

# Exploring the Impact of Automation and Artificial Intelligence on Employment

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## Abstract

Research was conducted to determine the impact of artificial intelligence and automation on human employment. This study will be conducted using a descriptive qualitative approach. The article investigates practical measures to reduce the driving automation, the most affected industries from job displacement, economic and social costs of automation and its negative effects. Intelligent production variables such as robotics, Internet of things and extensive data analysis are changing the dynamics of labour supply and demand. In a developing country with a large population and labour force, the study of the influence of artificial intelligence techniques in the labour market is especially important. AI and automation are now eliminating a lot of employment. Nevertheless, it is difficult to copy many aspects of human intelligence, such as inward. N and sympathy, AI. The application and improvement of artificial

intelligence technology typed by industrial dysfunction robots in Chinese companies has increased job vacancies. The good effect of artificial intelligence on employment is unavoidable heterogeneity, and it serves to increase the job share of women and workers in labour-intensive industries. Even though AI and automation may pose a threat to humans in the workforce, as human resource skills improve, humans who adapt will not be replaced by machines, but will be integrated into human-machine work, with AI and automation serving as tools for human labour rather than replacing humans. Moreover, the results can sometimes be in contradiction and ambiguous since few obvious outcomes emerge, and the impact of automation technology is unknown at various levels of research.

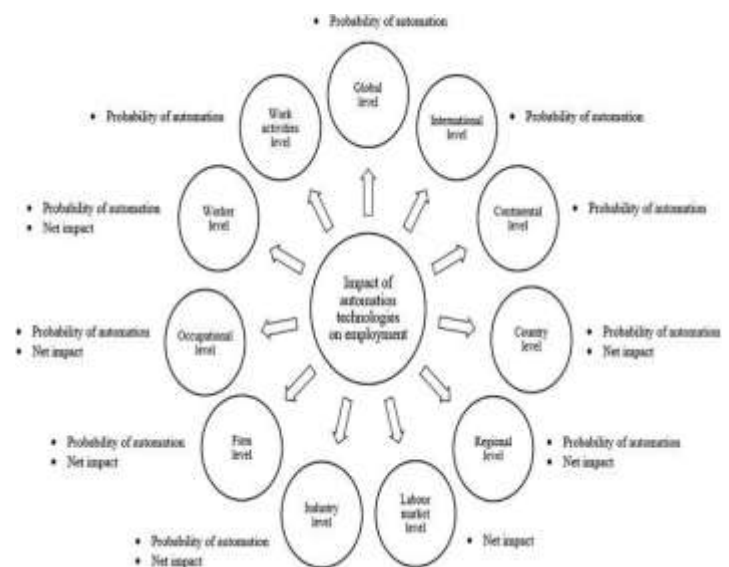
## Keywords

Artificial Intelligence, Automation, Employment, Job displacement due to automation, Job creation by artificial intelligence, Skill changes required by automation and AI, Economic impact of automation on employment, And Social impact of AI on the workforce.

## Introduction

The rapid growth of automation and artificial intelligence (IA) is changing industries around the world, improves the nature of employment, and reproduces the global labour market. Auto Toe Tomation is the use of technology and machines to complete the task that was previously done by humans. Nevertheless, Auto Tomation has provided many benefits, such as high production and efficiency, it also causes concerns about possible displacement of human employment. Powered by the rapid development of artificial intelligence techniques, some companies have accelerated the rhythm of "machine replacement", resulting in robots that perform repetitive and standard tasks. Deep Learning and Artificial Intelligence (AI) enables machines and operating to do more complex jobs, while enterprise employees' job prospects face new obstacles in the digital age. According to the World Economic Forum Future JOBS FF Jobs 2020 report, the Kovid -19 epidemic - inspired recession and automation techno of the automation techno of Geno, automation and interrupts 85 million jobs in the next five years, with a new Automation and Labor Market. AI, as a new-new forms of large data and

intelligent production technologies, will significantly change the organic formation of capital and reduce labour effectively. In addition to artificial intelligence, information technology is moving fast, some are asked to argue that the fourth Industrial Dysfunctional Revolution has changed the boundaries between the physical, digital and biological sectors. Robots are gradually replacing boring and repetitive human tasks in fields such as housework, health care, hotels, and restaurants. Virtual bots, also known as chatbots, are becoming increasingly popular among large businesses as a means of transforming customer support into self- service and reducing the wait time that is common in human customer service.



