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Artificial Intelligence and the Future of Work: Impacts on Employment and Job Roles

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Abstract

This study critically examines the transformative impact of Artificial Intelligence (AI) on employment structures, job roles, and the future of work. The primary objective was to explore how AI-driven technologies are reshaping workforce dynamics, influencing skill requirements, and creating both challenges and opportunities across industries. A systematic literature review (SLR) methodology was employed, drawing on academic journal articles, industry reports, and empirical studies published between 2020 and 2025. Rigorous inclusion and exclusion criteria were applied to select relevant sources, and thematic analysis was used to synthesize findings.

The review reveals that AI exerts a dual impact: while displacing routine, low-skilled jobs, it simultaneously fosters the emergence of new, high-skilled roles and catalyzes human-AI collaboration. Key trends identified include the expansion of remote work, the rise of the gig economy, and the proliferation of AI-enabled entrepreneurship. However, challenges such as job displacement, skill mismatches, and widening socioeconomic inequalities remain prevalent. Strategic policy recommendations emphasize the need for inclusive education reforms, continuous workforce upskilling, ethical AI integration, and cross-sector collaboration.

The study concludes that a proactive, human-centric approach is essential to building a resilient and inclusive workforce capable of thriving in an AI-driven economy. By prioritizing adaptability, fairness, and innovation, stakeholders can ensure that AI advancement contributes positively to future labor markets.

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1. Introduction

1.1. The Rise of Artificial Intelligence in the Modern Workforce

The integration of Artificial Intelligence (AI) into the modern workforce has accelerated over the past five years, fundamentally altering employment landscapes and redefining job roles across various sectors. This transformation is not merely a continuation of previous automation trends but represents a paradigm shift characterized by the infusion of cognitive capabilities into machines, enabling them to perform tasks that were once exclusively human domains.

Strich, Mayer, and Fiedler (2025) emphasize that AI's integration into work processes significantly influences job roles, task requirements, and organizational structures. Their study highlights the dual potential of AI to either enhance or undermine psychological well-being, underlining the importance of balancing AI's technical advantages with its psychological implications. This perspective suggests that AI's role is not solely to replace human labor but to augment it, leading to the emergence of new job categories and the evolution of existing ones. The augmentation of human roles by AI necessitates a workforce that is

adaptable and equipped with a blend of technical and soft skills to navigate the changing job requirements.

However, the rapid adoption of AI technologies has also raised concerns about job displacement and the erosion of traditional employment structures. Siemon (2025) identifies four roles that AI can play within a team: coordinator, creator, perfectionist, and doer. These roles illustrate how AI can influence employees' self-understanding and their perceived social roles at work, presenting both opportunities for growth and challenges related to de-skilling and diminished autonomy. Their research underscores the importance of understanding how AI reconfigures work environments and the nature of expertise, highlighting the need for holistic assessments of AI's impact on employment.

Cammeraat and Squicciarini (2025) provide representative, cross-country estimates of the AI workforce across OECD countries. Their study finds that the AI workforce is still relatively small—less than 0.3% of employment—but growing rapidly. Workers with AI skills tend to be disproportionately male with a tertiary education. This finding indicates that while AI may not cause widespread job losses across all sectors, it can exacerbate income inequality by disproportionately affecting certain occupations.

The convergence of these insights suggests that the rise of AI in the modern workforce is a multifaceted phenomenon with both opportunities and challenges. On one hand, AI has the potential to augment human capabilities, leading to increased productivity and the creation of new job roles. On the other hand, it poses risks related to job displacement, skill mismatches, and socioeconomic disparities. Addressing these challenges requires proactive strategies, including investment in education and training programs that equip workers with the skills needed to thrive in an AI-driven economy.

Furthermore, organizations must engage in transparent discussions with employees about AI implementation, ensuring that workers are informed and involved in the transition process. Developing clear workplace policies and fostering a culture of continuous learning can mitigate the adverse effects of AI adoption and promote a more inclusive workforce.

In conclusion, the rise of AI in the modern workforce is reshaping employment structures and job roles in profound ways. While it offers significant benefits in terms of efficiency and innovation, it also necessitates careful consideration of its implications for workers and society at large. By adopting a holistic and human-centric approach, stakeholders can harness the potential of AI while safeguarding the interests of the workforce.

1.2. Scope of Study: AI Technologies and Their Influence on Employment Structures

The integration of Artificial Intelligence (AI) technologies into various sectors has significantly influenced employment structures, necessitating a comprehensive examination of these impacts. This study focuses on understanding how AI technologies reshape employment by altering job roles, skill requirements, and organizational dynamics.

Machovec, Rieley, and Rolen (2025) highlight that AI's influence on employment is multifaceted, affecting various occupational groups differently. Their case studies within the U.S. Bureau of Labor Statistics' employment projections illustrate that AI adoption leads to both the displacement of certain roles and the creation of new opportunities,

particularly in occupations involving complex problem-solving and interpersonal skills. This dual impact underscores the need to analyze AI's role in transforming employment structures comprehensively.

Zhang and Wang (2025) provide a nuanced perspective by examining the non-linear effects of AI on labor force employment structures. Their research indicates that AI's impact is not uniform across all sectors or regions; instead, it exhibits threshold effects where the influence becomes significant only after reaching certain levels of AI integration. This finding suggests that the relationship between AI adoption and employment changes is complex, requiring detailed analysis to understand the conditions under which AI significantly alters employment structures.

Franken and Wattenberg (2024) delve into the transformation of skills necessitated by AI in the workplace. Their systematic review reveals that AI implementation leads to a shift in skill requirements, emphasizing the need for digital literacy, adaptability, and continuous learning among employees. This evolution in skill demands necessitates organizations to invest in reskilling and upskilling initiatives to align their workforce capabilities with the changing technological landscape.

