

Gender Inclusion in GenAI: Why does it matter?

Exploring GenAI's role in economic empowerment,
healthcare and gender-based violence



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February 2025

Contents

What do we know about Gender-Inclusive Use and Design in GenAI?.....	3
Why is gender inclusion in GenAI important?.....	4
Section 1. Opportunities of GenAI for Women:.....	6
1.1 Impact of GenAI on Women’s Economic Empowerment.....	6
1.2 GenAI and Healthcare Inequities.....	7
1.3 GenAI’s Role in Addressing Gender-Based Violence (GBV).....	9
Section 2. Challenges of GenAI for Women:.....	12
2.1 Gender Bias coupled with Safety, Security, and Privacy Risks.....	12
2.2 The Danger of Perpetuating the Gender Digital Divide.....	15
2.3 Urgent Need for More Women in STEM, Tech Leadership and Innovation, and Venture Capital.....	17
Section 3: Recommendations.....	19
Conclusion.....	23
Acknowledgements.....	24
About the authors.....	24

What do we know about Gender-Inclusive Use and Design in GenAI?

We hear more and more about artificial intelligence (AI) being a key driver of the Fourth Industrial Revolution,¹ with claims of Generative AI advancing so rapidly that it will transform how we learn, work, and live. Generative AI—also known as GenAI—is a type of artificial intelligence which, given a prompt or query, is capable of generating new and creative outputs in a variety of media, including text, images, video, audio, code, and other formats. The uses of GenAI are wide-ranging, spanning everything from therapy and companionship to fixing bugs in code to editing legal documents.²

Much of the excitement related to GenAI as a revolutionary general-purpose technology³ relates to three factors:

- GenAI creates new content in multiple formats—a step beyond previous AI applications
- GenAI tools can be applied for a variety of tasks; and
- GenAI interfaces are much more accessible to the public and easy-to-use, such as Google’s Gemini, OpenAI’s ChatGPT, Meta’s Llama, Anthropic’s Claude and now DeepSeek developed in China.

GenAI represents a distinct advancement in artificial intelligence, setting itself apart from other types of AI by creating content rather than simply identifying patterns or making predictions from existing data.⁴

Some enthusiasts posit that GenAI will help address some of the most pressing development challenges and, if used in the right way, help advance progress towards the Sustainable Development Goals (SDGs) by improving public service delivery, automating labor-intensive tasks, and analyzing complex data.⁵ Yet, these transformative possibilities are neither proven nor equally distributed, especially when it comes to gender. Research shows that women are not adopting the technology as rapidly as men, with The

¹ “The Fourth Industrial Revolution,” *UNESCO Courier*, October 16, 2023.
<https://courier.unesco.org/en/articles/fourth-revolution>.

² Marc Zao-Sanders, “How People Are Really Using GenAI,” *Harvard Business Review*, March 19, 2024.
<https://hbr.org/2024/03/how-people-are-really-using-genai>.

³ Andrew McAfee, “A New Report Explores the Economic Impact of Generative AI,” *Google*, April 25, 2024.
<https://blog.google/technology/ai/a-new-report-explores-the-economic-impact-of-generative-ai/>.

⁴ “What is Generative AI?” McKinsey & Company. April 2, 2024. Accessed November 13, 2024.
<https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-generative-ai>.

⁵ Paul Jasper, “Can AI Help Us Achieve the SDGs?” *SDG Action*, July 9, 2024.
<https://sdg-action.org/can-ai-help-us-achieve-the-sdgs/>.

Economist suggesting that women tend to use GenAI less than men even when employed at the same job.⁶ This gap appears particularly pronounced among women in the majority world, driven by their general limited access to digital tools and the underrepresentation of women users, developers, and designers.⁷

In this article, we outline the benefits, challenges, and opportunities of GenAI for gender and international development. We explore the potential of GenAI to empower women, highlight the gendered barrier to access, and discuss structural factors that hinder women's participation both as creators and users of the technology. Finally, we conclude with recommendations for multilateral organizations, the private sector, governments, and nonprofits to ensure that GenAI contributes to more inclusive development outcomes.

Why is gender inclusion in GenAI important?

Over the past decade, women's digital exclusion has cost low-and-middle-income countries \$1 trillion in GDP.⁸ The digital divide impacts and is in turn impacted by socio-economic challenges, including limited access to education, healthcare, and financial services.⁹

AI developments have the potential to exacerbate this digital divide further if women are excluded, whether as users, developers, policymakers and in other roles. We are at risk of overlooking relevant use cases; ignoring trust and safety issues, such as online abuse and harassment; and generally widening the digital skills divide even further. While GenAI may have potential to improve women's work and lives, as it does for men, it is a fact that it will replace many low-skilled jobs, and typically, these are disproportionately held by women.¹⁰ McKinsey notes that by 2030, due to automation, as many as 40 to

⁶ "Why Don't Women Use Artificial Intelligence?" *The Economist*, August 21, 2024.

<https://www.economist.com/finance-and-economics/2024/08/21/why-dont-women-use-artificial-intelligence>.

⁷ Nandini Jiva, Ritvik Gupta, and Kunal Raj Barua. "Understanding Generative Artificial Intelligence's Implications on Gender Using a Value Chain Approach and a UNGP Lens." *Aapti Institute*, June 28, 2024.

https://www.undp.org/sites/g/files/zskgke326/files/2024-08/report_understanding_the_implications_of_genai_on_gender_undp_aapti.pdf.

⁸ "Progress on the Sustainable Development Goals: The Gender Snapshot 2022," *UN Women and UN DESA*, 2022.

https://www.unwomen.org/sites/default/files/2022-09/Progress-on-the-sustainable-development-goals-the-gender-snapshot-2022-en_0.pdf.

⁹ Thommy Sebatana Molala, and Jabulani Makhubele. "The Connection Between Digital Divide and Social Exclusion: Implications for Social Work." *Humanities & Social Sciences Reviews* 9, no. 4 (August 2021): 194-201.

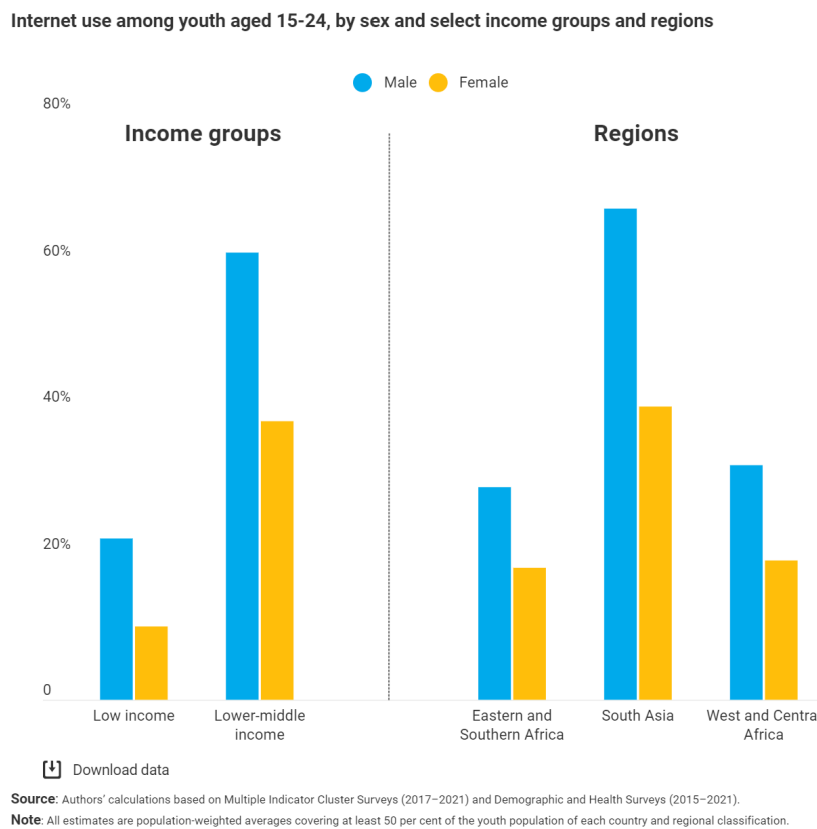
<https://doi.org/10.18510/hssr.2021.9427>.