**Fig: 1.** Automation and Artificial Intelligence on Employment

## Literature Review:

The rapid growth of Auto Tomation and Artificial Intelligence (AI) has stimulated widespread debate on how they will affect employment in the industry. Scholars have

seen the incident from many perspectives, including job displacement, skill change, economic productivity, and social adaptation. This literature review examines major research to show AI and automation's dual role as both disruptors and enhancers in the workplace.

### **1. Job Displacement and Technical Unemployment:**

Frequent subject in literature is the possibility of displacing labour for automation and AI, especially in repetitive and manual jobs. According to the Fruit and Osborne (2017) seminal analysis, the US 47% of employment is in danger of automation over the next decades, with production, transportation and especially sensitive. Their model has been widely cited to evaluate work sensitivity in computerization, but has been excessive criticism of technical capabilities while underestimating human adaptation (or Tor, 2015). More recent estimates, such as OECD (Nedelkoska and Quintini, 2018), suggest a reduced but still significant risk, with 14% jobs worldwide and the possibility of significant work re - adjustment.

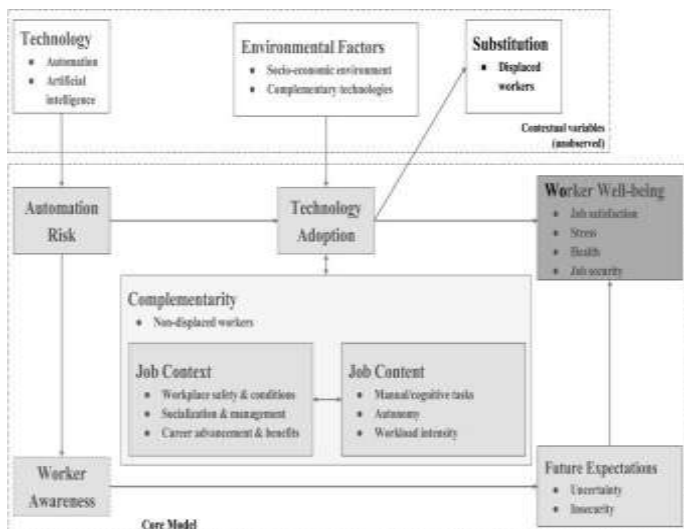
### **2. Job Making and Economic Transformation:**

Against the concept of widespread unemployment, some experts suggest that AI and automation make the possibility of a new job. Bessen (2019) draws to the Historical Parallel, and points out that the previous technical revolution, such as the Industrial Dysfunction Revolution, was interrupted in the first labour markets but

eventually increased productivity and demanded new jobs. This trend is exemplified in the AI era by growing areas such as data science, machine learning engineering and AI Ethical Consulting. According to MK Kins Global Institute (2017), when automation can displace 400-800 million jobs by 2030, it can also create 555- 890 million new jobs by increasing innovation and economic activity, assuming workers are sufficiently reversed.

### **3. Skills Gap and Workforce Adaptation:**

The shift in employment needs due to AI and automation has resulted in a greater emphasis on the skills gap. Manyika et al. (2017) found that workers need to transition from mundane activities to occupations that require creativity, problem-solving, and interpersonal skills— areas where humans still have a competitive edge over robots. According to the study, inequality increases when high skilled individuals make disproportionate profit from technical improvement, while less skilled workers face the risks of large displacement. Although education and rein procurement initiatives are generally recommended as answers, their mammals and effectiveness are controversial (World Economic Forum, 2020).



**Fig: 2.** Literature Review

## Future Work:

The study of Auto Tomation and Artificial Intelligence (AI) in the workplace is a dynamic subject, with many unanswered concerns and increasing disturbances. While existing research offers useful insights about job displacement, creation, and workforce adaptation, many good understanding and guide policy and study require more research. This section suggests major directions for future.

