	Lawyers	AI assists in legal research and documentation	Increased efficiency but potential job reduction

Table 1. Impact of AI on Different Industries

Every company needs employees with very different skills. This goal cannot be achieved by automated systems alone. This emphasizes the necessity of human work. Because of the dependence on machine control, the value of specialized people increases. According to David Autor, we can explain this fact with two economic principles. The first principle is the O-ring principle. It analyzes human creativity and abilities [3]. An example is the introduction of the first automatic ATMs. This had two distinct effects on employment. As we can imagine, in the beginning a lot of manual work was replaced by ATM. These machines handle cash operations faster. With this change, banks started opening new branches because of lower costs. More branches meant more cashiers, but different jobs. They started a new company and adapted their work. Instead of handling money, they invest in relationships with customers, choosing more cognitively demanding work and introducing new products (for example, investments or credit cards) [2]. By analyzing the narrator's reaction, it is possible to understand the economic value of a person. Since machines could not connect with the customer, the importance of human work and the ability to adapt to market changes (problem solving and assessing skills) were clear. The importance of human labor is recognized in many workplaces. The professor can be replaced by online/digital classes, but it will never replace the student-teacher relationship. It does not engage the student with the

passion to learn and share knowledge. Advances in automation increase the importance of human work by choosing the type of work that only humans can do. If you use only the first principle, you easily know the importance of a person's work, but it is not possible to know how many people are needed for the work. Another principle is needed here, never is a principle enough. It analyzes human insatiability [3]. Most of today's works arose only in the last century. But why? Everyday there is a constant need to look for new ideas, new products, new technologies or even new services. People always want more and are willing to invest time and money to find or create it [4, 5]. This greed drives innovation in companies and creates more career opportunities. Not only those who manage machines and automation, but also creative and marketing tasks. They must be among the first to capture the attention of consumers with innovative products. So if we accept these two principles, does that mean there is an employment problem? No. We have to consider the evolution of automation and innovation. Alex Williams in his article "Are Robots Taking Our Kids' Jobs?" wonders if artificial intelligence could make countless occupations obsolete in the near future [6]. Professions such as radiologists, lawyers and surgeons are threatened by intelligent machines. The startup Arteries has created software that can do an MRI analysis of the blood flowing through the heart in 15 seconds, while it would take a human 45 minutes [7]. And are professions like journalism safe in the information age? According to another article, the answer is no. The Associated Press has already used the program to create copy about Wall Street Earnings and some college sports [7]. A 2013 study by the University of Oxford's Department of Science and Technology estimated that 47% of current jobs will fall victim to automation within 20 years [8]. By 2033, new jobs will certainly be created, but will they be enough to replace the jobs lost? Because of this changing environment, the problem is also that society does not know what skills we should teach children, because the skills needed today will not be the same as in 20 or 30 years [9-11].

#### AI TECHNOLOGIES IN WORKPLACE

Artificial Intelligence (AI) is revolutionizing the workplace by automating repetitive tasks through machine learning algorithms and natural language processing, minimizing human intervention in routine processes. For example, AI-powered chatbots make customer service easier by answering questions efficiently. In manufacturing and service industries, AI-controlled robotics increase work efficiency and quality control, and collaborative robots ensure workplace safety and productivity. Artificial intelligence technologies automate inventory and healthcare, and transform traditional workflows to optimize processes. AI algorithms help make strategic

decisions by analyzing data patterns that provide insights into the financial and healthcare sectors and increase the accuracy and effectiveness of informed choices.

#### A. Automation :

Artificial Intelligence (AI) is revolutionizing the workplace by enabling the automation of repetitive and routine tasks. Artificial intelligence techniques such as machine learning algorithms and natural language processing are used to analyze patterns and perform tasks that do not require human judgment or creativity. For example, in customer service, AI-powered chatbots can interact with customers to answer common questions and provide assistance, streamlining support processes. Automation with artificial intelligence increases work efficiency, reduces human error and allows workers to focus on more strategic tasks, ultimately improving productivity across industries.