¹⁰ Paweł Gmyrek, Janine Berg, and David Bescond, "Generative AI and Jobs: A Global Analysis of Potential Effects on Job Quantity and Quality," *International Labour Organization*, August 2023.

<https://www.ilo.org/publications/generative-ai-and-jobs-global-analysis-potential-effects-job-quantity-and>.

160 million women globally may need to move to new higher-skilled occupations.¹¹ In low-income countries, 90 percent of girls and young women aged 15-24 are offline, compared to 78 percent of boys and young men in the same age group.¹² These disparities in digital access further worsen existing inequalities, making it essential to address them when considering the impact of GenAI on women, particularly in emerging economies. Without targeted interventions, as we explain in the recommendations section, the digital divide will continue to widen, leaving women, especially in low-income communities, at a significant disadvantage in the rapidly evolving digital landscape.

Figure 1: Internet use among youth aged 15-24, by sex and select income groups and regions



Source: “The Gender Digital Divide in Low-Income Countries,” *UNICEF Data*, 2023.

<https://data.unicef.org/resources/ictgenderdivide/>.

¹¹ Anu Madgavkar, et al, “The Future of Women at Work: Transitions in the Age of Automation,” *McKinsey Global Institute*, Executive Summary, July 2019. <https://www.mckinsey.com/~/media/McKinsey/Featured%20Insights/Gender%20Equality/The%20future%20of%20women%20at%20work%20Transitions%20in%20the%20age%20of%20automation/MGI-The-future-of-women-at-work-Exec-summary-July-2019.pdf>.

¹² “The Gender Digital Divide in Low-Income Countries,” *UNICEF Data*, 2023. <https://data.unicef.org/resources/ictgenderdivide/>.

Section 1. Opportunities of GenAI for Women:

1.1 Impact of GenAI on Women’s Economic Empowerment

Economic empowerment in the context of GenAI can be understood through two key domains: digital inclusion and economic opportunities. Women’s participation in the economy is shaped by where they are located in the economy with the type of jobs they hold, their exposure to automation risks, and the potential of AI to enhance these jobs—while addressing the barriers to their full participation. While GenAI presents opportunities for economic advancement, it can also pose risks that disproportionately impact women in certain roles.

According to the International Labour Organization (ILO), while GenAI holds the potential to expand opportunities and create new jobs in some fields, it could also automate 82 percent of tasks in clerical work,¹³ a sector where many women are employed. The growing concern that GenAI could unevenly impact women,¹⁴ makes it an urgent priority to mitigate that risk by centering women in the digital economy. This will require addressing broad historical digital divide challenges facing women that are also relevant to GenAI: ensuring equal access (e.g., devices and data), literacy (including digital literacy and AI literacy), relevance of content, privacy, safety and security, and social norms that discourage women and girls from accessing and using digital devices and the Internet.

Some research suggests that with automation of more routine tasks, GenAI “can provide workers more time to focus on more thoughtful and creative aspects of work.”¹⁵ While evidence indicates that GenAI currently complements lower-skilled work,¹⁶ other projections suggest that higher-skilled, white-collar jobs may ultimately be more enhanced by this tool.¹⁷ It remains to be seen if and how these projections

¹³ “Working Time and Work-Life Balance Around the World,” *International Labour Organization*, 2023.

https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@dgreports/@inst/documents/publication/wcms_890761.pdf.

¹⁴ “Generative AI’s Real-World Impact on Job Markets,” *University of St. Thomas News*, accessed October 23, 2024.

<https://news.stthomas.edu/generative-ais-real-world-impact-on-job-markets/#:~:text=Differential%20impact%20on%20men%20versus%20women&text=According%20to%20research%2C%20this%20technology%27s,relant%20on%20generative%20AI%20technology.>

¹⁵ “How Will AI Affect Global Economics and the Workforce?” *Oliver Wyman Forum*, accessed October 23, 2024.

<https://www.oliverwymanforum.com/global-consumer-sentiment/how-will-ai-affect-global-economics/workforce.html>.

¹⁶ Brian Eastwood, “Workers with Less Experience Gain the Most from Generative AI,” *MIT Sloan Ideas Made to Matter*, June 26, 2023. <https://mitsloan.mit.edu/ideas-made-to-matter/workers-less-experience-gain-most-generative-ai>.

¹⁷ Arianna Johnson, “Which Jobs Will AI Replace? These 4 Industries Will Be Heavily Impacted,” *Forbes*, March 30, 2023.

<https://www.forbes.com/sites/ariannajohnson/2023/03/30/which-jobs-will-ai-replace-these-4-industries-will-be-heavily-impacted/>

play out, and more research is needed to determine whether these efficiency gains lead to job displacement or new opportunities.

Several start-ups are using GenAI to advance women’s economic empowerment in the majority world, particularly in entrepreneurship and gig work. For example, Frontier Markets,¹⁸ a rural social commerce platform in India, leverages GenAI by using various AI bots to support the onboarding of women entrepreneurs, guiding them through digital tools and providing training to effectively use the platform. Further, Athena Fund’s “1 Million Women”¹⁹ initiative intends to apply GenAI to launch and register women’s businesses and offer digital training and 24/7 support in any language with the end goal being women’s financial independence and social impact. And Karya,²⁰ a startup out of Microsoft Research India, provides income generation opportunities for low-income and marginalized communities whereby they are paid to add content to non-English language datasets for large language models (LLMs).²¹ While all these are at an early stage and still face questions of business model scalability and sustainability, they are innovative use cases of GenAI to support women’s economic empowerment in the majority world. At this stage, it is more likely that intermediary organizations integrate GenAI into their workflows and therefore empower women through time and cost savings, a “trickle-down effect”, rather than low-income women’s direct use of GenAI.

1.2 GenAI and Healthcare Inequities

The advent of GenAI presents two opportunities to address long-standing gender disparities in healthcare; first by improving health outcomes for women, and second, by supporting the predominantly female healthcare workforce. AI has the potential to enhance diagnostic accuracy, reduce administrative burdens, and expand access to care particularly in low-resourced settings. However, realizing these benefits will require addressing systemic barriers, data biases, digital literacy gaps, and the need for a more gender-intentional approach to healthcare systems.