Collectively, these studies underscore the importance of examining AI's influence on employment structures through multiple lenses, including occupational shifts, regional disparities, and evolving skill requirements. By focusing on these aspects, this study aims to provide a comprehensive understanding of how AI technologies are reshaping the employment landscape, informing policymakers, educators, and industry leaders in developing strategies to navigate this transformation effectively.

1.3. Historical Evolution: From Automation to Intelligent Systems

The trajectory of technological advancement has consistently influenced the structure and nature of work. From the mechanization of manual tasks during the Industrial Revolution to the digitization of processes in the Information Age, each wave of innovation has redefined employment paradigms. In recent decades, the evolution from traditional automation to sophisticated intelligent systems has marked a significant shift in the labor market, with Artificial Intelligence (AI) at the forefront of this transformation.

Marguerit (2025) explores the dualistic impact of AI on labor, distinguishing between automation AI, which substitutes human labor, and augmentation AI, which enhances human capabilities. His study indicates that while automation AI tends to displace low-skilled jobs and suppress wage growth in those sectors, augmentation AI fosters the emergence of new roles and boosts wages in high-skilled occupations. This delineation underscores the nuanced effects of AI, suggesting that its influence is contingent upon the nature of the technology and the context of its application.

The dynamic nature of occupational tasks in response to AI advancements is further examined by Das *et al.* (2020), who analyze shifts in task compositions across various professions. Their research reveals that high-wage occupations have increasingly incorporated AI and big data tasks since 2012 and 2016, respectively. This trend signifies a reconfiguration of job roles, where certain tasks are either supplanted by AI or transformed to complement AI functionalities. Such changes necessitate a reevaluation of skill requirements and highlight the importance of

adaptability in the workforce.

Mäkelä and Stephany (2024) delve into the broader implications of AI on skill demand, emphasizing the growing importance of AI-complementary skills such as digital literacy, teamwork, and resilience. Their analysis indicates a significant increase in demand for these skills, accompanied by rising wage premiums in AI-related roles. Conversely, skills that are easily substitutable by AI, like routine customer service tasks, have seen a decline in both demand and value. This shift accentuates the transformative impact of AI on the labor market, where the value of human skills is increasingly determined by their complementarity to AI technologies.

The historical progression from automation to intelligent systems reflects a broader trend of technological integration into the workplace. Initially, automation focused on mechanizing repetitive physical tasks, leading to increased efficiency and the displacement of certain manual jobs. However, the advent of AI has extended this transformation to cognitive tasks, enabling machines to perform complex analyses, make decisions, and even engage in creative processes. This evolution signifies a paradigm shift where the boundaries between human and machine capabilities are increasingly blurred.

In the context of employment structures, this shift has profound implications. The displacement effect of automation AI poses challenges for low-skilled workers, necessitating targeted interventions to mitigate unemployment and wage suppression in affected sectors. Conversely, the augmentation potential of AI offers opportunities for job creation and wage growth in high-skilled occupations, provided that workers can acquire the necessary complementary skills. This dichotomy underscores the importance of proactive policies and educational initiatives aimed at facilitating workforce adaptation to the evolving technological landscape.

Moreover, the integration of AI into various industries necessitates a reevaluation of organizational structures and work processes. Companies must navigate the complexities of human-AI collaboration, ensuring that the deployment of intelligent systems enhances productivity without undermining employee well-being. This entails not only technological investments but also cultural and managerial shifts to foster an environment conducive to effective human-AI interaction.

In summary, the historical evolution from automation to intelligent systems represents a transformative phase in the relationship between technology and work. The nuanced impacts of AI on employment structures, as evidenced by recent studies, highlight the need for a multifaceted approach to workforce development. By understanding the specific effects of different AI applications and investing in the cultivation of complementary human skills, stakeholders can navigate the challenges and harness the opportunities presented by this technological evolution.

1.4. Aim and Objectives of the study

Aim

The aim of this study is to critically examine the impact of Artificial Intelligence (AI) on the future of work, focusing on how AI technologies are reshaping employment structures, transforming job roles, influencing workforce skill requirements, and creating new models of work across industries. The study seeks to provide evidence-based insights to inform policymakers, educators, industry leaders,

and workers on strategies for building a resilient, inclusive, and future-ready labor market in an AI-driven economy.

Objectives:

1. To explore the historical evolution from traditional automation to intelligent AI systems and their influence on employment trends.
2. To investigate how AI technologies are disrupting and innovating key industries and the resultant transformations in job roles and organizational structures.
3. To analyze case studies highlighting workforce transformations due to AI, including both displacement and the creation of new employment opportunities.

2. Methodology

2.1. Data Sources

The primary data sources for this review included peer-reviewed journal articles, industry reports, and policy documents published between 2020 and 2025. Academic databases such as Scopus, Web of Science, IEEE Xplore, ScienceDirect, and Google Scholar were systematically searched to gather high-quality and relevant literature. Additionally, authoritative reports from institutions such as the World Economic Forum, OECD, and ILO were included to capture up-to-date insights from practice and policy. The selection prioritized sources that provided empirical evidence, systematic analyses, and theoretical frameworks related to AI's influence on employment and job transformation.

2.2. Search Strategy

A structured search strategy was implemented to identify and retrieve relevant literature systematically. Specific keywords and Boolean operators were utilized to refine the search queries. Examples of search strings include: Artificial Intelligence AND Employment Transformation, AI AND Job Displacement OR Job Creation, Future of Work AND Skill Evolution, AI in the Workplace AND Socioeconomic Inequality, AI-driven Industries AND New Work Models. Searches were limited to publications between January 2020 and April 2025, written in English. To ensure comprehensiveness, backward and forward citation tracking (snowballing) was also conducted on key articles to identify additional relevant studies.

