



**Navigating and supporting the shifting job market
towards AI and automation**



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Overview

In the era of AI and automation, it is essential to have a comprehensive approach to navigate and support the evolving job market. Education and upskilling initiatives should be the top priority to empower individuals with the skills required to excel in roles that utilize emerging technologies. Additionally, it is essential to provide robust job transition assistance to ensure that workers who are displaced by automation have access to career counseling, job placement services, and financial support as they move into new industries or roles.

Navigating and supporting the shifting job market towards AI and automation is a complex challenge with significant implications for global workers, industries, and economies. Problems include job displacement, skill gap, and inequality of income. An investment firm, Goldman Sachs, estimates that 300 million full-time jobs might be replaced by Artificial Intelligence (AI). In the US and Europe, it may replace 25% of labor duties, but it might also lead to an increase in productivity and the creation of new employment. Additionally, it may result in a 7% rise in the value of products and services produced worldwide yearly. In addition, research shows that around 25% of all employment might be done totally by AI and that two-thirds of jobs in the U.S. and Europe "are exposed to some degree of AI automation. MIT and Boston University reports suggest AI may replace around two million manufacturing workers by 2025. The McKinsey Global Institute predicts that by 2030, at least 14% of employees worldwide may need to switch career paths due to the increasing digitization, robotics, and advancements in AI technology.

The integration of AI-powered automation poses a dual impact on employment dynamics. (11) It threatens job stability through the potential displacement of human labor across industries like manufacturing, data entry, and customer service, where repetitive tasks or rule-based decision-making dominate. This vulnerability arises as AI systems can perform these tasks more efficiently, potentially resulting in job loss for workers in these sectors as AI technologies advance. Conversely, AI's advancement also creates job opportunities in emerging fields such as



AI development, data science, and ethics. These new roles cater to the specialized skills demanded by AI technologies. At the same time, the innovation spurred by AI fosters the emergence of new products and services, opening up employment prospects in sectors like healthcare, finance, and education.

Moreover, AI contributes to job transformation by automating specific tasks within existing roles, freeing human workers to engage in higher-value tasks that demand creativity, critical thinking, and empathy. For instance, AI aids doctors in analyzing medical images more efficiently, enabling them to prioritize patient care. This transformative process necessitates workers to adapt to evolving roles and responsibilities within their professions and acquire new skill sets to thrive in the AI-driven landscape.



Definitions of important terms

AI (Artificial Intelligence)

Artificial Intelligence (AI) refers to developing computer systems capable of performing tasks that typically require human intelligence. AI systems are designed to perform tasks that involve problem-solving, learning, perception, reasoning, and decision-making. (6) By analyzing extensive data, recognizing patterns, and adjusting their behavior, these systems can achieve specific goals and address complex issues. AI is a broad field that includes various sub-disciplines, such as machine learning, natural language processing, computer vision, and robotics. Each of these contributes to the development of intelligent systems capable of performing increasingly complex tasks autonomously. The ultimate goal of AI is to emulate or simulate human cognitive abilities, thereby enhancing efficiency, productivity, and innovation in a wide range of sectors, including healthcare, finance, transportation, and entertainment.

Human-AI Collaboration

Human-AI collaboration refers to the cooperative relationship between human intelligence and artificial intelligence to accomplish tasks or solve problems more efficiently than either could on their own. This collaboration leverages the distinctive strengths of humans and AI, including human creativity, intuition, and emotional intelligence, and AI systems' computational prowess, speed, and data processing capabilities. The result is often a synergistic effect where each entity compensates for the other's limitations, leading to enhanced decision-making, innovation, and productivity across various fields.

AI Ethics

AI ethics refers to the principles, guidelines, and standards that govern the development, deployment, and use of artificial intelligence systems in a manner that prioritizes fairness, transparency, accountability, privacy, and societal well-being. It encompasses the prevention of bias and discrimination in algorithms, the assurance of transparency in decision-making processes, the protection of user privacy and data rights, the promotion of human autonomy and



control over AI systems, and the consideration of potential societal impacts such as job displacement or the intensification of inequality. AI ethics is an interdisciplinary field that combines ethical principles from philosophy, law, social sciences, and technology to ensure that AI technologies are developed and deployed in ways that are consistent with moral values and respect for human dignity and rights.

