

Opportunities For Women in Artificial Intelligence: Exploring the Impact of AI on Gender Diversity and Workforce Inclusion

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Abstract—Artificial Intelligence (AI) rapidly changes industries worldwide and creates new employment opportunities. This change provides an opportunity to include more women in the tech industry and address gender gaps in employment. This paper aims to explore how AI can facilitate the acquisition of new skills for women, with a focus on areas such as healthcare and technology. The paper explores how AI tools, such as remote working and flexible hours, help women to balance work and family life. Even so, issues remain such as bias in AI systems and a decrease in the number of women receiving technical training. The paper emphasizes the importance of obtaining support from businesses, schools, and policymakers to facilitate women's AI training and foster greater mentorship and leadership opportunities.

Index Terms—Artificial Intelligence, Women, Empowerment, Gender Equity

I. INTRODUCTION

AI provides women with remarkable job opportunities while also enabling them to strike a balance between work and private life. However, it also presents certain challenges. Automating routine tasks, AI-powered helpers like chatbots may help lessen workplace gender biases (Kohli, 2024). They inform people about new AI technologies related to professional training, access to better medical facilities, and more efficient management of their personal and professional lives (Mahalakshmi & Jayanthiladevi, 2024). Kaur (n.d.) mentions that AI helps decrease the gaps in economic development, the barriers to education, and the areas of decision-making. Then again, the insufficient number of women in the AI industry can lead to the development of biased products based on entrenched

stereotypes (Roopaei et al., 2021). The most pressing issues surround making sure that women in positions of power can create principles, policies, and laws that help fully maximize the impact of AI on women. This entails altering existing stereotypes and building a gender-balanced society, including targeting support and resources for women in AI (Kohli, 2024; Roopaei et al., 2021). Women's empowerment initiatives are being impacted by the incorporation of AI, although opinions on its potential benefits vary. Women are hesitant to enter the AI field and have different understanding levels of it. Effective utilization of AI to empower women necessitates the consideration of ethical concerns and inclusive policies.

II. OBJECTIVES

1. To Analyse the Role of AI in Workforce Inclusion
2. To Assess Gender Diversity in AI Fields
3. To Identify AI Applications Empowering Women
4. To Explore Challenges in AI Adoption for Women

A. Literature Review: Artificial Intelligence and Women's Empowerment Across Sectors

Literature Review: Women in Artificial Intelligence: Emerging Opportunities

Artificial Intelligence (AI) is a disruptive technology that brings great potential to fill the gaps of gender diversity and workforce inclusion challenges. Yet, this also raises challenges requiring policy solutions, technology progress, and education transformation.

Improving gender equity in AI looks to eliminate systemic biases and create diverse workplace cultures. Dagunduro et al. (2024) AI in Human Resources: A Practices Guide for Equitable Professional

Development the Practices: Strategies for Equitable Professional Development Pioneers: Using AI and Diversity Benchmarking Tools At the same time, Li (2024) emphasizes the importance of AI in creating fair hiring algorithms for women in IT, countering systemic inequalities through this technology. We need education to close the gender gap." Shankar (2024) discusses policies in the Indian IT sector that address racial and gender inequalities, while Lucietto and Peters (2025) advocate for the inclusion of humanities in AI education to promote inclusive practices and ethical behavior. Marzullo, a biologist from 2000, suggests that diversity frameworks can be developed through combining ethics, climate considerations, and reproductive health with broader themes. Gogebakan (2024) offers perspectives on workplace innovation through machine learning algorithms that anticipate STEM career prospects, highlighting the importance of inclusiveness. Chowdaiyah and Mathew (2024) propose policy reforms that would increase women's involvement in AI, big data, and cloud technologies by focusing on resource allocation to promote inclusive work environments. Furthermore, studies like those of Almugren et al. (2024) highlight the role of AI in helping women navigate work-life balance in conservative settings, as it can both facilitate and disturb productivity. In their research for Arun and Charumathi (2024), corporate disclosures about diversity, equity, and inclusion (DEI) are analyzed through unsupervised machine learning, providing an instance of how AI can aid organizations in raising transparency and accountability towards gender equality. Rickert and Weibel (2024) emphasize the significance of effective leadership in AI-driven workplaces to minimize potential biases. Safwan and Ahmad (2024) suggest conceptual approaches to address gender differences in the adoption of AI, emphasizing the need for inclusive technologies.