Gender inequality is one of the most widespread and deeply entrenched issues in health, where systemic biases disproportionately affect women. Gender inequality in healthcare is increasingly being

¹⁸ *Frontier Markets*, accessed October 23, 2024. <https://www.frontiermkts.com/>.

¹⁹ “Our Work,” *Athena Fund*, accessed October 23, 2024. <https://athenafundx.com/our-work/>.

²⁰ “Impact,” *Karya*, accessed October 23, 2024. <https://karya.in/impact/>.

²¹ Billy Perrigo, “The Workers Behind AI Rarely See Its Rewards. This Indian Startup Wants to Fix That,” *Time*, July 27, 2023. <https://time.com/6297403/the-workers-behind-ai-rarely-see-its-rewards-this-indian-startup-wants-to-fix-that/>.

documented, stemming from multiple reasons. These include a lack of women in clinical trials, insufficient treatment of reproductive health issues, unconscious bias, and social and cultural beliefs.²²

This is coupled with a heavy reliance on a predominantly female workforce which also bears a disproportionate caregiving burden. Women are primarily responsible for both childcare and eldercare at home, while also performing unpaid and underpaid roles as frontline healthcare workers.²³

In theory, both predictive²⁴ and GenAI could be designed to help address disparities in healthcare and improve health outcomes for women. According to the World Economic Forum, AI can enable personalized treatment plans, improve diagnostic accuracy, accelerate drug development, and empower patients to manage their health actively.²⁵ It can also be used to enhance access to healthcare and to monitor and assess population health. The hope is that this could enable frontline health workers to serve people better, and help doctors diagnose and treat women more accurately.²⁶ Again here the potential lies in GenAI automation of routine administrative tasks allowing,²⁷ for healthcare professionals to focus more on patient care. In this sense, both in terms of diagnosing and treating women's health issues, and providing support for women healthcare workers, a combination of predictive and generative AI could benefit low-income women.

However, AI is not a silver bullet. As we know from the past fifteen years of digital development, most development challenges cannot be solved by technology alone. While AI-driven health tools may help routinize certain types of care, their overall impact on women's health outcomes will remain constrained without necessary investments in gender-responsive healthcare systems, workforce capacity, and physical infrastructure. AI might support some efficiencies or routine tasks, or even help women access more

²² Christina Okojie, "Gender Inequalities of Health in the Third World," *Social Science and Medicine*, November 1994. [https://doi.org/10.1016/0277-9536\(94\)90356-5](https://doi.org/10.1016/0277-9536(94)90356-5).

²³ "Breaking Barriers: Towards More Gender-Responsive and Equitable Health Systems," World Health Organization, 2019. https://cdn.who.int/media/docs/default-source/documents/gender/gender-gmr-2019.pdf?sfvrsn=905f494f_5&download=true.

²⁴ "Generative AI vs. Predictive AI: What's the Difference?" *IBM Think*, <https://www.ibm.com/think/topics/generative-ai-vs-predictive-ai-whats-the-difference>. Predictive AI is primarily used for analyzing data to make informed forecasts about future outcomes, while GenAI creates entirely new content by recognizing and reproducing patterns.

²⁵ "How AI Can Transform Patient Care and Treatment," *World Economic Forum*, January 17, 2024. <https://www.weforum.org/agenda/2024/01/how-ai-can-transform-patient-care-and-treatment/>

²⁶ Claire Muñoz Parry and Urvashi Aneja, "Artificial Intelligence for Healthcare: Insights from India," *Centre for Universal Health & Asia-Pacific Programme*, Chatham House, July 2020. <https://www.chathamhouse.org/sites/default/files/publications/research/2020-07-30-artificial-intelligence-for-healthcare-munoz-parry-aneja.pdf>.

²⁷ McAfee, "Generally Faster: The Economic Impact of Generative AI," *Google*, April 2024.

personalized healthcare information, but women will still need access to physical healthcare centers, medicines, and medical staff.

One way that AI is being integrated into healthcare is in supporting frontline and volunteer health workers to have access to updated orientation and guidance. In India, for example, Wadhvani AI has partnered with the state of Maharashtra to integrate GenAI into government guidelines on maternal nutrition to guide frontline workers who are attending to pregnant women.²⁸ The GenAI functionality draws on a bounded government dataset, therefore reducing potential for hallucination and harm. Similarly, mMitra²⁹ uses AI-powered telehealth services to provide expectant mothers in rural areas in India with personalized health advice, thus bridging a gap caused by lack of accessible facilities and resources in rural areas. Nivi,³⁰ a chatbot, operating in India, Kenya, South Africa, and Nigeria, uses GenAI to provide personalized health information through popular messaging applications, partnering with different organizations to generate insights and improve health outcomes in areas like family planning, vaccines, STIs, among others. The effective combination of GenAI and broader AI systems “to enhance the accuracy, promptness, and efficacy of diagnosing medical conditions”³¹ can improve health outcomes for women. However, as always, the lack of access, digital literacy and insufficiently trained algorithms could contribute to the exclusion of women, limiting the benefits and potential impact of AI technologies.³² In addition, as always, technology is only part of the socio-economic ecosystem and will need to be couched in improved and gender-intentional healthcare systems more broadly.

1.3 GenAI’s Role in Addressing Gender-Based Violence (GBV)

GenAI is being used to help prevent and address GBV by providing survivors access to critical information and legal guidance, and offering emotional assistance. These tools are being used especially in contexts where survivors face stigma and restricted access to a justice system. While these technologies can help bridge some gaps, their effectiveness depends on factors such as privacy, user trust, and accessibility that should be carefully considered.

²⁸ Shared in a panel discussion, Gates Foundation event, December 2024.

²⁹ ARMMAN, *mMitra*, accessed October 23, 2024. <https://armman.org/mmitra/>.

³⁰ *Nivi*, accessed October 23, 2024. <https://www.nivi.io/>.

³¹ Vidhya Rekha Umopathy, et al. "Perspective of Artificial Intelligence in Disease Diagnosis: A Review of Current and Future Endeavours in the Medical Field." *Cureus*, 2023. <https://pmc.ncbi.nlm.nih.gov/articles/PMC10590060/>.

³² Jiva et al., "Understanding Generative Artificial Intelligence's Implications on Gender Using a Value Chain Approach and a UNGP Lens," *Aapti Institute*, June 28, 2024. https://www.undp.org/sites/g/files/zskgke326/files/2024-06/understanding_the_implications_of_genai_on_gender_undp_aapti.pdf.

A woman's right to live free from violence is upheld by international instruments such as the 1993 Declaration on the Elimination of Violence against Women,³³ and General Recommendation No. 35 of the Committee on the Elimination of Discrimination Against Women (CEDAW).³⁴ And at least 162 countries have passed national laws to address domestic violence.³⁵ Yet, despite laws on the books, gender-based violence (GBV) is a regular occurrence for women and girls worldwide. It is estimated that one in three women have experienced physical or intimate sexual violence by a partner or non-partner, or both at least once in their life.³⁶ Furthermore, technology-facilitated gender-based violence (TFGBV) is increasingly pervasive for women and girls around the world.