2.3. Inclusion and Exclusion Criteria for Relevant Literature

For this systematic literature review, inclusion criteria required that articles explicitly address the impact of Artificial Intelligence on employment structures, job roles, workforce skills, socioeconomic effects, or policy responses. Studies were included if they employed empirical methods (qualitative, quantitative, or mixed-methods), provided systematic reviews, or developed theoretical frameworks relevant to AI and the future of work. Only peer-reviewed journal articles, conference papers, and authoritative institutional reports were considered. Literature focusing exclusively on unrelated technological aspects of AI without linking to employment implications, studies based on pre-2020 data, non-English publications, editorials, blog posts, opinion pieces, and articles lacking methodological transparency were excluded. Studies focusing solely on automation technologies unrelated to AI advancements were

also omitted to maintain thematic consistency and ensure the relevance of findings to contemporary AI developments.

2.4. Selection Criteria

The selection process involved several stages. Initially, titles and abstracts of all identified articles were screened for relevance based on the defined research objectives. Full-text reviews were subsequently conducted on articles that met the preliminary criteria. To enhance reliability, two independent reviewers assessed the eligibility of studies, and discrepancies were resolved through discussion and consensus. Priority was given to articles that demonstrated methodological rigor, substantial empirical contribution, and relevance to key themes such as technological unemployment, workforce skill evolution, socioeconomic impacts, human-AI collaboration, and policy recommendations.

2.5. Data Analysis

The final pool of selected articles underwent a detailed thematic analysis. Extracted data were coded based on pre-defined categories aligning with the study's research questions: AI-driven employment transformation, skill shifts, sectoral disruptions, emerging work models, inequality challenges, and workforce development strategies. Patterns, trends, and divergences across studies were systematically identified and synthesized. Critical appraisal techniques, including assessment of study quality, bias risks, and generalizability, were employed. Thematic findings were then organized to inform the structure of the literature review and discussion sections, offering a coherent narrative that integrates theoretical perspectives with empirical evidence.

3. Literature Review

3.1. Fundamental Concepts: Artificial Intelligence, Automation, and Employment Trends

Artificial Intelligence (AI) and automation have become pivotal forces reshaping the modern workforce, influencing employment trends and redefining job roles across various sectors. Understanding the fundamental concepts of AI and automation is essential to grasp their impact on employment structures.

AI refers to the simulation of human intelligence processes by machines, particularly computer systems. These processes include learning, reasoning, problem-solving, perception, and language understanding. Automation, on the other hand, involves the use of technology to perform tasks with minimal human intervention. While automation has been a part of industrial processes for decades, the integration of AI has significantly enhanced its capabilities, enabling machines to perform complex tasks that were previously thought to require human intelligence.

Zhang and Wang (2025) conducted a non-linear threshold analysis to examine how AI affects the labour force employment structure. Their study revealed that the impact of AI on employment is not uniform across all sectors or regions. Instead, it exhibits threshold effects where the influence becomes significant only after reaching certain levels of AI integration. This finding suggests that the relationship between AI adoption and employment changes is complex, requiring detailed analysis to understand the conditions under which AI significantly alters employment structures.

Franken and Wattenberg (2024) explored the transformation

of skills necessitated by AI in the workplace. Their systematic review revealed that AI implementation leads to a shift in skill requirements, emphasizing the need for digital literacy, adaptability, and continuous learning among employees. This evolution in skill demands necessitates organizations to invest in reskilling and upskilling initiatives to align their workforce capabilities with the changing technological landscape.

Simon (2025) identified four roles that AI can play within a team: coordinator, creator, perfectionist, and doer. These roles illustrate how AI can influence employees' self-understanding and their perceived social roles at work, presenting both opportunities for growth and challenges related to de-skilling and diminished autonomy. This underscores the importance of understanding how AI reconfigures work environments and the nature of expertise, highlighting the need for holistic assessments of AI's impact on employment.

The convergence of these insights suggests that the rise of AI in the modern workforce is a multifaceted phenomenon with both opportunities and challenges. On one hand, AI has the potential to augment human capabilities, leading to increased productivity and the creation of new job roles. On the other hand, it poses risks related to job displacement, skill mismatches, and socioeconomic disparities. Addressing these challenges requires proactive strategies, including investment in education and training programs that equip workers with the skills needed to thrive in an AI-driven economy. Augoye, O., *et al* (2025).

Furthermore, organizations must engage in transparent discussions with employees about AI implementation, ensuring that workers are informed and involved in the transition process. Developing clear workplace policies and fostering a culture of continuous learning can mitigate the adverse effects of AI adoption and promote a more inclusive workforce.

In conclusion, the integration of AI and automation into the workforce is reshaping employment structures and job roles in profound ways. While these technologies offer significant benefits in terms of efficiency and innovation, they also necessitate careful consideration of their implications for workers and society at large. By adopting a holistic and human-centric approach, stakeholders can harness the potential of AI while safeguarding the interests of the workforce.

3.2. AI Applications Across Key Industries: Disruption and Innovation

Artificial Intelligence (AI) has emerged as a transformative force across various industries, driving both disruption and innovation in employment structures. Its integration into sectors such as healthcare, finance, manufacturing, and customer service has redefined traditional job roles, introduced new skill requirements, and prompted a reevaluation of workforce strategies.

In the healthcare industry, AI applications have revolutionized diagnostic procedures, patient care, and administrative tasks. The deployment of AI-driven diagnostic tools enhances the accuracy and speed of disease detection, enabling healthcare professionals to make informed decisions promptly. Moreover, AI-powered administrative systems streamline hospital operations, reducing the burden of paperwork and allowing medical staff to focus more on patient care. These advancements not only improve

healthcare delivery but also necessitate the upskilling of medical personnel to effectively interact with AI technologies (World Economic Forum, 2025).