#### B. Robotics :

In manufacturing and service industries, AI-powered robotics play a key role in optimizing operations and improving efficiency. In manufacturing, AI-powered robots can assemble products accurately and consistently, resulting in higher production volume and quality control. Collaborative robots, or "cobots," work alongside humans to increase safety and productivity in the factory. In the service sector, AI-controlled robots can automate tasks such as inventory management or help in healthcare by delivering medicine to patients. The integration of robotics and artificial intelligence technologies is changing traditional workflows and creating new opportunities for process optimization and innovation in various sectors.

#### C. Decision-making:

AI algorithms are increasingly used to support decision-making processes in organizations. By analyzing vast amounts of data and identifying patterns, AI systems can provide valuable information for strategic decision making. For example, in finance, artificial intelligence algorithms are used to predict market trends and recommend investment strategies based on historical data analysis. In healthcare, AI-powered systems help doctors diagnose diseases by analyzing medical image scans and patient data. Applying artificial intelligence to decision-making processes improves accuracy, speed and efficiency, enabling organizations to make informed decisions that increase efficiency and competitive advantage.

### III. THE IMPACT OF AI IN JOBS AND SKILLS

#### A. Job Displacement :

As artificial intelligence (AI) becomes more common in the workforce, job mobility has become a concern. The implementation of artificial intelligence has the potential to automate tasks traditionally performed by humans, which leads to the reorganization or elimination of certain work tasks. Routine and repetitive tasks that do not require complex decision-making or creativity are particularly amenable to automation. While job displacement is a legitimate concern, it is important to recognize that AI is also creating new opportunities and transforming existing roles, emphasizing the importance of adaptability and continuous learning in navigating a changing workplace. The rise of artificial intelligence (AI) in the workforce has raised concerns about job displacement as AI technologies automate traditionally human tasks. Roles that focus on routine and repetitive tasks, without complex decision-making or creativity, are at greater risk of being automated. Although job placement is a major issue, it is important to recognize that AI is also opening up new opportunities and transforming existing roles. Adaptability and continuous learning are key to navigating this changing work environment, empowering people to harness the transformative potential of AI to improve productivity and innovation.

#### B. Emerging Job Roles:

The integration of artificial intelligence technology opens the way for new and diverse tasks that require the synergy of human skills and technological knowledge. Emerging opportunities in fields such as data science, AI ethics and cybersecurity highlight the need for roles that combine AI skills with human qualities such as decision-making, emotional intelligence and problem-solving skills. Additionally, AI is fueling the emergence of roles that focus on managing and optimizing AI systems to ensure their effectiveness and ethical implementation in organizations. These evolving job roles illustrate the dynamic nature of the workforce in response to the advancement of artificial intelligence and provide individuals with diverse career opportunities to thrive in a technology-driven environment.

#### C. Skill Requirements :

Succeeding in an AI-influenced workforce requires multifaceted skills that go beyond technical skills. While expertise in areas such as data analytics and machine learning is important, soft skills such as critical thinking,

adaptability and effective communication are equally important. The ability to seamlessly collaborate with AI technologies, extract actionable insights from data and adapt to technological changes is key to success in a technology-integrated workplace. Continuous improvement is critical to keep pace with technological advances and remain competitive in a job market increasingly shaped by artificial intelligence. By prioritizing the balance of technical and soft skills,

Biased algorithms can lead to differences in opportunities for people based on factors such as race, gender, or socioeconomic status. Addressing AI algorithm bias requires a thorough understanding of data sources, algorithm design, and ongoing monitoring to mitigate discriminatory effects and ensure fair and just outcomes in the workplace.