Automation

Automation is the use of technology to perform tasks with minimal human intervention. It involves building and deploying systems or processes that can perform repetitive or routine tasks automatically, often with remarkable speed, accuracy, and efficiency compared to humans. Automation can be as simple as rule-based actions or as complex as AI-driven processes capable of decision-making and adaptation. Automation aims to streamline operations, reduce labor costs, increase productivity, and improve overall quality and consistency. Some examples of automation include robotic assembly lines in manufacturing, automated customer service systems, and algorithmic trading in finance.

Job Market

The job market refers to the dynamic interaction between job seekers and companies looking to fill open job positions. It encompasses the supply and demand of labor within an economy, including job openings, job seekers, wages, skills required, and prevailing economic conditions. Various factors, including technological advancements, changes in industry demand, government policies, and demographic trends, influence the job market. It is characterized by fluctuations in employment level, shifts in occupational preferences, and evolving skill requirements. Understanding the job market is essential for employers to attract and retain talent and for individuals to make informed career decisions, including job search strategies, skill development, and career advancement opportunities.

Retraining Programs



The Retraining Program is designed to help individuals experiencing job displacement or seeking to adapt to changing industry demands, technological advancements, or economic shifts. The main goal is to provide education and training opportunities to workers affected by automation, enabling them to transition into new roles or industries, and retraining programs aim to provide individuals with the skills and qualifications to secure employment opportunities in growing sectors.

Vocation Education and Training (VET)

VET refers to occupational training programs that provide skills for specific occupations. The practical, hands-on education that VET programs emphasize helps students get ready for professions in a variety of fields, including information technology, manufacturing, healthcare, and construction. To make sure that graduates are ready for the demands of the workforce, these programs often combine classroom instruction with job certification, apprenticeship, and workplace-based training. VET is essential for addressing skills shortages, stimulating economic growth, and encouraging lifelong learning because it gives people an opportunity to have successful careers, meaningful employment, and lifetime achievement in their chosen subjects.

Policy Frameworks

Policy frameworks are structured guidelines, principles, and regulations created by governments, organizations, or institutions to guide decision-making and actions in specific areas of interest or concern. By specifying goals, objectives, and strategies as well as roles, responsibilities, and methods for implementation, monitoring, and evaluation, policy frameworks offer a methodical way to resolving complicated situations. These serve as guidelines for creating laws, rules, and policies that influence how people behave, distribute funds, and accomplish goals in healthcare, education, the environment, economics, and technology. Informed by research, knowledge, public involvement, and ethical, legal, social, and economic considerations, policy frameworks help ensure efficient governance and adaptability to changing opportunities and challenges.



Timeline of Key Events

April 2018 - European Union AI Strategy

The European Union (EU) introduced an AI strategy in April 2018. It attempts to establish Europe as a worldwide leader in AI development while adhering to EU values and aspirations. The strategy focuses on research, innovation investments, skills development, data sharing, and international cooperation. The aim is to prioritize these areas to encourage breakthroughs in AI technologies by promoting digital literacy, workforce reskilling, facilitating data sharing while protecting privacy, and fostering international collaboration to address global AI challenges. This comprehensive AI strategy highlights the approach to utilizing AI's potential for social benefit while upholding principles of transparency.

January 2021 - The World Economic Forum (WEF) Annual Meeting

The Annual Meeting of the World Economic Forum (WEF) took place in January 2019, serving as a significant platform for global leaders, policymakers, and industry experts. They convened to explore the implications of AI and automation on the worldwide workforce. As technology revolutionized industries and job prerequisites, the meeting sparked essential dialogues on the future of employment, workforce metamorphosis, and policy reactions to technological upheaval. The primary themes encompassed the necessity for initiatives to retrain and enhance workers' skills for budding industries, strategies to foster inclusive growth and tackle income disparity in the face of automation, and ethical aspects in the deployment of AI. The forum offered a distinctive chance for stakeholders to exchange insights, exemplary practices, and inventive solutions for steering the evolving job market towards AI and automation, aiming to optimize benefits while curtailing adverse effects on individuals and society.