The financial sector has also experienced significant transformation due to AI integration. AI algorithms are employed for risk assessment, fraud detection, and personalized financial services. For instance, AI systems can analyze vast datasets to identify fraudulent activities, thereby enhancing security measures. Additionally, AI-driven chatbots provide customers with instant support, improving client satisfaction and operational efficiency. However, these innovations have led to the displacement of certain roles, such as traditional customer service representatives, highlighting the need for workforce adaptation and reskilling initiatives (Colombo *et al.*, 2024).

In manufacturing, AI technologies have automated various production processes, leading to increased efficiency and reduced operational costs. Robotic Process Automation (RPA) and AI-driven machinery perform repetitive tasks with precision, minimizing human error and enhancing productivity. While this automation has resulted in the reduction of certain manual labor roles, it has simultaneously created demand for skilled workers capable of managing and maintaining advanced AI systems. Consequently, there is a growing emphasis on technical education and training programs to equip the workforce with the necessary competencies (Mäkelä and Stephany, 2024).

The customer service industry has witnessed a paradigm shift with the adoption of AI-powered chatbots and virtual assistants. These tools handle a multitude of customer inquiries simultaneously, providing quick and consistent responses. The automation of routine customer interactions allows human agents to focus on complex issues requiring emotional intelligence and problem-solving skills. This shift underscores the importance of developing soft skills among customer service professionals to complement AI capabilities and enhance overall service quality (World Economic Forum, 2025).

Across these industries, the integration of AI has led to the emergence of new job roles and the evolution of existing ones. Positions such as AI specialists, data analysts, and machine learning engineers have become increasingly vital. Moreover, traditional roles now often require proficiency in AI-related tools and an understanding of data analytics. This trend highlights the necessity for continuous learning and adaptability within the workforce to meet the evolving demands of the AI-driven job market (Colombo *et al.*, 2024). However, the rapid advancement of AI technologies also presents challenges, particularly concerning job displacement and skill mismatches. Workers in roles susceptible to automation may face unemployment if they lack opportunities for retraining and upskilling. Therefore, it is imperative for policymakers, educational institutions, and industry leaders to collaborate in developing comprehensive strategies that facilitate workforce transition and mitigate the adverse effects of AI-induced disruption (Mäkelä and Stephany, 2024).

3.3. Case Studies on Workforce Transformation Due to AI

The integration of Artificial Intelligence (AI) into various sectors has led to significant transformations in workforce structures, necessitating a comprehensive examination of its impacts. This section presents case studies that elucidate the multifaceted effects of AI on employment, job roles, and skill

requirements.

Machovec, Rieley, and Rolen (2025) conducted an in-depth analysis of how AI influences employment projections within the United States. Their study focused on selected occupations in the computer, legal, business and financial, and architecture and engineering sectors. The findings revealed that AI's impact varies across occupations, with some experiencing job displacement due to automation, while others witness job creation and transformation. For instance, in the legal sector, AI tools have automated routine tasks such as document review, leading to a decline in demand for paralegals. Conversely, the need for AI specialists and data analysts has surged, reflecting a shift towards more technical roles. This case study underscores the importance of adapting workforce skills to align with evolving technological demands.

Marguerit (2025) explored the dichotomy between automation and augmentation in the context of AI's influence on labor markets. The study differentiated between automation AI, which substitutes human labor, and augmentation AI, which enhances human capabilities. The research indicated that automation AI tends to displace low-skilled jobs and suppress wage growth in those sectors. In contrast, augmentation AI fosters the emergence of new roles and boosts wages in high-skilled occupations. This delineation highlights the nuanced effects of AI, suggesting that its influence is contingent upon the nature of the technology and the context of its application. The study emphasizes the need for targeted policies to mitigate adverse effects on vulnerable workers while promoting opportunities for skill development and career advancement.

Savelka *et al.* (2025) addressed the growing demand for AI technicians by developing rapid occupational training methods. Their program, a collaboration between the U.S. Army's Artificial Intelligence Integration Center and Carnegie Mellon University, aimed to create a competitive AI workforce at the technician level. The initiative successfully trained 59 AI technicians over four years, demonstrating the feasibility of alternative training pathways to meet the evolving needs of the labor market. The study highlighted the necessity of continuous updates to training programs to keep pace with rapid technological advancements. This case study illustrates the potential of innovative educational models to bridge skill gaps and facilitate workforce adaptation in the age of AI.

Collectively, these case studies reveal that AI's integration into the workforce is a complex phenomenon with diverse outcomes. While AI can lead to job displacement in certain sectors, it also creates new opportunities and transforms existing roles. The key to harnessing AI's potential lies in proactive strategies that emphasize reskilling, upskilling, and the development of flexible training programs. By aligning educational initiatives with industry needs, stakeholders can ensure a resilient and adaptable workforce capable of thriving in an AI-driven economy.

Furthermore, these studies underscore the importance of nuanced policy approaches that consider the varying impacts of AI across different occupations and skill levels. Policymakers must balance the promotion of technological innovation with measures that protect and empower workers, particularly those in vulnerable positions. This includes investing in education, providing support for career transitions, and fostering inclusive growth that benefits all segments of society.

3.4. Theoretical Perspectives: Technological Unemployment vs. Job Creation

The advent of Artificial Intelligence (AI) has reignited longstanding debates surrounding technological unemployment and job creation. Historically, technological advancements have both displaced and generated employment opportunities, leading to a dynamic interplay between automation and labor market evolution. In the context of AI, this dichotomy is particularly pronounced, as the technology possesses the capacity to both augment human capabilities and automate tasks traditionally performed by humans.