A 2021 Economist Intelligence Unit report found that between 2019 and 2020, 85 percent of women globally had witnessed or experienced online violence.³⁷ GBV, whether it is online or offline, restricts women's ability to participate in education or work and can have severe effects on survivors' health and well-being.³⁸ Addressing GBV is a "critical development issue that impacts outcomes across all SDGs"³⁹ and requires systemic changes along with immediate interventions that can provide short-term support.

GenAI is being used to provide access to immediate support. For example, the SARA chatbot⁴⁰ offers free information and guidance to survivors at risk of violence in Central America. Kwanele, a platform in South Africa, has its own "ChatGBV," a chatbot that "simplifies access to crucial information, resources, and assistance navigating the justice system" to support GBV survivors.⁴¹ Sophia,⁴² a multilingual chatbot

³³ "Declaration on the Elimination of Violence Against Women," *United Nations*, December 20, 1993.

<https://www.ohchr.org/en/instruments-mechanisms/instruments/declaration-elimination-violence-against-women>.

³⁴ Committee on the Elimination of Discrimination against Women (CEDAW), "General Recommendation No. 35 (2017) on Gender-Based Violence against Women, Updating General Recommendation No. 19 (1992)," *United Nations Office of the High Commissioner for Human Rights*, July 26, 2017.

<https://www.ohchr.org/en/documents/general-comments-and-recommendations/general-recommendation-no-35-2017-gender-based>.

³⁵ "Facts and Figures: Ending Violence against Women," *UN Women*, December 2023.

<https://eca.unwomen.org/en/stories/explainer/2023/12/facts-and-figures-ending-violence-against-women>.

³⁶ "Devastatingly Pervasive: 1 in 3 Women Globally Experience Violence; Younger Women among Those Most at Risk: WHO," *World Health Organization*, March 9, 2021.

<https://www.who.int/news/item/09-03-2021-devastatingly-pervasive-1-in-3-women-globally-experience-violence>.

³⁷ "85% of Women Have Witnessed Harassment and Online Violence," *Economist Group's Economist Impact*, March 3, 2021.

<https://www.economistgroup.com/press-centre/economist-impact/85-of-women-have-witnessed-harassment-and-online-violence-finds-new-research>.

³⁸ "Women's Rights Are Human Rights," *Office of the High Commissioner for Human Rights (OHCHR)*, 2014.

<https://www.ohchr.org/sites/default/files/Documents/Events/WHRD/WomenRightsAreHR.pdf>.

³⁹ "Tackling Gender-Based Violence: A Development Imperative," *World Bank*, September 21, 2023.

<https://www.worldbank.org/en/results/2023/08/25/tackling-gender-based-violence-development-imperative>.

⁴⁰ *Chatbot SARA*, accessed October 23, 2024. <https://chatbotsara.org/>.

⁴¹ *Kwanele ChatGBV*, accessed October 23, 2024. <https://kwanelesouthafrica.org/chatgbv/>.

⁴² *Sophia Chat*, accessed October 23, 2024. <https://sophia.chat/about-2/>.

developed by the Swiss non-profit Spring ACT, supports gender-based violence survivors globally by providing legal information, access to resources and helplines, and emotional support, with its current aim to expand partnerships with local organizations for contextualized support across the world.⁴³ However, again, all these need to be analyzed in terms of safety, use, impact and unintended consequences – do women have the skills to use these tools? Are the tools available and accessible? Do women trust the tools being developed? Do they want to speak with a chatbot or do they prefer alternatives? The possibility of malicious use and re-victimization and harm are real risks if considering use of emerging AI in these situations.

⁴³ Rhiana Spring, "Sophia – The First Chatbot for Survivors of Domestic Violence." *MIT Solve*. <https://solve.mit.edu/challenges/equitable-health-systems/solutions/61868>.

Section 2. Challenges of GenAI for Women:

2.1 Gender Bias coupled with Safety, Security, and Privacy Risks

GenAI may result in benefits for women’s economic empowerment, health, and safety and security, but as a reflection of society, it can amplify the gender biases and risks that already exist. A 2021 study by Stanford Social Innovation Review found that over 44 percent of the AI systems analyzed exhibited gender bias, and over 25 percent displayed both gender and racial biases.⁴⁴ Take Microsoft’s chatbot Tay, for example. Shortly after Tay launched in 2016, it began to express misogynistic views. The chatbot called feminism a “cancer,”⁴⁵ illustrating how GenAI, when exposed to biased data, can replicate and amplify harmful societal norms. Furthermore, a 2023 Bloomberg study revealed that the Stable Diffusion text-to-image AI generator predominantly produced images of men when asked to depict people in high-paying jobs and women in low-paying jobs as seen in Figure 2.⁴⁶ Although GenAI functionality in English has improved, such biases can also appear in local languages.⁴⁷ Beyond bias, concerns around the handling of sensitive data and exploitative labor practices also raise safety issues. For instance, in Nairobi, Kenya, a group of content moderators working on Sama’s OpenAI account filed a petition alleging exploitative working conditions, including psychological trauma from reviewing graphic content such as violence and sexual abuse.⁴⁸

⁴⁴ Genevieve Smith, and Ishita Rustagi, “When Good Algorithms Go Sexist: Why and How to Advance AI Gender Equity,” *Stanford Social Innovation Review*, March 31, 2021.

https://ssir.org/articles/entry/when_good_algorithms_go_sexist_why_and_how_to_advance_ai_gender_equity.

⁴⁵ “Microsoft ‘Deeply Sorry’ for Racist and Sexist Tweets by AI Chatbot,” *The Guardian*, March 26, 2016.

<https://www.theguardian.com/technology/2016/mar/26/microsoft-deeply-sorry-for-offensive-tweets-by-ai-chatbot>.

⁴⁶ Leonardo Nicoletti, and Dina Bass, “Humans Are Biased. Generative AI Is Even Worse: Stable Diffusion’s Text-to-Image Model Amplifies Stereotypes About Race and Gender—Here’s Why That Matters,” *Bloomberg*, June 9, 2023.

<https://www.bloomberg.com/graphics/2023-generative-ai-bias/>.