July 2020 - Launch of the Global AI Index

In July 2020, the Global AI Index was unveiled, signifying a notable landmark in comprehending and evaluating the worldwide AI panorama. This endeavor furnished exhaustive insights into AI evolution, investment inclinations, research yield, and talent dispersion globally. The Global AI



Index gathered and analyzed data from diverse sources such as scholarly publications, patent applications, investment analyses, and talent databases. It provided invaluable benchmarks and metrics for gauging the advancement and competitiveness of nations in AI. The index enabled informed decision-making for policymakers, enterprises, and researchers by underscoring emerging trends, pinpointing areas of strength and vulnerability, and guiding strategies for nurturing AI innovation and adoption. Moreover, the inauguration of the Global AI Index sparked international cooperation and knowledge exchange, cultivating a global discourse on AI evolution and endorsing best practices for exploiting the potential of AI for economic expansion, social advancement, and sustainable development.

September 2021 - United Nations AI for Good Summit

The summit encompassed a variety of themes, including the role of AI in healthcare, education, environmental preservation, and humanitarian assistance. There were also initiatives to enhance AI literacy, ethics, and responsible AI governance. The summit strived to encourage collaboration and knowledge exchange among a diverse array of stakeholders and advocate for a shared commitment to leveraging AI's power to benefit humanity. Besides discussing the positive contributions of AI, the summit also addressed concerns about its potential adverse impacts, such as job displacement, privacy breakings, and algorithmic bias. The participants examined strategies for mitigating these risks while maximizing the positive contributions of AI to society. In essence, the AI for Good Summit underscored the importance of international cooperation and multi-stakeholder engagement in shaping the future of AI. The summit stressed the need to foster equity, inclusivity, and sustainability in developing and deploying AI technologies.

November 2022 - Adoption of National AI Strategies

In November 2022, numerous nations globally instituted national AI strategies to exploit the potential of artificial intelligence (AI) for economic expansion, innovation, and societal progression. National AI strategies typically encompass investments in research and development, initiatives to foster AI education and workforce enhancement, policies to bolster AI adoption and innovation in pivotal industries, and measures to ensure ethical and responsible



AI governance. By embracing national AI strategies, countries aspire to emerge as leaders in AI innovation, propel economic competitiveness, and address societal necessities in healthcare, transportation, and environmental sustainability. Furthermore, these strategies stimulate collaboration among government, industry, academia, and civil society, facilitating the cultivation of a robust AI ecosystem that underpins innovation and propels sustainable growth. The adoption of national AI strategies signifies a substantial stride towards actualizing the potential of AI to revolutionize economies and enhance the quality of life for people globally.



Position of key nations

United States:

The United States is a global leader in AI and automation, wielding significant influence in shaping the revolution of these transformative technologies. With Silicon Valley as its nucleus, the U.S. boasts a rich ecosystem of tech giants, innovative startups, and world-renowned research institutions dedicated to advancing AI capabilities across diverse domains. From cutting-edge developments in machine learning and robotics to the deployment of AI-driven solutions in industries ranging from healthcare to finance, the U.S. continues to push the boundaries of what's possible. Moreover, the U.S. government plays a pivotal role in fostering AI innovation through strategic investments, supportive policies, and initiatives to cultivate talent and drive AI research and development forward. However, in the middle of this rapid advancement, the U.S. also struggles with pressing concerns surrounding job displacement, privacy implications, and the ethical use of AI, prompting ongoing dialogue and concerted challenges. At the same time, the US is controlling the huge potential of AI and automation for societal benefit.

China:

China is leading the global revolution of AI and automation with the help of its government's ambitious initiatives, substantial investment, and a thriving ecosystem of tech companies and research institutions. Their aim to become the world leader in AI by 2030 has resulted in significant progress in AI research, development, and deployment across various sectors. The rapid adoption of AI in China is reshaping industries and transforming society's functions, from AI-powered manufacturing and smart cities to facial recognition technology and autonomous vehicles. Chinese tech giants such as Alibaba, Tencent, and Baidu drive innovation in AI, while the government provides vital support through funding, infrastructure development, and policy frameworks conducive to AI growth. However, some challenges come with these advancements, including concerns about data privacy, algorithmic bias, and the ethical implications of AI



surveillance technologies. As China navigates the complexities of AI development, it seeks to balance technological progress with societal well-being, leveraging AI and automation to enhance productivity, drive economic growth, and address pressing social issues.