Marguerit (2025) delves into this duality by distinguishing between automation AI, which substitutes human labor, and augmentation AI, which enhances human productivity. His study reveals that automation AI tends to displace low-skilled jobs and suppress wage growth in those sectors. Conversely, augmentation AI fosters the emergence of new roles and boosts wages in high-skilled occupations. This delineation underscores the nuanced effects of AI, suggesting that its influence is contingent upon the nature of the technology and the context of its application.

The impact of AI on skill demand further complicates the employment landscape. Mäkelä and Stephany (2024) examine whether AI acts as a complement or substitute for human labor. Their analysis indicates a significant increase in demand for AI-complementary skills, such as digital literacy, teamwork, and resilience, alongside rising wage premiums for these skills in AI roles. Conversely, substitute skills, including customer service and text review, have declined in both demand and value within AI-related positions. These findings suggest that AI's complementary effect is up to 50% larger than its substitution effect, resulting in a net positive demand for skills.

The evolving skill requirements have prompted a shift in hiring practices. Bone, Ehlinger, and Stephany (2023) investigate the rise of skill-based hiring in AI and green jobs. Their study reveals that from 2018 to 2023, demand for AI roles grew by 21% as a proportion of all postings, while mentions of university education requirements for AI roles declined by 15%. This trend indicates a growing emphasis on practical skills over formal qualifications, reflecting the dynamic nature of the AI-driven job market.

These theoretical perspectives highlight the complex interplay between technological advancement and labor market dynamics. While AI has the potential to displace certain job categories, it simultaneously creates opportunities for new roles that leverage human-AI collaboration. The net effect on employment depends on various factors, including the pace of AI adoption, the adaptability of the workforce, and the effectiveness of reskilling initiatives.

3.5. Skill Evolution and the Changing Nature of Work

The integration of Artificial Intelligence (AI) into various sectors has significantly influenced the evolution of skills required in the modern workforce. As AI technologies automate routine tasks, there is a growing emphasis on human-centric skills that complement AI capabilities. This shift necessitates a reevaluation of educational frameworks and hiring practices to align with the changing nature of work.

Mäkelä and Stephany (2024) explore the dichotomy of AI as both a complement and substitute to human labor. Their study indicates a significant increase in demand for AI-

complementary skills, such as digital literacy, teamwork, and resilience, alongside rising wage premiums for these skills in AI roles. Conversely, substitute skills, including customer service and text review, have declined in both demand and value within AI-related positions. These findings suggest that AI's complementary effect is up to 50% larger than its substitution effect, resulting in a net positive demand for skills.

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Amini *et al.* (2025) emphasize the necessity of prioritizing education to prepare the workforce for an AI-accelerated job market. They advocate for coordinated action from government, industry, and educational institutions to ensure workers can adapt to accelerating technological change. Their study underscores the importance of integrating AI literacy across disciplines and developing flexible learning pathways to accommodate diverse learner needs.

Collectively, these studies highlight the imperative for a proactive approach to workforce development. As AI continues to reshape the employment landscape, fostering a culture of continuous learning and adaptability becomes essential. Educational institutions must evolve to provide curricula that emphasize both technical proficiency and soft skills, while employers should invest in training programs that upskill their workforce. By aligning educational and hiring practices with the demands of the AI-driven economy, stakeholders can ensure a resilient and inclusive labor market.

3.6. New Work Models: Remote Work, Gig Economy, and AI-Enabled Entrepreneurship

The convergence of technological advancements and shifting workforce preferences has catalyzed the emergence of new work models, notably remote work, the gig economy, and AI-enabled entrepreneurship. These paradigms are redefining traditional employment structures, offering both opportunities and challenges for workers and organizations alike.

Remote work has transitioned from a temporary solution during the COVID-19 pandemic to a permanent fixture in the modern workplace. According to Splashtop (2025), remote work has transformed from a pandemic-driven necessity into a fundamental part of modern business operations, redefining how organizations function, attract talent, and stay competitive. This shift has empowered employees with greater flexibility, enabled businesses to tap into global talent pools, and driven innovation through diverse, decentralized teams. The integration of AI and automation tools has further enhanced remote work by streamlining workflows and boosting productivity. Businesses are increasingly leveraging AI tools for tasks such as scheduling, project management, and data analysis, allowing teams to focus on higher-value work.

The gig economy has also experienced significant growth, driven by the rise of digital platforms and changing workforce dynamics. Upwork (2024) reports that the total number of freelance and gig workers is on the rise. According

to Upwork's Freelance Forward report, in 2023, 38% of the American workforce, a total of 64 million professionals, did some sort of freelance work. On a global scale, data from The World Bank shows that the online gig economy workforce is much larger than previously estimated, with gig work accounting for up to 12% of the global labor force. This expansion reflects a growing preference for flexible work arrangements and the ability to leverage specialized skills across various projects. The gig economy's growth is further supported by the proliferation of online marketplaces and platforms that connect freelancers with clients worldwide.

AI-enabled entrepreneurship represents another frontier in the evolving work landscape. Advancements in AI technologies have lowered barriers to entry for aspiring entrepreneurs, enabling individuals to develop and scale businesses with greater efficiency. AI tools facilitate various aspects of business operations, including market analysis, customer engagement, and product development. This democratization of entrepreneurship allows for increased innovation and the creation of niche markets. However, it also necessitates a reevaluation of traditional business models and regulatory frameworks to accommodate the unique challenges posed by AI-driven enterprises.

Despite the benefits, these new work models also present challenges. The integration of AI into remote work and the gig economy raises concerns about job displacement and the erosion of job security. Vox (2025) highlights that as advancements in artificial intelligence rapidly increase, the job landscape for remote laptop-based workers is at significant risk. Many professionals, including journalists, software engineers, and accountants, benefit from location flexibility and lack of physical strain, but their roles are now highly susceptible to AI replacements. This underscores the need for continuous upskilling and adaptability among workers to remain competitive in an AI-driven job market.