TABLE II

Sr.no	New Career Opportunities Created by AI		
	Field	Example of New Job Roles	Skills Required
1.	AI and Robotics	AI Developer, Robotics Engineer	Coding, machine learning, robotics
2.	Data Analysis	Data Scientist, Data Analyst	Statistical analysis, data visualization
3.	Digital Marketing	Digital Marketing Specialist, SEO Expert	SEO, content creation, social media management

Table 2. New Career Opportunities Created by AI

individuals can position themselves favorably in a job market characterized by AI innovation and automation.

### III. ETHICAL CONSIDERATIONS IN ARTIFICIAL INTELLIGENCE

#### A. Bias :

The issue of bias in AI algorithms raises significant ethical issues, particularly regarding its impact on employment practices. AI algorithms influenced by educational data can inadvertently perpetuate societal biases, leading to discriminatory outcomes in hiring and employment decisions.

#### B. Privacy :

Workplace privacy concerns related to artificial intelligence technologies relate to the collection, storage and use of sensitive personal information. Artificial intelligence systems often rely on large amounts of data to make informed decisions, which raises questions about data protection and security. Employees may be concerned about the transparency of data collection practices, the potential misuse of personal data, and the implications of continuous monitoring by artificial intelligence systems. Protecting privacy in the context of artificial intelligence technologies requires the implementation of strong data protection measures, the implementation of clear data use policies and mechanisms to obtain the informed consent of individuals to protect privacy in the workplace.

#### C. Fairness :

Ensuring fairness and transparency in AI-based recruitment practices is essential to promote equal opportunities and combat discriminatory practices. AI-powered recruiting tools can improve the efficiency and objectivity of evaluating candidates; However, if algorithms are not carefully designed and monitored, there is a risk of bias and unfairness. Aspects of fairness include evaluation of criteria used in artificial intelligence systems, validation of biased algorithms, and transparency of decision-making processes. By prioritizing fairness and transparency in AI-assisted recruitment, organizations can mitigate bias, promote diversity and uphold ethical standards in recruitment processes, and ensure equal opportunities for all applicants.

#### D. Accountability :

In the field of AI technologies, accountability is a critical ethical aspect that includes the responsibility of individuals, organizations and developers for the results of AI systems. Ensuring accountability requires clearly defining responsibility for the design, implementation and impact of AI technologies. In cases where AI systems cause unintended consequences or perpetuate biases, establishing accountability mechanisms to resolve complaints, correct errors, and prevent potential harm is



essential. Transparent decision-making processes, documentation of algorithmic choices and control mechanisms promote responsibility and ethical behavior in the use of artificial intelligence.

#### E. Transparency :

Transparency in AI design and decision-making is an important factor in promoting trust, understanding and the ethical use of AI technologies. Transparent AI systems provide insight into how algorithms work, the data they are based on, and the criteria used to make decisions, allowing stakeholders to assess potential biases, errors, or ethical implications. Increasing transparency requires disclosing information about the functionality, data sources, and potential limitations of AI systems to promote informed decision-making and accountability. Transparent AI practices build trust between users, stakeholders and the public, and promote responsible AI adoption and ethical governance.

#### F. Ethical frameworks :

Adopting ethical frameworks and guidelines can help guide organizations and developers in the complex ethical aspects of AI technologies. Ethical frameworks provide principles, standards and best practices for the responsible design, implementation and use of artificial intelligence systems. Based on ethical principles such as justice, accountability, transparency and respect for individual rights, ethical frameworks provide a road map to identify and resolve ethical dilemmas in the development and deployment of artificial intelligence. By following established ethical guidelines, organizations can promote ethical behavior, reduce risk and support values of fairness, justice and social responsibility by adopting AI technologies.