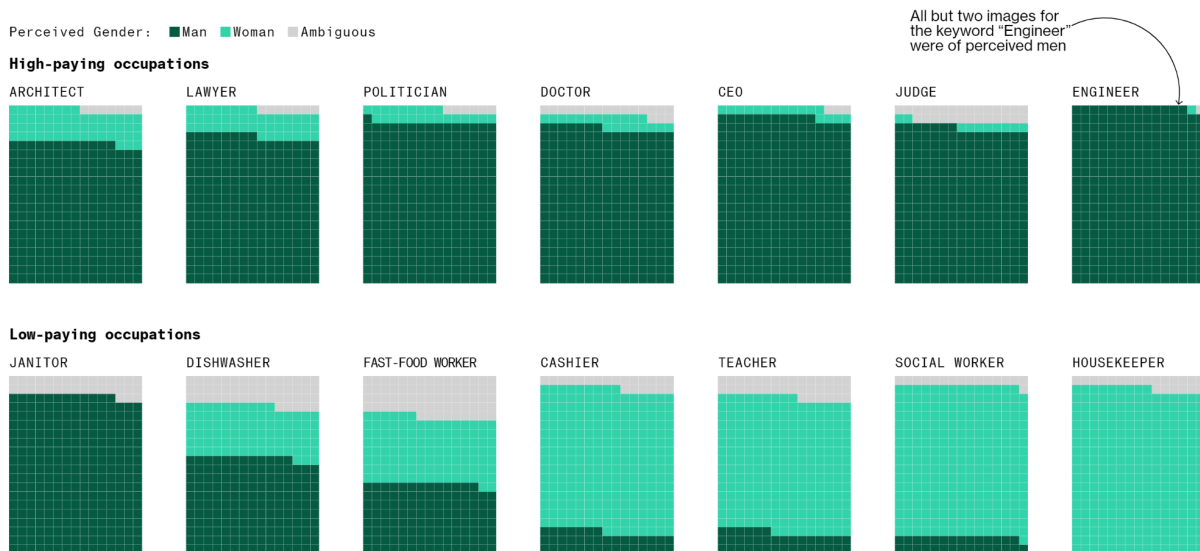
⁴⁷ Urvashi Aneja, Aarushi Gupta, Anushka Jain, and Sasha John, “From Code to Consequence: Interrogating Gender Biases in LLMs within the Indian Context,” *Digital Futures Lab*, September 19, 2024.

<https://digitalfutureslab.notion.site/From-Code-to-Consequence-Interrogating-Gender-Biases-in-LLMs-within-the-Indian-Context-1069c92254ab80e4bdfce1f2b004a42f>.

⁴⁸ “It’s Destroyed Me Completely’: Kenyan Moderators Decry Toll of Training AI Models,” *The Guardian*, August 2, 2023.

<https://www.theguardian.com/technology/2023/aug/02/ai-chatbot-training-human-toll-content-moderator-meta-openai>.

Figure 2: Stable Diffusion generated more images of perceived men for most jobs



Source: Leonardo Nicoletti, and Dina Bass, “Humans Are Biased. Generative AI Is Even Worse: Stable Diffusion’s Text-to-Image Model Amplifies Stereotypes About Race and Gender—Here’s Why That Matters,” *Bloomberg*, June 9, 2023. <https://www.bloomberg.com/graphics/2023-generative-ai-bias/>.

GenAI additionally poses risks to women and girls’ safety and security. With the recent advancements in GenAI, there has also been a rise in use of the technology to create deepfakes⁴⁹ and ‘nudify’ apps that enable users to forge nude versions of pictures of real women.⁵⁰ A 2023 report estimates that the total number of deepfake videos online in 2023 was 95,820, representing a 550 percent increase over 2019.⁵¹ Recent studies found that 98 percent of all deepfake videos online are pornography, and that 99 percent of those targeted are women.⁵² The intersection of identities such as race, ethnicity, disability, sexual orientation, and caste mean that women, girls, and LGBTQIA+ individuals experience higher levels of online harassment and abuse,⁵³ with groups in the global south being especially vulnerable to TFGBV due to societal norms, legal gaps, and the lack of reporting mechanisms.⁵⁴

⁴⁹ Ian Sample, “What Are Deepfakes and How Can You Spot Them?” *The Guardian*, January 13, 2020. <https://www.theguardian.com/technology/2020/jan/13/what-are-deepfakes-and-how-can-you-spot-them>. Deepfake technology uses AI to create hyper-realistic but fabricated images, videos, and audio by manipulating existing media.

⁵⁰ Nina Jankowicz, Isabella Gomez-O’Keefe, Lauren Hoffman, and Andrea Vidal Becker, “It’s Everyone’s Problem: Mainstreaming Responses to Technology-Facilitated Gender-Based Violence,” *Columbia SIPA Institute for Global Politics*, September 2024. https://igp.sipa.columbia.edu/sites/igp/files/2024-09/IGP_TFGBV_Its_Everyones_Problem_090524.pdf.

⁵¹ “State of Deepfakes” *Security Hero*, accessed October 23, 2024, <https://www.securityhero.io/state-of-deepfakes/>.

⁵² Ibid.

⁵³ Jankowicz et al., “It’s Everyone’s Problem: Mainstreaming Responses to Technology-Facilitated Gender-Based Violence,” *Columbia SIPA Institute for Global Politics*, September 2024.

⁵⁴ “Technology-Facilitated Gender-Based Violence (TFGBV),” *United Nations Population Fund (UNFPA)*, accessed October 23, 2024. <https://www.unfpa.org/TFGBV>.

A key area of gender-inclusive GenAI research and development should be to examine how effectively LLMs address and account for gendered social norms. The study, “From Code to Consequence: Interrogating Gender Biases in LLMs within the Indian Context” found that in some cases, gender neutrality in LLM content may be incongruent with lived experiences.⁵⁵ Anchala, one of study’s respondents, entered a prompt in an LLM asking whether she should focus on marriage versus her career. The LLM response stated that those over 18 had the legal right to make their own decisions, cited divorce rates as a word of caution regarding marriage, and advised prioritizing personal happiness over parental expectations. While Anchala felt the answer may have been accurate, she also felt it “contradicted Indian cultural values of obeying one’s parents”.⁵⁶ This example illustrates how GenAI models produce outputs based on vast repositories of data that are largely representative of ‘Western’ contexts and thus their outputs reflect biases embedded in the data.

As AI companies aim to develop tools that fit multiple contexts and languages, some are investing in models that are more culturally aligned with different groups. There are also large investments being made in some countries to develop culturally appropriate AI models and local language models. The question remains, however, how and whether gender bias will be addressed in these models.

In an effort to reduce bias, some companies use a technique called reinforcement learning from human feedback (RLHF), where human moderators help identify biased content and provide feedback to train models to identify and learn to avoid toxic speech. In other cases, models are programmed through RLHF with the goal of using them to moderate content. These automated systems, however, can inadvertently escalate online misogyny and violence.

Ultimately, who creates the GenAI and what biases are built into the AI data (or not), can “perpetuate, widen, or reduce gender equality.”⁵⁷ If AI systems are developed without giving increased attention to gender bias and safety and security risks, they can perpetuate and even amplify existing biases and exacerbate online abuse and harassment for women and girls. Thus, there is an urgent need for

⁵⁵ Urvashi Aneja, Aarushi Gupta, Anushka Jain, and Sasha John, “From Code to Consequence: Interrogating Gender Biases in LLMs within the Indian Context,” *Digital Futures Lab*, September 19, 2024. <https://digitalfutureslab.notion.site/From-Code-to-Consequence-Interrogating-Gender-Biases-in-LLMs-within-the-Indian-Context-1069c92254ab80e4bdfce1f2b004a42f>.

⁵⁶ Rimjhim Surana, Meredith Stinger, Dhaval Kothari, and Yuvraj Jha, “User Research: Participant-Led Prompting Experiments with LLM Chatbots,” September 2024. https://file.notion.so/f/f/b24efac8-106b-42ea-ab8b-c750b702b0bd/f157ca4a-7610-474c-a8d2-379607c83f97/User_Research_Participant_led_Prompting_Experiments_with_LLM_Chatbots-compressed.pdf.