Moreover, the gig economy's reliance on independent contractors often leads to a lack of traditional employment benefits, such as health insurance and retirement plans. This precariousness necessitates policy interventions to ensure fair labor practices and social protections for gig workers. Additionally, the global nature of remote work and gig platforms introduces complexities related to taxation, labor laws, and cross-border regulations. Addressing these issues requires collaborative efforts between governments, businesses, and international organizations to establish coherent policies that support the evolving workforce.

4. Discussion of Findings

4.1. Analysis of Employment Shifts and Emerging Job Roles

The integration of Artificial Intelligence (AI) into various sectors has precipitated significant shifts in employment patterns, leading to the emergence of new job roles and the transformation of existing ones. This section examines these changes, drawing on recent studies to elucidate the evolving landscape of work in the age of AI.

Machovec, Rieley, and Rolen (2025) conducted a comprehensive analysis of how AI influences employment projections within the United States. Their study focused on selected occupations in the computer, legal, business and financial, and architecture and engineering sectors. The findings revealed that AI's impact varies across occupations, with some experiencing job displacement due to automation, while others witness job creation and transformation. For instance, in the legal sector, AI tools have automated routine

tasks such as document review, leading to a decline in demand for paralegals. Conversely, the need for AI specialists and data analysts has surged, reflecting a shift towards more technical roles. This case study underscores the importance of adapting workforce skills to align with evolving technological demands.

Marguerit (2025) explored the dichotomy between automation and augmentation in the context of AI's influence on labor markets. The study differentiated between automation AI, which substitutes human labor, and augmentation AI, which enhances human capabilities. The research indicated that automation AI tends to displace low-skilled jobs and suppress wage growth in those sectors. In contrast, augmentation AI fosters the emergence of new roles and boosts wages in high-skilled occupations. This delineation highlights the nuanced effects of AI, suggesting that its influence is contingent upon the nature of the technology and the context of its application. The study emphasizes the need for targeted policies to mitigate adverse effects on vulnerable workers while promoting opportunities for skill development and career advancement.

Savelka *et al.* (2025) addressed the growing demand for AI technicians by developing rapid occupational training methods. Their program, a collaboration between the U.S. Army's Artificial Intelligence Integration Center and Carnegie Mellon University, aimed to create a competitive AI workforce at the technician level. The initiative successfully trained 59 AI technicians over four years, demonstrating the feasibility of alternative training pathways to meet the evolving needs of the labor market. The study highlighted the necessity of continuous updates to training programs to keep pace with rapid technological advancements. This case study illustrates the potential of innovative educational models to bridge skill gaps and facilitate workforce adaptation in the age of AI.

Collectively, these studies reveal that AI's integration into the workforce is a complex phenomenon with diverse outcomes. While AI can lead to job displacement in certain sectors, it also creates new opportunities and transforms existing roles. The key to harnessing AI's potential lies in proactive strategies that emphasize reskilling, upskilling, and the development of flexible training programs. By aligning educational initiatives with industry needs, stakeholders can ensure a resilient and adaptable workforce capable of thriving in an AI-driven economy.

Furthermore, these studies underscore the importance of nuanced policy approaches that consider the varying impacts of AI across different occupations and skill levels. Policymakers must balance the promotion of technological innovation with measures that protect and empower workers, particularly those in vulnerable positions. This includes investing in education, providing support for career transitions, and fostering inclusive growth that benefits all segments of society.

4.2. Challenges: Job Displacement, Skill Gaps, and Socioeconomic Inequality

The advent of Artificial Intelligence (AI) has ushered in transformative changes across various sectors, leading to significant shifts in employment patterns. While AI offers opportunities for innovation and efficiency, it also presents challenges, notably job displacement, skill gaps, and exacerbation of socioeconomic inequalities.

Peppiatt (2024) provides a comprehensive literature review

highlighting the multifaceted impacts of AI on the workforce. The study underscores that AI-driven automation has the potential to displace a substantial number of jobs, particularly those involving routine and repetitive tasks. This displacement is not confined to low-skilled occupations; even roles requiring higher education and specialized skills are susceptible. The uncertainty surrounding the extent and nature of job displacement complicates efforts to formulate effective policy responses.

Korinek (2024) delves into the economic policy challenges posed by the rapid advancement of AI technologies. The paper emphasizes that AI-induced labor market disruptions could lead to increased income inequality and social instability if not addressed proactively. Korinek advocates for policies that promote education and skill development, social safety nets, and equitable distribution of AI-generated wealth. The study also highlights the need for international cooperation to manage the global implications of AI on labor markets.

Ganuthula and Balaraman (2025) conduct a comparative analysis of labor market polarization in India and the United States, focusing on the differential impacts of AI. Their findings reveal that both countries experience significant skill-based polarization, with high-skilled workers benefiting from AI advancements while low-skilled workers face increased vulnerability to automation. The study underscores the importance of tailored policy interventions that consider the unique socioeconomic contexts of different countries to mitigate the adverse effects of AI on employment and inequality.

Collectively, these studies highlight the pressing need to address the challenges posed by AI in the labor market. Job displacement due to automation necessitates comprehensive strategies for workforce reskilling and upskilling. Bridging the skill gaps requires collaboration between governments, educational institutions, and industries to develop curricula that align with the evolving demands of the AI-driven economy. Furthermore, policies aimed at reducing socioeconomic inequalities must be integral to the AI adoption process, ensuring that the benefits of technological advancements are equitably distributed across all segments of society.

4.3. Opportunities: Workforce Upskilling, Human-AI Collaboration, and New Career Pathways

The integration of Artificial Intelligence (AI) into various sectors has not only transformed traditional job roles but also created new opportunities for workforce development. As AI technologies evolve, there is a growing emphasis on upskilling, fostering human-AI collaboration, and exploring new career pathways to ensure a resilient and adaptable workforce.