III. METHODOLOGY

In this study I used secondary data collection to Analyse the Role of AI in Workforce Inclusion, and to Assess Gender Diversity in AI Fields, Identify AI Applications Empowering Women, Explore Challenges in AI Adoption for Women

A. Women in Tech

The disclosure of social and environmental issues by companies with over 500 employees is required by a new EU law passed in 2014. The diversity reports that were published by numerous companies highlight the low representation of women in tech. Women constitute just 20% of the workforce in the US tech industry, as per 2020 statistics (Statista). Despite the implementation of countermeasures and support programs by tech companies like Twitter and Facebook, women are still leaving their tech careers behind (Facebook 2014; Brand 2018), as the number of women in technology is decreasing. However, (2006; Peck 2015; Trauth 2002). Evidence suggests that there is a problem with retention, as less than half of the women who start in tech industries remain in this field compared to 83% of men. Several scholars have sought to develop theories and frameworks that could explain why women are not represented in tech, as noted by Panko (2008) and Trauth (2017). Several studies have investigated the obstacles faced by women in diverse industries (e.g, Allen et al 2006, Armstrong & Co.). Trauth et al, 2018; and more information about the study.? There exist several reasons for the significant increase in women's employment in tech industries, including gender discrimination, hostile surroundings, and the glass ceiling effect (Hewlett 2014). Obstacles and barriers hinder women's involvement in exploring and utilizing digital innovation potentials, while also shaping the overall environment within tech industries (Trauth 2017), which has significant implications for the creation of value offerings. 2017). Liberal feminist theories and social feminist theory differ in their explanations of the factors contributing to low female-dominated positions in technology. Greene and Brush (2000) argue that liberal feminist theory asserts the equal status of women in society, including economic equality. This study investigates how the adoption of AI-driven innovation advances workforce inclusivity, particularly in technology fields.' This paper accentuates the power of AI in breaking down gender barriers and increasing access to digital tools and sophisticated analytics for women. The field of AI and energy has been characterized by inequality, diversity, and inclusion, with the apparent inadequacy of diversity being a major issue. A recent study by AI Now [9] revealed that only 15% of AI researchers at Facebook and Google are female, while the remaining 10% are male. The proportion of Black employees

working in AI companies like Facebook, Google and Microsoft is less than 5% when they are white. According to the study, the absence of diversity in academia could have a more detrimental effect on the advancement of AI as primarily business or discipline. The percentage of women among U.S. university students studying computer science decreased from 37% in 1984 to 18% in 2015. [10]. Systemic and structural issues of lack of diversity are also present in the energy sector, just as they are in other areas. A study conducted by Equalby30 indicates that women constitute only 23% of the energy workforce worldwide. In the energy sector, 18% of women held management positions. Ethnic minorities make up 22% of the global energy sector workforce, as per a recent survey conducted by Diversio. Also, in the energy sector non-white representation is below 10% of professionals at professional level [11].

AI in Workforce Automation: Approximately 40% of workplace tasks could be automated using AI technologies. This represents tasks within jobs rather than replacing entire roles. This automation facilitates workforce inclusion by enabling equitable task distribution and reducing bias.

New job opportunities are expected to be created and jobs will be replaced by AI? AI could potentially impact around 300 million jobs worldwide, with technologies influencing how traditionally marginalized sectors are perceived. AI technologies have a significant impact on workforce diversity and employee skills by automating repetitive tasks, which can enhance productivity and diversity. The use of AI in the workplace is increasing and significant, but specific metrics for inclusion-based applications require more targeted research. The use of these technologies is promoting diversity by automating recruitment, training programs, and inclusive practices, which are helping to close gender and skill gaps.