### 1. Impact on Informal and Gig Economies:

The impact of Auto Tomation and AI on informal economies and gig jobs has not received little attention. In developing countries, where the most part of the informal employment workforce (International Labor Organization, 2021), the adoption of automation can disrupt life without the security mesh seen in the official sectors. Similarly, the spread of AI in the GIG platform (such as ride-sharing and delivery services) concerns algorithmic management, activist autonomy, and job protection. Future research should

investigate how Auto Tomation shapes in these non-traditional labour markets, and if it increases or reduces existing disparities.

### 2. Field-Specific and Regional Analyses:

Various results of automation in fields and places indicate the need for more concentrated research. For example, healthcare and education, which significantly depend on human connection, can see growth rather than replacement (or Tor et al., 2020), but logistics and agriculture faces more displacement concerns. The pace and form of adoption of AI differ in the advanced economy and emerging markets. Future research field-specific elasticity can use comparative analysis to highlight elements and regional policy requirements, so the relevance of the findings increases in a wide range.

### 3. According to Human-AI Collaboration Models:

The Devaenport and Kirby (2016), the future of employment may include human-AI symbiosis rather than full replacement. The best models for future research collaboration should be examined, A.I. The functions that improve human influence (e.g., creative design, difficult diagnosis) and training needed to afford such partnership should be identified. Practical research in the workplace, productivity in hybrid teams, innovation and labour happiness can measure, which can provide practical information to organizations.

#### **4. Technological Advancements and Uncertainty:**

Finally, the rapid rate of AI development creates ambiguity in present projections. Advances in generative AI, robotics, and quantum computing may speed automation beyond current forecasts, affecting even highly skilled professions such as law and engineering. Future research should use adaptive techniques, such as scenario planning or agent-based modelling, to account for these technological unknowns and their potential to transform job markets.

#### **DBMS in the AI-Panded Employment System**

Database Management Systems (DBMS) stores and organizes a large amount of employment related data, including job market trends, employee performance matrix and rented statistics. Sinha, R. (2019). AI-powered job platforms depend on DBMS to manage structured and unstructured workforce data to enable prediction analysis for employment trends.[1]

#### **Data warehousing for employment analysts.**

The data warehouse integrates data from multiple sources, allows businesses and policy -partners to analyse employees' ways, and the effect of automation on jobs. Sinha, R. (2019). AI -operated employment forecasts depend on the history of Job Automation and Historical Feature Data stored in the warehouse to make informed decisions about workforce planning.[2]

#### **Data Mining of Bound exception to workforce insights**

Data mining techniques are a meaningful pattern from employment datasets, helping organizations to predict job displacement and emerging skills requirements. Sinha, R. (2018). The AI-propelled hiring platform uses data mining to match the candidates with the right job roles based on the way the history of the historical accent and the industry demand.[3]

#### **Support vector machines in employment prediction**

Support vector machines (SVMs) are used to classify job seekers based on their qualifications and experiences in AI-powered employment analysis. Sinha, R., & Jain, R. (2013). SVM helps recruiters to effectively filter candidates, improve the accuracy of renting and reduce the time of recruitment.[4]

#### **Decision Trees for AI-Based Rental Models**

The decision helps in automatic recruitment systems by mapping the leased decisions on the basis of the tree algorithms predefined criteria. Sinha, R., & Jain, R. (2014). AI-powered job screening systems use the decision trees for shortlist candidates, ensuring the objective selection process.[5]

### **K-Means clustering for workforce split**

K-means help classify job seekers based on clustering skills, experience and industry preferences. Sinha, R., & Jain, R. (2015). AI-operated job portals use this technique to recommend personal job opportunities to candidates.[6]

### **Random Forest in AI-based employee evaluation**

Random Forest Algorithms enhance AI-powered operation evaluation systems by analyzing the influence indicators of multiple employees. Sinha, R., & Jain, R. (2016). These models improve the accuracy of the workforce assessment and help organizations to make data-based decisions on bonuses and role adjustments.[7]