Amini *et al.* (2025) emphasize the necessity of prioritizing education to prepare the workforce for an AI-accelerated job market. They advocate for coordinated action from government, industry, and educational institutions to ensure workers can adapt to accelerating technological change. Their study underscores the importance of integrating AI literacy across disciplines and developing flexible learning pathways to accommodate diverse learner needs.

The evolving skill requirements have prompted a shift in hiring practices. Mäkelä and Stephany (2024) examine whether AI acts as a complement or substitute for human labor. Their analysis indicates a significant increase in

demand for AI-complementary skills, such as digital literacy, teamwork, and resilience, alongside rising wage premiums for these skills in AI roles. Conversely, substitute skills, including customer service and text review, have declined in both demand and value within AI-related positions. These findings suggest that AI's complementary effect is up to 50% larger than its substitution effect, resulting in a net positive demand for skills.

Savelka *et al.* (2025) address the growing demand for AI technicians by developing rapid occupational training methods. Their program, a collaboration between the U.S. Army's Artificial Intelligence Integration Center and Carnegie Mellon University, aims to create a competitive AI workforce at the technician level. The initiative successfully trained 59 AI technicians over four years, demonstrating the feasibility of alternative training pathways to meet the evolving needs of the labor market. The study highlights the necessity of continuous updates to training programs to keep pace with rapid technological advancements.

These studies collectively highlight the imperative for a proactive approach to workforce development. As AI continues to reshape the employment landscape, fostering a culture of continuous learning and adaptability becomes essential. Educational institutions must evolve to provide curricula that emphasize both technical proficiency and soft skills, while employers should invest in training programs that upskill their workforce. By aligning educational and hiring practices with the demands of the AI-driven economy, stakeholders can ensure a resilient and inclusive labor market. Furthermore, the emergence of new career pathways necessitates a reevaluation of traditional employment models. The integration of AI into various sectors has led to the creation of roles that require a blend of technical and interpersonal skills. This shift underscores the importance of interdisciplinary education and the development of competencies that facilitate effective human-AI collaboration. By embracing these changes, individuals and organizations can harness the transformative potential of AI to drive innovation and economic growth.

4.4. Policy Recommendations for Inclusive and Sustainable Workforce Development

The rapid integration of Artificial Intelligence (AI) into various sectors necessitates comprehensive policy frameworks to ensure inclusive and sustainable workforce development. As AI continues to reshape the labor market, policymakers must address the challenges and opportunities presented by this technological evolution.

Lane and Saint-Martin (2021) emphasize the importance of proactive policy measures to mitigate the potential adverse effects of AI on employment. Their analysis indicates that while AI can enhance productivity and create new job opportunities, it also poses risks of job displacement, particularly in roles involving routine tasks. To address these challenges, they advocate for policies that promote workforce adaptability through continuous learning and skill development. Such policies should focus on equipping workers with the competencies required to thrive in an AI-driven economy, including digital literacy, problem-solving, and interpersonal skills.

Li (2022) underscores the necessity of reskilling and upskilling initiatives to prepare the workforce for Industry 4.0. The study highlights that by 2025, 50% of all employees will need reskilling due to the adoption of new technologies.

Li proposes a blueprint for future-ready learning societies, emphasizing the role of educational institutions, governments, and industries in facilitating accessible and affordable learning opportunities. The study advocates for integrating life-long learning into organizational strategies and promoting public-private partnerships to support workforce development.

Salo-Pöntinen and Saariluoma (2022) analyze national AI strategies to assess how they incorporate human-centric considerations. Their findings reveal that many strategies are predominantly technology-driven, often overlooking the human dimensions of AI integration. They argue for a more holistic approach to AI policy formulation, one that prioritizes human values, ethical considerations, and societal well-being. By incorporating perspectives from social sciences and humanities, policymakers can develop AI strategies that align technological advancement with human needs and aspirations.

Building on these insights, several policy recommendations emerge to foster inclusive and sustainable workforce development in the age of AI. Firstly, governments should invest in education systems that emphasize interdisciplinary learning, combining technical skills with critical thinking and ethical reasoning. Curricula should be updated to reflect the evolving demands of the labor market, ensuring that students are equipped with the skills necessary for AI-related roles.

Secondly, policies should support the establishment of lifelong learning ecosystems, providing workers with opportunities to continuously update their skills. This includes funding for vocational training programs, online courses, and certification schemes that are flexible and accessible to diverse populations. Special attention should be given to marginalized groups to prevent widening socioeconomic disparities.

Thirdly, fostering collaboration between public and private sectors is crucial for aligning workforce development initiatives with industry needs. Public-private partnerships can facilitate the sharing of resources, expertise, and best practices, enhancing the effectiveness of training programs. Additionally, involving stakeholders from various sectors ensures that policies are comprehensive and responsive to the dynamic nature of AI integration.

Furthermore, policymakers should implement regulatory frameworks that address the ethical implications of AI in the workplace. This includes establishing guidelines for transparency, accountability, and fairness in AI systems, as well as protecting workers' rights and privacy. By embedding ethical considerations into AI policies, governments can build public trust and ensure that technological advancements contribute positively to society.

Lastly, continuous monitoring and evaluation of AI's impact on the labor market are essential for informed policymaking. Data collection and analysis should be conducted to assess the effectiveness of workforce development initiatives and to identify emerging trends and challenges. This evidence-based approach enables policymakers to adapt strategies proactively, ensuring that workforce development remains aligned with technological progress.