France:

France has solidified its position as a significant force in AI and automation thanks to the steadfast support of the government, top-tier academic institutions, and a flourishing startup ecosystem. With a distinct emphasis on fostering research and innovation in AI while ensuring ethical considerations and societal benefits, France's "French AI Strategy" initiative seeks to establish the country as a global frontrunner in AI research, development, and application by encouraging collaboration among academia, industry, and government agencies. Renowned research institutions like the National Institute for Research in Digital Science and Technology (INRIA) and the National Centre for Scientific Research (CNRS) are spearheading advancements in AI algorithms, machine learning, and robotics while leading universities provide specialized programs to educate the upcoming generation of AI specialists. France's vibrant startup landscape in cities like Paris and Lyon fuels innovation and entrepreneurship in AI-driven solutions across various sectors, including healthcare, finance, transportation, and agriculture. As France continues to invest heavily in AI research, talent cultivation, and infrastructure, it fortifies its role as a key influencer in shaping the future of work in the era of AI and automation, propelling economic growth, and promoting social advancement.

South Korea:

South Korea is accelerating AI research and development, creating new opportunities, and revolutionizing how people live and work through groundbreaking initiatives such as: the "Korean AI Grand Challenge." South Korea is actively developing cutting-edge robotic technologies for industrial and consumer applications. The government's "Digital New Deal" and "Green New Deal" initiatives prioritize AI and automation as crucial drivers of economic growth and sustainability, positioning South Korea as a true trailblazer in harnessing the transformative



potential of AI while ensuring inclusive and equitable progress. Despite challenges such as job displacement and ethical considerations, South Korea continues to work tirelessly to mitigate risks and maximize the benefits of AI and automation for its citizens and society, making it a shining example of progress and innovation worldwide.



Suggested solutions

To address the challenges posed by job displacement, policymakers, businesses, and educational institutions, it must take a comprehensive approach to the challenges of the fast-changing job market. This approach should include investing in education and training programs to provide workers with the skills necessary for emerging industries, facilitating the transition to new roles through retraining initiatives, and supporting displaced workers by providing unemployment benefits, job placement services, and financial assistance. In addition, promoting economic diversification, innovation, and entrepreneurship can help reduce the negative impacts of job displacement and promote inclusive growth in the digital economy.

Reskilling and retraining are essential for people to succeed in the evolving labor market brought on by automation and AI. The goal is to empower workers with the skills and knowledge needed to adapt to the changing industry demands. Reskilling involves learning new skills or acquiring additional training to transition into new roles or industries while retraining focuses on updating existing skills to remain relevant in evolving job markets. These enterprises are essential for reducing the negative impact of job displacement caused by automation and AI technologies, providing workers with opportunities for career advancement and economic stability. Effective reskilling and retraining programs offer a range of educational and training opportunities, including vocational education and training (VET), apprenticeship, online courses, and workplace-based learning experiences. These programs must be accessible, affordable, and change to the needs of diverse learners, ensuring that individuals of all backgrounds and skill levels have the opportunity to participate. By investing in reskilling and retraining initiatives, stakeholders can empower workers to thrive in the digital economy and build a more resilient workforce for the future.

A key strategy for navigating and assisting the changing labor market toward AI and automation is to invest in education and training. People must be given the tools necessary to succeed in this changing environment as new technologies change employment roles and change



areas. Government, corporations, and academic institutions need to work together to create. Investing in education and training is crucial for individuals to thrive in the changing job market due to AI and automation. Governments, businesses, and educational institutions must collaborate to create programs that address both present and future needs. Specialized training courses should also be created to satisfy the rising need for AI-related expertise. This might include boot camps, certificate programs, or technical classes that provide students with practical exposure to AI tools and technology. These courses should cover various subjects, including machine learning algorithms, data analysis methods, programming languages like Python, and the moral issues related to the creation and application of AI.

Overall, investment in education and training is a proactive strategy that empowers individuals to succeed in the job market driven by AI. We can create a more resilient and inclusive workforce by providing workers with the skills they need to adapt to technological change. This will help unlock the full potential of AI and automation for economic growth and societal progress.



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