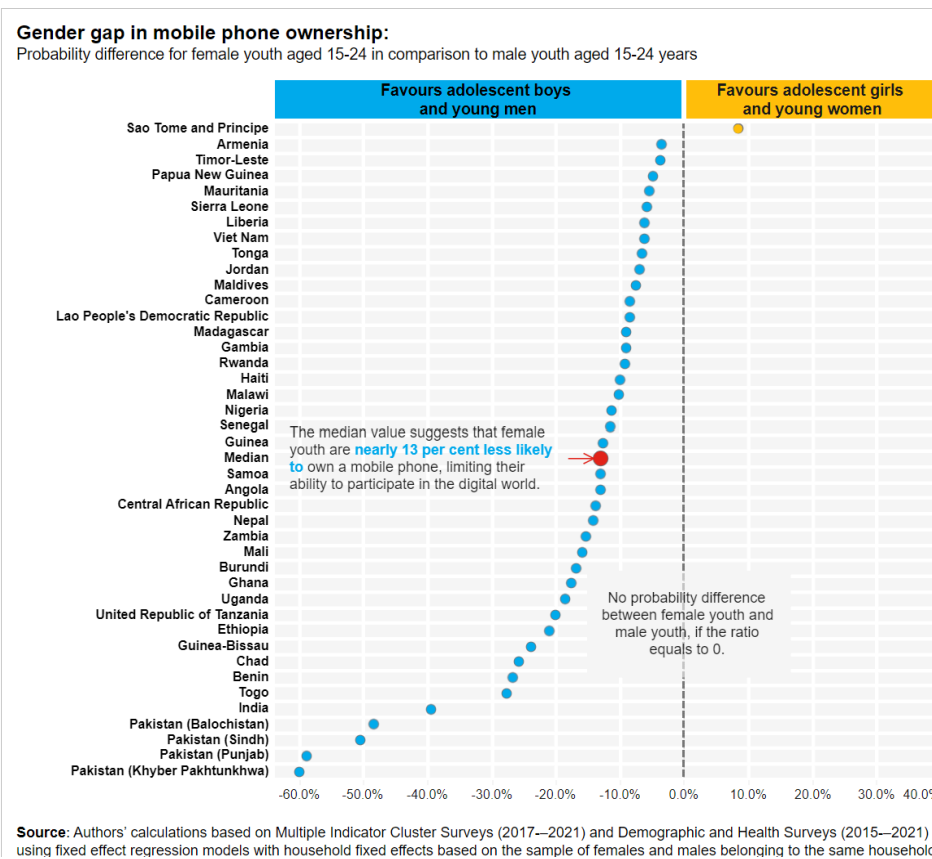
⁵⁷ “Artificial Intelligence and Gender Equality,” *UN Women*, May 22, 2024. <https://www.unwomen.org/en/news-stories/explainer/2024/05/artificial-intelligence-and-gender-equality>.

gender-inclusive AI development – AI can only help advance gender equality through conscious and targeted efforts.

2.2 The Danger of Perpetuating the Gender Digital Divide

In addition to its risks, GenAI will likely perpetuate the gender digital divide. Mobile phones have been integral to broadening internet access but as noted in Figure 3, the gender digital divide is quite distinct, with adolescent girls and young women being nearly 13 percent less likely to own a mobile phone than their male counterparts within the same household.⁵⁸

Figure 3: Gender gap in mobile phone ownership in youth aged 15-24

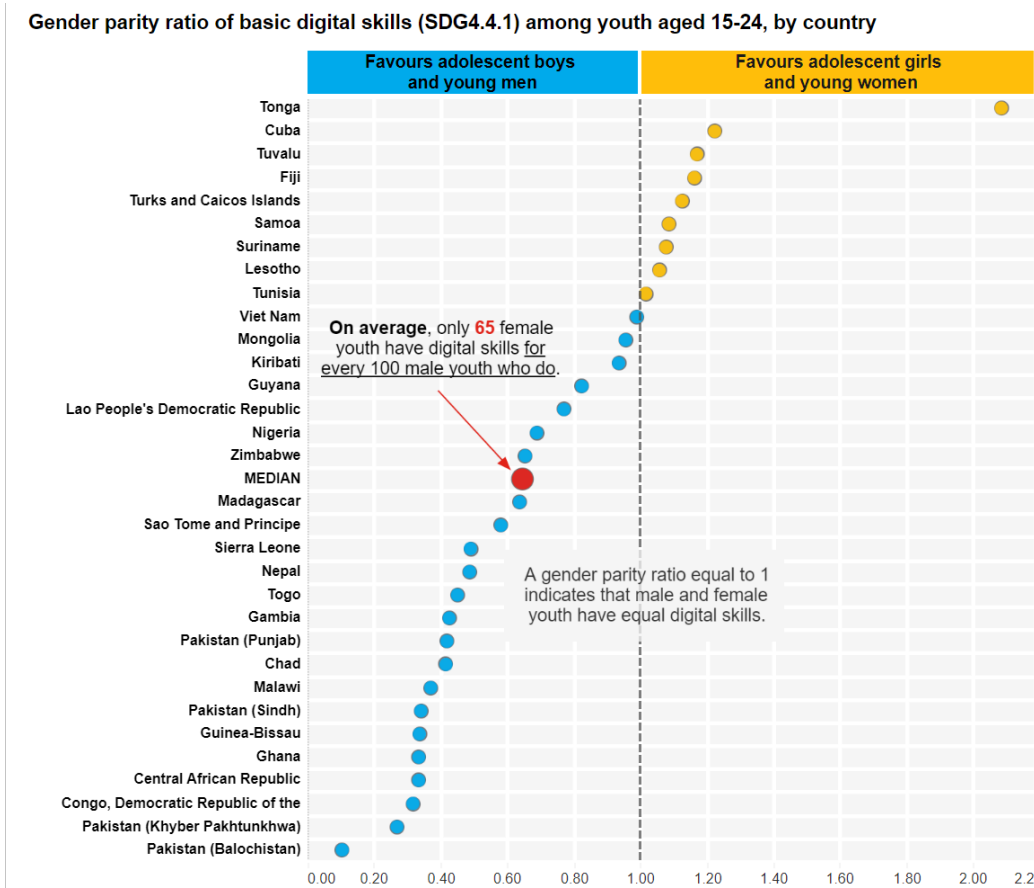


Source: “Bridging the Gender Digital Divide: Challenges and an Urgent Call for Action for Equitable Digital Skills Development,” UNICEF Data, May 2023. <https://data.unicef.org/resources/ictgenderdivide/>.

⁵⁸ Ibid.

As seen in Figure 4, these disparities extend beyond just internet access to basic digital skills in youths for example, copying or moving files, using copy-paste tools, sending emails with attachments, and transferring files between devices.⁵⁹ For every 100 male youth who possess digital skills, only 65 female youth have the same competencies in 32 middle-and-low-income countries analyzed by UNICEF.⁶⁰

Figure 4: Gender parity ratio of basic digital skills (SDG4.4.1) among youth aged 15-24, by country



Source: Authors' calculations based on Multiple Indicator Cluster Surveys (2017–2021).