4.5. Ensuring Diversity and Inclusion in AI-Driven Workplaces

The integration of Artificial Intelligence (AI) into workplace environments has introduced both opportunities and challenges concerning diversity and inclusion. While AI has

the potential to mitigate human biases, it can also perpetuate existing inequalities if not carefully managed. Ensuring that AI-driven workplaces promote diversity and inclusion requires deliberate strategies and ongoing vigilance.

Buolamwini (2025) highlights the phenomenon of the "coded gaze," where biases in AI systems reflect the prejudices of their creators. Her research into facial analysis software revealed significant disparities in accuracy across different demographic groups, particularly affecting women and individuals with darker skin tones. These findings underscore the necessity for diverse representation in AI development teams to identify and rectify such biases. By incorporating varied perspectives, organizations can create AI systems that are more equitable and reflective of the populations they serve.

Güven *et al.* (2025) discuss the role of AI in supporting diversity and inclusion initiatives. They emphasize the importance of transparent algorithms and inclusive training data to prevent the reinforcement of societal biases. The authors advocate for multidisciplinary approaches that combine technical expertise with insights from social sciences to develop AI systems that are both effective and socially responsible. Such collaboration can lead to the creation of technologies that not only perform well but also uphold values of fairness and inclusivity.

Nixon, Lin, and Snow (2024) explore the application of generative AI in promoting equity within STEM teams. Their study demonstrates how AI can be leveraged to assess collaborative skills and provide personalized support, thereby fostering inclusive team dynamics. The authors propose policy recommendations that include funding for socio-cognitive research and the development of human-AI teaming strategies aimed at enhancing diversity and inclusion. These initiatives can help create environments where all team members feel valued and empowered to contribute.

To ensure diversity and inclusion in AI-driven workplaces, organizations must implement comprehensive strategies that address both technological and human factors. This includes conducting regular audits of AI systems to detect and mitigate biases, investing in diversity training programs, and establishing clear policies that promote equitable practices. Moreover, fostering an organizational culture that values inclusivity can encourage employees to engage with AI tools in ways that enhance collaboration and innovation.

In conclusion, while AI presents opportunities to advance diversity and inclusion in the workplace, it also poses risks if not carefully managed. By adopting a proactive and holistic approach, organizations can harness the benefits of AI while ensuring that their workplaces remain inclusive and equitable for all employees.

5. Conclusion

5.1. Summary of Key Insights on AI's Impact on Work and Employment

This study has comprehensively examined how Artificial Intelligence (AI) is transforming the nature of work and reshaping employment structures across industries. The systematic literature review revealed that AI's impact is multifaceted: it displaces certain job categories, creates new roles, and fundamentally alters the skill sets required for workforce participation. While low-skilled, routine-based jobs are most vulnerable to automation, AI has also opened pathways for the augmentation of human capabilities,

particularly in sectors demanding advanced technical expertise and creative problem-solving. Furthermore, the evidence suggests that AI intensifies labor market polarization, contributing to both skill-biased employment opportunities and socioeconomic disparities. Nevertheless, human-AI collaboration, when strategically managed, presents an opportunity to enhance productivity and unlock new forms of employment that prioritize human strengths alongside machine intelligence.

5.2. Future Landscape: Trends, Uncertainties, and Opportunities

The future of work in an AI-driven economy is characterized by rapid technological innovation, evolving work models, and a redefinition of workforce expectations. Trends such as the expansion of remote work, the rise of the gig economy, and the acceleration of AI-enabled entrepreneurship are expected to continue. However, substantial uncertainties remain regarding the pace of technological diffusion, the resilience of various occupations, and the ability of workers to adapt through reskilling. Emerging technologies such as generative AI, autonomous systems, and smart robotics may lead to the creation of entirely new industries while rendering traditional sectors obsolete. Amid these uncertainties, there are significant opportunities for inclusive growth if proactive measures are taken to ensure that technological progress benefits diverse population groups. Addressing digital divides, fostering lifelong learning, and promoting equitable access to AI-driven opportunities will be crucial to mitigating future labor market disruptions.

5.3. Strategic Recommendations for Policymakers, Industry Leaders, and Educators

To harness the benefits of AI while safeguarding societal well-being, coordinated and strategic action across multiple stakeholders is imperative. Policymakers should prioritize the development of inclusive AI strategies that embed fairness, accountability, and transparency into technological deployments. Investing in education systems that emphasize interdisciplinary learning—integrating technical, ethical, and socio-emotional skills—is essential to prepare the workforce for dynamic labor markets. Furthermore, governments must strengthen social protection systems to support workers displaced by technological change and incentivize continuous workforce development.

Industry leaders should proactively invest in upskilling and reskilling initiatives tailored to their sectors' evolving demands. Organizations must foster cultures of adaptability and inclusivity, ensuring that AI is implemented in ways that complement human roles rather than replacing them. Transparent communication with employees about AI integration strategies and its implications will be critical for building trust and enabling smooth transitions.

Educators, both at the institutional and organizational levels, must rethink traditional educational pathways by offering modular, flexible, and competency-based learning models. Curricula should focus not only on technical proficiency but also on critical thinking, creativity, collaboration, and ethical reasoning, positioning learners to thrive alongside AI technologies.

5.4. Final Thoughts: Building a Resilient and Inclusive Workforce in the Age of AI

The future of work shaped by AI presents both unprecedented challenges and transformative possibilities. Success in this new era hinges on building a resilient and inclusive workforce capable of adapting to continual change. This requires a shared commitment to investing in human capital, embracing technological innovations responsibly, and fostering environments where diversity, creativity, and continuous learning are valued. By strategically aligning technological advancement with human development, society can ensure that AI serves as a catalyst for inclusive economic growth, equitable opportunities, and the advancement of human potential. Building such a future demands bold vision, collaboration across sectors, and an unwavering focus on creating a future of work that leaves no one behind.

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