AI Applications Empowering Women. Several industries are being revolutionized by artificial intelligence (AI), which provides cutting-edge tools to improve women's safety, education, and healthcare while also improving economic inclusion. The subsequent sections enumerate significant AI applications and their role in enhancing women's empowerment. Safecity and Circle of 6 are safety prediction tools that use artificial intelligence, which is used to map hazardous areas, forecast crime rates,

and send alerts in real time. It affects the mobility and safety of women, especially in urban areas where they are vulnerable.). Emergency Systems Tools, including bSafe, can use AI-enabled AI alerts to send voice-activated SOS alerts linked to trusted contacts or law enforcement.' Safecity has utilized crowd-sourced data to enhance public safety awareness, making it a case study. Coursera, Khan Academy, and Duolingo are examples of AI-powered personalized learning platforms that offer adaptive learning tailored to individual needs for education and skill development. It impacts on equipping women with digital and technical skills for employment.' AI Mentoring programs, such as Coach Hub and Together, utilize AI to connect women with mentors, which can enhance their career and professional advancement. Additionally, AI is utilized by Women-Centric Healthcare Solutions, including Clue and Flo Health to provide information on menstrual, pregnancy, and reproductive health. This allows women to make healthy choices and take control of their own lives. Arike AI and other AI-powered tools are monitoring maternal health in rural areas, utilizing predictive analytics to identify early complications. Women entrepreneurs can use AI to access funding and microfinance platforms, such as Kiva and Mythos, which analyze their credit histories and offer microloans. It leads to an enhanced access to financial resources for startups that are dominated by women. Women entrepreneurs use business analytics tools like QuickBooks AI to manage their finances and scale their businesses efficiently, which are powered by artificial intelligence. Textio and Pymetrics, two employment and workforce inclusion tools, employ AI-based tools to detect bias in job descriptions and recruitment processes. It involves promoting diversity in hiring practices, guaranteeing equal opportunities for women. The gender gap in high-tech jobs can be bridged by skill matching and upskilling platforms like LinkedIn Learning and Udemy AI, which offer personalized skill recommendations. Women farmers in rural economies can benefit from AI-powered agriculture solutions such as CropIn and FarmSense, which provide information on weather, crop health, and market prices, resulting in improved productivity and access to market opportunities. The analysis of gender data trends in Policy Advocacy and Legal Aid AI for Gender Adoption tools, such as AI4Good by UN Women, is conducted by the agency. Through its

evidence-based advocacy, it causes systemic change. The Conclusion AI applications designed for women tackle pressing issues and provide opportunities for empowerment in various fields.

With artificial Intelligence and other technologies, the healthcare system in India touches the many high skies. Now, in the infotech era, every male or female has equal access the healthcare facilities and medicines without any delay or hurdles. All are now under the legal and ethical framework as set by the Government of India from time to time by enacting legislations, policies and schemes for citizens including females. Everything is now on the doorsteps. They can track their menstrual cycle to reproductive system²⁰. Although there is a need of watch dog-based vigil surveillance system to control the misinformation and misuse of this healthcare system. It needs more research on this part with government fund and support.

AI opens up a world of opportunities for women in various aspects of life, providing them with tools and resources to overcome barriers and achieve their full potential. The flexible and affordable learning opportunities offered by AI can equip women with the necessary skills and knowledge to excel in their careers and take up leadership roles. In the healthcare sector, AI-driven solutions can bridge the gap in accessing quality healthcare, especially for women in remote or underserved regions, leading to early detection and timely treatment of health issues. AI's ability to identify trends in workplace gender inequality and wage disparities empowers employers to take concrete actions toward creating a more inclusive and diverse work environment. With the aid of AI-powered personal assistants, women can effectively manage their daily responsibilities, thereby achieving a better work-life balance. Moreover, AI-driven security and surveillance systems contribute to a safer environment for women, both at the workplace and in public spaces, ensuring their safety during commutes and interactions. Furthermore, AI can play a pivotal role in advocating for women's rights and gender equality, fostering social change and supporting women during crises and humanitarian situations. This research underscores the significance of women's empowerment in society and the transformative impact AI can have in furthering this cause. However, it is essential to approach AI deployment with a gender-sensitive lens, prioritizing

ethical considerations and ensuring that AI solutions do not perpetuate biases or discrimination. As we move forward, policymakers, organizations, and AI developers must collaborate in shaping AI technologies that genuinely empower women and contribute to a more inclusive and equitable society. By harnessing the power of AI while prioritizing the well-being and equality of women, we can create a brighter future where women are empowered to lead, innovate, and thrive in management and beyond. This research opens avenues for further exploration and implementation of AI-driven initiatives to enhance women's empowerment in management, paving the way for continued advancements in gender equality and work-life balance.