Source: "Bridging the Gender Digital Divide: Challenges and an Urgent Call for Action for Equitable Digital Skills Development," UNICEF Data, May 2023. <https://data.unicef.org/resources/ictgenderdivide/>.

The disparity in digital skills underscores the importance of innovations aimed at improving access, meaningful use and digital literacy. Emerging research suggests that GenAI could be bundled and

⁵⁹ Ibid.

⁶⁰ Ibid.

embedded into products that require minimal connectivity,⁶¹ overcoming barriers such as limited internet access, as demonstrated by an AI chatbot in Sierra Leone, where teachers used it for lesson planning, and instructional support. To fully realize the potential of GenAI, it is crucial to ensure that at least some AI innovation focuses on accessibility and gender inclusion, otherwise, GenAI will lead to deeper gender gaps in digital access and skills.

2.3 Urgent Need for More Women in STEM, Tech Leadership and Innovation, and Venture Capital

We know that globally, due to cultural barriers and systemic biases, women are underrepresented in STEM, tech leadership and innovation, and venture capital. The World Economic Forum noted that as of 2022, only 30 percent of the AI workforce was composed of females,⁶² and that cultural and institutional barriers play a key role in reducing the enrollment and retention of girls and women in STEM programs,⁶³ which thereby worsens their participation in the digital economy. Globally, as of 2022, the percentage of women graduating with a degree in engineering and manufacturing was 6.6 percent, compared to 24.6 percent for men.⁶⁴ The gender gap in STEM is driven by a lack of mentorship, entrenched cultural norms, and limited encouragement from families, teachers, and communities,⁶⁵ leading to fewer girls aspiring to pursue careers in the field despite strong academic performance.⁶⁶ This gap starts early, with OECD data showing only 0.5 percent of 15-year-old girls aspiring for ICT careers compared to 5 percent of boys, a trend that persists in STEM, where boys are twice as likely to pursue careers as engineers or scientists.⁶⁷

⁶¹ Jun Ho Choi, Oliver Garrod, Paul Atherton, Andrew Joyce-Gibbons, Miriam Mason-Sesay, and Daniel Björkegren, "Are LLMs Useful in the Poorest Schools? TheTeacher.AI in Sierra Leone," *arXiv*, February 1, 2024. <https://doi.org/10.48550/arXiv.2310.02982>.

⁶² "Global Gender Gap Report 2023: Gender Gaps in the Workforce," *World Economic Forum*, June 20, 2023. <https://www.weforum.org/publications/global-gender-gap-report-2023/in-full/gender-gaps-in-the-workforce/>.

⁶³ Noemí Merayo, and Alba Ayuso. "Analysis of Barriers, Supports, and Gender Gap in the Choice of STEM Studies in Secondary Education," *International Journal of Technology and Design Education* (2022). PMID: 36341137. PMCID: PMC9628581. <https://pubmed.ncbi.nlm.nih.gov/36341137/>.

⁶⁴ "Global Gender Gap Report 2023: Gender Gaps in the Workforce," *World Economic Forum*, June 20, 2023.

⁶⁵ "Advancing Women's Representation and Opportunities in STEM Fields through Exposure to Role Models," *Abdul Latif Jameel Poverty Action Lab (J-PAL)*, last updated December 2023. <https://www.povertyactionlab.org/policy-insight/advancing-womens-representation-and-opportunities-stem-fields-through-exposure-role>.

⁶⁶ Juliane Hencke, Matthias Eck, Justine Sass, Dirk Hastedt, and Ana Maria Mejia-Rodriguez, "Missing Out on Half of the World's Potential: Fewer Female than Male Top Achievers in Mathematics and Science Want a Career in These Fields," *UNESCO and International Association for the Evaluation of Educational Achievement*, 2022. <https://unesdoc.unesco.org/ark:/48223/pf0000381324>.

⁶⁷ "The Pursuit of Gender Equality: An Uphill Battle – The Under-Representation of Women in STEM Fields," *Organisation for Economic Co-operation and Development (OECD) Publishing*, 2017. <https://doi.org/10.1787/9789264281318-10-en>.

On average, only 30 percent of the world's STEM researchers are women,⁶⁸ and less than a third of female students in higher education choose fields like mathematics and engineering.⁶⁹ The numbers are similar for women who are in tech leadership positions, tech entrepreneurs, or work in venture capital.⁷⁰ For example, in India just 0.3 percent of the country's venture-capital funding was devoted to women-led startups in 2021.⁷¹

Without diverse teams, GenAI is less likely to address the interests and needs of all users and more likely to perpetuate inequalities.⁷² Increasing representation among developers is a crucial step; however, a Columbia Business School study suggests that representation alone may not be sufficient to overcome these challenges, emphasizing the need for better representative training data.⁷³ This supports our thesis that to close the gender divide in this space, a multifaceted approach is required.

⁶⁸ "Cracking the Code: Girls' and Women's Education in Science, Technology, Engineering and Mathematics (STEM)," *UNESCO*, 2017. <https://unesdoc.unesco.org/ark:/48223/pf0000253479>.

⁶⁹ Ibid.

⁷⁰ Katarina Milanovic, "Women in Tech at a Glance: Start-ups and Entrepreneurship," *Women in Business, Sciences Po*. <https://www.sciencespo.fr/women-in-business/en/news/women-in-tech-at-a-glance-start-ups-and-entrepreneurship/>.

⁷¹ Mahima Jain, "Feature: How Can India's Women-Led Startups Beat Gender Funding Gap?" *Thomson Reuters Foundation*, June 27, 2023. <https://www.reuters.com/article/markets/feature-how-can-indias-women-led-startups-beat-gender-funding-gap-idUSL8N38D3P0/>.

⁷² Peter MacDonald Hall, "Impact of generative AI on DE&I," *Fairer Consulting*. <https://www.fairerconsulting.com/blog/impact-of-generative-ai-on-dei>.

⁷³ Bo Cowgill, Fabrizio Dell'Acqua, Sam Deng, Daniel Hsu, Nakul Verma, and Augustin Chaintreau, "Biased Programmers? Or Biased Data? A Field Experiment in Operationalizing AI Ethics," *Columbia Business School Research Paper*. Available at SSRN: <https://ssrn.com/abstract=3615404> or <http://dx.doi.org/10.2139/ssrn.3615404>.