### IV. FUTURE IMPLICATIONS OF ARTIFICIAL INTELLIGENCE

#### A. Trends :

##### Trends:

The imminent adoption of artificial intelligence (AI) could cause changes in various industries, changing the nature of work and employment dynamics. The main trends in the implementation of artificial intelligence are the increasing integration of artificial intelligence technologies in various fields such as health care, finance, manufacturing and customer service. As the capabilities of artificial intelligence evolve, companies are using artificial intelligence for automation, process optimization, data analysis and decision-making, which improves operational efficiency and promotes innovation. The widespread adoption of AI is expected to lead to a shift in job

roles, placing greater emphasis on skills complementary to AI technologies, such as data analysis, machine learning and managing AI systems. Understanding and tracking these AI adoption trends can provide valuable insights into future job opportunities and skills in a rapidly evolving technology environment.

#### B. Skills Development:

The age of artificial intelligence emphasizes the critical importance of continuous learning and skill development to remain in the workforce. AI technologies are automating routine tasks and transforming job roles, so people must adapt by acquiring new skills and abilities to succeed in AI-based environments. Skills such as critical thinking, problem solving, creativity, adaptability and collaboration must be emphasized to complement the capabilities of AI systems. Continuous learning through online courses, workshops and training programs can help people improve their technical knowledge, soft skills and adapt to emerging industry trends. By prioritizing skills development and adopting a growth mindset, people can position themselves competitively in the future job market shaped by AI innovation and automation.

#### C. Predictions:

Predicting the future effects of AI on work and industry requires the development and impact of AI technologies on various sectors. In the future, AI is poised to revolutionize industries by simplifying processes, improving productivity and enabling data-driven decision making. AI technologies can lead to the creation of new jobs that focus on AI system management, data analytics, cybersecurity and AI ethics, while transforming traditional roles through automation and augmentation. Industries such as healthcare, finance, transportation and education are expected to experience significant changes as AI advances, improving efficiency and customer experience. Understanding these predictions can help people prepare for future career opportunities, navigate industry changes, and harness the potential of AI to create positive impacts across industries.

### V. CASE STUDIES

Industry Examples: AI in Healthcare One visible example of AI's impact on employment is the healthcare industry. Diagnostic tools powered by artificial intelligence are revolutionizing the industry, enabling even more accurate and efficient diagnoses for patients. For example, AI algorithms can analyze medical images such as X-rays and

MRI scans to detect abnormalities and help healthcare professionals make more informed decisions. This has led to the creation of new jobs such as AI data analysts and AI-assisted radiologists who work with technology to deliver personalized and data-driven patient care. Success stories: AI in manufacturing There have also been significant success stories in the manufacturing sector regarding the adoption of artificial intelligence. One such example is the introduction of robotic automation in car production lines. By integrating AI-powered robots, manufacturers have been able to simplify their assembly processes, increase productivity and reduce errors. This has not only improved the overall efficiency of manufacturing operations, but has also led to the creation of new job opportunities as robotics technicians and AI-based quality control specialists who oversee the integration and optimization of these advanced technologies.

Emerging Challenges: Artificial Intelligence in Customer Service While AI has brought many benefits, organizations have also faced challenges in implementing the technology in the workplace. For example, in the field of customer service, the integration of AI-based chatbots and virtual assistants has raised concerns about the potential loss of human interaction and personalization. Customers may feel frustrated when AI systems do not adequately answer their questions, leading to lower customer satisfaction. To overcome this challenge, companies are now focusing on developing artificial intelligence assistants that perfectly combine human empathy and emotional intelligence with the efficiency of automated systems, thus ensuring a more positive customer experience.

## VI. CONCLUSION

In conclusion, this research paper examines the integration of artificial intelligence (AI) into the workforce presents both exciting opportunities and significant challenges. AI automates routine tasks and increases efficiency, resulting in the creation of new jobs and industries, but it also raises concerns about job displacement, decision bias and privacy issues. To navigate this landscape, it is essential that people engage in continuous learning and skill development, developing skills that complement AI technologies, such as critical thinking and adaptability. Addressing ethical considerations and ensuring fair and transparent AI practices are key to harnessing the potential of AI while promoting a fair and inclusive work environment. Through thoughtful integration and proactive adaptation, AI can augment human capabilities and drive future innovation.

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