The view of health care in the United States is too expensive for what it offers. Businesses are always looking to try to control expenses and view healthcare spending as a large and growing expense. As healthcare spending grows in the public sector, it crowds out other governmental budget priorities. Previous studies have shown that healthcare in the United States can be more productive in both cost and better care (Berwick and Hackbarth 2012; Sahni et al. 2019). AI is probably part of the solution.

The improvement in US healthcare productivity can be manifested in several ways. Administrative costs make up approximately 25 percent of all US healthcare spending, with AI reducing the burden (Sahni et al. 2021). Improving the health of the patient by applying clinical knowledge is a second route. medical knowledge is so expensive that only 6 percent of what the average new physician learns in medical school today will be relevant.

Sweeney, J. (2017) Health informatics and nursing informatics are the two quickly expanding sciences within the health sector, which incorporate disciplines to manage health information. The American Nurses Association defines nursing informatics as a specialty that combines nursing, science computer science, and information science to manage and communicate data in nursing practice. This has improved care delivery, health outcomes, and patient education due to the technology boom. However, these fields also have clinical, managerial, and policy implications, both constructive and adverse. Ravi, et al., (2016) reveal that the role of data analytics in health informatics has grown rapidly in the last decade, leading to increased interest in machine learning-based analytical models.

Deep learning, based on artificial neural networks, is emerging as a powerful tool for machine learning, with applications in translational bioinformatics, medical imaging, pervasive sensing, medical informatics, and public health. The paper by Pramanik et al., in 2020 examines an HCI&A framework for big data, breaking into four segments: underlying technologies system applications, system evaluations, and emerging research areas. The development of HCI&A is visualized as three stages: HCI&A 1.0, HCI&A 2.0, and HCI&A 3.0. Besides, the study conducts a comprehensive bibliographic study on HCI&A. Bath, P. A. (2008) identified that health informatics refers to the use of information and communication technologies in healthcare, with special considerations for unique aspects of health and medicine. Ethical issues arise with personal health data. The e-health initiatives must be user-involving at all stages, that is design, development, implementation, and evaluation. Health informatics could contribute to the aging society and help reduce the digital and health divides. An evidence base will be required for further developments. Xu, J et al., (2021) Advancements in wireless technology are the driving force behind mobile applications, which will significantly alter daily life and healthcare. These applications can deliver better care, flexible communication, and real-time data for patients, physicians, insurers, and suppliers. The challenges with this include limited device capabilities, wireless networking issues, infrastructural limitations, security risks, and the lack of user trust in using mobile healthcare applications.

B. Challenges in AI Adoption for Women

- **Lack of Internet Access:** Many women, particularly in rural areas, lack internet connectivity and digital literacy, limiting their ability to access AI-enabled tools and services.
- **Device Accessibility:** The affordability of smartphones and computers remains a barrier for economically disadvantaged women.
- **Skill Gaps:** Limited digital literacy and technological knowledge prevent women from leveraging AI applications effectively
- **Algorithmic Bias:** AI models trained on biased datasets can perpetuate stereotypes and reinforce gender inequalities

- **Underrepresentation in AI Development:** The underrepresentation of women in AI research and development leads to tools and applications that may not fully address their needs.
- **Patriarchal Norms:** Societal expectations and gender roles often discourage women from pursuing careers in technology or engaging with digital tools
- **Safety Concerns:** Misuse of AI technologies, such as facial recognition, can exacerbate privacy and safety concerns for women.

C. Government initiatives and policies in India:

1. The Indian government has implemented several initiatives and policies to encourage the development of artificial intelligence (AI) within the country. These efforts aim to position India as a leading global hub for AI research and development while addressing key societal challenges. Here are some of the notable initiatives and policies: 1. **National AI Strategy:** The National AI Strategy is a comprehensive plan designed to establish India as a frontrunner in AI innovation and application. This strategy outlines long-term objectives and initiatives to promote AI research, development, and deployment across various sectors of the economy

2. **National Program on AI:** The National Program on AI focuses on harnessing AI technologies to address critical areas such as healthcare, agriculture, education, and infrastructure. By leveraging AI-driven solutions, the program aims to enhance efficiency, productivity, and outcomes in these sectors, ultimately contributing to socioeconomic development.