### **Naive bayes in the resume screening**

Naive Bayes Classifiers are used in automatic resume screening systems to rank candidates based on job descriptions. Sinha, R., & Jain, R. (2017). AI-powered HR tools provide the benefit of physical base to reduce manual efforts in the process of hiring manual efforts.[8]

### **K-Nearest neighbours in the administered job recommendations**

The K-nearest neighbours (KNN) algorithm is widely used in AI-powered job recommendation systems based on their skills and past work history, Sinha, R., & Jain, R. (2018), to enhance the accuracy of job placement, to match the relevant

opportunities based on their skills and past work history.[9]

### **Structural analysis and design equipment in AI implementation**

Structured analysis and design tools play a crucial role in developing the AI-powered employment platform. Sinha, R. (2019). These tools help with Software Engineers in the design of efficient AI-based hiring, workforce management and job recommendation systems.[10]

### **Software technique in AI-driven employment platforms**

Principles of software technique guide the development of AI-driven employment solutions, and ensure the reliability, scalability, and safety of the system. Sinha, R., & Kumari, U. (2022). AI-driven recruitment and work management systems are built using advanced methodologies for software technology.[11]

### **Software Test Models for AI -Based Employment Systems**

AI-oriented employment solutions require strict tests to ensure accuracy, justice and safety. Program test models, such as black box, white box, and regression tests, validate. Sinha, R. (2018). AI algorithms used in the automated recruitment analysis and workforce.[12]



## **Implementation and maintenance of the system in AI work environments**

The implementation and maintenance of IA -oriented employment solutions require continuous monitoring, updates, and performance evaluations. Sinha, R. (2019). Organizations must regularly refine AI algorithms to adapt to the change in labour market trends.[13]

## **Traditional marketing vs. Digital Marketing in AI Recruitment**

Traditional employment marketing was based on offline newspapers and ads, while digital marketing uses AI-oriented strategies such as job advertisements, Sinha, R. (2018), social media recruitment, and personalized job recommendations, making hiring more efficient.[14]

## **Cybercrime in AI-driven hires and work management**

AI-powered employment platforms are vulnerable to online crime, including data breaches, identity theft and dishonest positions. Sinha, R. K. (2020). Cybercrimes utilize AI systems and highlight the need for robust security measures.[15]

## **Social impact of cybercrime on employment**

Cybercrime affects employment, causing issues of work fraud, identity theft and data privacy. Sinha, R., & Vedpuria, N. (2018). AI -oriented recruitment platforms must face cyber security challenges to maintain the

candidate's confidence and ensure fair hiring practices.[16]

## **Preventive measures against cybercrimes in Employment Systems**

Organizations can mitigate the risks of cybercrimes by implementing fraud detection, multi-factor authentication, and storage of encrypted data on employment systems. Sinha, R., & Kumar, H. (2018). Regular audits and compliance with cyber security regulations are essential for protecting employment platforms.[17]

## **Big data in AI-based workforce analytics**

Large data analytics processes huge employment datasets to identify automation trends, workforce skill gaps and future job demand. Sinha, R., & M. H. (2021). The AI-powered job platform benefits large data to increase recruitment strategies and planning of workforce.[18]

## **Conclusion**

The rise of drastically changes in the global labour market creates both the benefits and the challenges. While Auto toe improves efficiency, reduces costs and promotes creativity, it also enhances traditional employment compositions by changing physical activities and changing the requirements of skills. Production, retail and logistics risk significant employment loss, while healthcare, technology and education view AI - powered growth and job development.

One of the most significant problems is the growing skill distance, as Automation increases the demand for Junic, analytical and digital capabilities when reducing the requirement of repeated manual labour. To reduce this shock, work adaptability is important by ongoing education, rising and upscaling. Governments, corporations, and educational institutions must work together to create policies that promote the incorporated and sustainable labour market. Despite the large amount of job loss predictions, historical accuracy trends indicate that work develops rather than mass unemployment because of technical success. AI and Auto tomatoes, when properly administered, can grow rather than change human abilities. Going forward, the emphasis on establishing a balanced strategy that invests on AI's benefits while also ensures the elasticity of the workforce through adaptive policies and strategic human capital investments.

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