3. **Regulatory Frameworks:** The government is actively developing regulatory frameworks to govern the ethical use of AI and address concerns related to data privacy and security. These frameworks seek to establish guidelines and standards for the responsible deployment of AI technologies, ensuring transparency, accountability, and fairness in their implementation. Overall, these initiatives and policies are aimed at fostering innovation, driving economic growth, and ensuring the responsible deployment of AI technologies in India. By investing in AI research and development and promoting ethical practices, the government aims to harness the transformative potential of AI to address societal challenges and improve the quality of life for its citizens.

IV. CONCLUSIONS

The integration of Artificial Intelligence (AI) into various sectors has shown significant potential to address systemic gender inequalities and empower women. AI tools, tailored to enhance safety, education, healthcare, and employment opportunities, are paving the way for a more inclusive and equitable society. However, their adoption is fraught with challenges that need immediate and sustained attention. AI offers transformative opportunities to bridge gender gaps and empower women in diverse fields. It has shown its potential in creating safer environments, providing educational and skill development tools, and fostering economic inclusion. Yet, challenges such as societal biases, digital literacy gaps, and underrepresentation in AI development must be addressed to ensure equitable benefits. Government policies, corporate initiatives, and community efforts must work in tandem to overcome these barriers. Investments in infrastructure, affordable technologies, and inclusive AI research are crucial to realizing AI's full potential for women's empowerment. With a collaborative approach, AI can lead to a future where women actively participate, innovate, and thrive across all sectors. AI will revolutionize the workplace by streamlining processes, offering flexible working arrangements, and providing personalized support to employees, including - if not adequately managed - potential risks to existing biases in recruiting processes, by promoting fairer and more diverse hiring practices. Some of these approaches are: AI can offer flexible and affordable learning opportunities that promote women's empowerment and advancement in both the workplace and beyond; AI can help identify inequalities in the workplace and provide personalized analysis of performance metrics in the workplace; AI technologies can also assist women in finding work-life balance by personalizing household chores or suggest group chores based on shared chores (and time) amongst family members AI can help create social change and advocacy around women's rights and gender equality, this is especially vital in times of crisis and humanitarian contexts AI can enable women to access healthcare more effectively in various scenarios – particularly those living in remote or underprivileged areas to help ensure early detection and effective treatment of health issues. Women's ineligibility in AI and machine learning results in

lower-quality AI products. - The absence of women in the field can result in negative stereotypes, underrepresentation, and discrimination in other career fields

A. Findings:

Persistent Gender Disparities: Despite targeted companies and governments, women are still at a low disadvantage in technology or AI. Social biases, economic barriers, and systemic difficulties contribute to this underrepresentation.

Workforce Inclusion and AI's Impact on the Economy: By using AI, we can automate processes, eliminate discrimination in hiring, and customize skill development. Why? Despite efforts to retain them, women are facing challenges in keeping their jobs due to challenging work environments and limited career advancement opportunities.

AI's Role in Empowerment: Personal safety and mobility for women have been enhanced by the use of AI-powered safety apps and emergency systems. Women are being trained in digital and leadership competencies through AI-based personalized learning platforms and mentorship programs. AI has transformed women's healthcare by providing predictive tools for maternal and reproductive health insights. **Financial empowerment:** AI provides financial assistance to women entrepreneurs through business analytics and AI-powered funding platforms, facilitating their economic inclusion.

Challenges in Adoption: The digital divide, affordability of AI technologies, algorithmic discrimination, and a lack of gender-sensitive AI solutions are all major obstacles faced by women in the field. Why? In addition, fewer women are working with the AI research and development process.

Policy and Government Role: India's National AI Strategy and National Program on AI are examples of government initiatives that prioritize the use of AI in socio-economic development. Even so, it is necessary to implement policies that are more geared towards gender-specific issues.

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