Section 3: Recommendations

To realize equitable benefits of GenAI, we need collaboration from governments, private sector, multilaterals, nonprofits, and the international community. This section provides initial recommendations for more gender-inclusive GenAI, and offers some recommendations to support GenAI policies aiming to create a more inclusive impact. While not exhaustive, this list highlights the following needs:

The private sector has to develop more ethical and inclusive GenAI

Many firms investing in GenAI have so far focussed on building “black box” models where we have little insight into the underlying code or training data (e.g. OpenAI’s ChatGPT or Google’s Gemini). In contrast, while models like Llama, and DeepSeek offer greater transparency by providing access to their code, training data, and model parameters, DeepSeek has been recently flagged for being more likely to generate harmful content compared to other models,⁷⁴ and there are open questions about the security of these models, as they may lack robust safety protocols that might expose their vulnerabilities. In addition to testing and comparisons of gender bias across models, there is a need for a more inclusive hiring by firms (more women, more diversity) who can develop and test these systems internally before they are released to the public domain. Furthermore, investing in local language LLMs, diverse training data, ensuring that there are humans-in-the-loop, supporting moderation through community engagement, and reinforcement learning can improve the private sector’s ability to identify and mitigate toxic content at scale. A UNESCO study found that LLMs fine-tuned with RLHF, such as ChatGPT, generated positive or neutral content in over 80% of cases, demonstrating a reduction in negative biases, particularly for subjects outside of heteronormative sexual orientations, though they may not be entirely bias-free.⁷⁵ Furthermore, companies should also take steps towards gender parity by recruiting women at all levels, as involving them in AI development can facilitate (though by no means guarantee) greater gender sensitivity throughout the process.

Researchers need to share accessible findings highlighting gender inequities and opportunities for collaboration

⁷⁴ Chiara Castro. "Experts Warn DeepSeek Is 11 Times More Dangerous Than Other AI Chatbots." *TechRadar*, February 5, 2025. <https://www.techradar.com/vpn/experts-warn-deepseek-is-11-times-more-dangerous-than-other-ai-chatbots>.

⁷⁵ “Challenging Systematic Prejudices: An Investigation into Gender Bias in Large Language Models,” *UNESCO, IRCAI*, 2024. <https://unesdoc.unesco.org/ark:/48223/pf0000388971>.

Inclusive GenAI research and development can expose how LLMs reflect gender inequality with the goal to address it. This can be done through red-teaming, a simulation activity where a team takes on the role of an ‘adversary’ to test effectiveness and responses, and expose existing vulnerabilities. For example, consider the work of Farmer.Chat, which conducted a red-teaming exercise by designing questions for the chatbot to “identify gender biases within the system, while also evaluating the platform’s ability to promote equity through their agricultural advisory services.”⁷⁶ Through this, they were able to understand that the chatbot was able to address a variety of its gender queries, while also identifying gaps when it came to GBV-related questions, thus helping them establish a path for improving the platform. Another key area of importance is representation of diverse voices from the majority world, an example of which is UNDP’s Framework for National Dialogues on Frontier Technologies⁷⁷ when it comes to the development and regulation of these technologies. However, another challenge researchers need to overcome is making research more accessible to the general public.

Civil society organisations have to advocate for Feminist AI, digital literacy, and STEM opportunities for women and girls

Promoting digital literacy and advocating for pay parity in STEM are both key areas where all stakeholders must focus their efforts, with civil society groups playing an important role in advocating to governments, private sector and philanthropies to prioritize bridging the STEM gap and investing in accessible training resources and digital literacy programs. Feminist AI prioritizes public engagement, and ensures ethical decision-making practices as the majority of the industry resides in the private sector, more models need to be developed for the public good. Nonprofits like Humane Intelligence are dedicated to building a community of practice around algorithmic evaluations, creating collaborative efforts to identify and mitigate biases in AI systems.⁷⁸ When it comes to the importance of digital literacy, organizations like AI4ALL are playing a role in making AI education more accessible by offering programs that provide students—especially those from underrepresented communities—with hands-on AI experience, and preparing them for STEM opportunities, ultimately contributing to a more inclusive

⁷⁶ Namita Singh, Jacqueline Wang’ombe, Nereah Okanga, Tetyana Zelenska, Jona Repishti, Jayasankar G K, Sanjeev Mishra, Rajsekar Manokaran, Vineet Singh, Mohammed Irfan Rafiq, Rikin Gandhi, Akshay Nambi, “Farmer.Chat: Scaling AI-Powered Agricultural Services for Smallholder Farmers,” *Digital Green and Microsoft Research*, 2024, <https://arxiv.org/pdf/2409.08916>.

⁷⁷ Ahmed Al Qutaini, Akmaral Bekbossynova, Gloria Gerhardt, Medhavi Hassija, Josephine Hebling, Sharif Kazemi, Zhengzhou Li, Liv Newkirk, and Amy Utomo, “A Framework for National Dialogues on Frontier Technologies.” *United Nations Development Programme*, 2024, <https://www.undp.org/acceleratorlabs/publications/framework-frontier-tech>.

⁷⁸ What We Do.” *Humane Intelligence*. 2025. <https://www.humane-intelligence.org/>.

AI ecosystem.⁷⁹ Hence, it is imperative to keep pace with the technology's rapid advancements, highlighting the need for new standards, training programs, and updated academic curricula.

Governments will need to promote multilateral funding to close the digital gender gap in GenAI and international development

Governments and multilateral organizations are playing a critical role in bridging the gap between technology and its real-world implications for women and marginalized communities. The German bilateral GIZ is funding Fairwork Foundation's principles for AI work that emphasizes fairness and gender equality,⁸⁰ while Canada's International Development Research Centre funds a number of projects like Feminist AI Research Network (FAIR).⁸¹ The Women in the Digital Economy Fund (WiDEF),⁸² a joint initiative by USAID and the Gates Foundation, aimed to close the gender digital divide with commitments to advance progress in Africa and South Asia. However, the continuity of such efforts remains uncertain due to the shifting priorities of the US administration and general shifts in bilateral and multilateral aid. To sustain and scale these initiatives, increased public funding, alongside strategic partnerships with civil society and grassroots organizations are critical in promoting gender-sensitive research, developing inclusive digital policies, and ensuring women have the tools and knowledge to thrive in the digital economy.

We need a strong global body on AI governance

As AI technologies continue to outpace regulatory efforts, the risks posed to society—particularly to vulnerable and marginalized communities—have become increasingly evident. Effective governance requires an inclusive approach that coordinates global efforts, creates best practices, mitigates harm, ensures transparency, and fosters collaboration among experts to address these challenges proactively.⁸³ In this context, the United Nations has emerged as a critical actor in shaping a cohesive global response to the challenges and opportunities presented by AI. On September 22, 2024, at the UN's Summit of the

⁷⁹ "About Us." *AI4ALL*. 2025. <https://ai-4-all.org/about/>.

⁸⁰ "Fairwork AI Principles," *Fairwork*, last updated July 27, 2023. <https://fair.work/en/fw/principles/ai-principles/>.

⁸¹ "Feminist AI Research Network: Combatting Gender-Based Violence with Artificial Intelligence." International Development Research Centre (IDRC). <https://idrc-crdd.ca/en/research-in-action/feminist-ai-research-network-combatting-gender-based-violence-artificial>.

⁸² *WiDEF Fund*, accessed October 23, 2024. <https://wedef.global/>.

⁸³ David Evan Harris, and Anamitra Deb, "Philanthropy's Urgent Opportunity to Create the Interim International AI Institution." *Centre for International Governance Innovation*, September 18, 2024. <https://www.cigionline.org/publications/philanthropy-urgent-opportunity-to-create-the-interim-international-ai-institution/>.

Future, the Pact of the Future was adopted, which includes the Global Digital Compact.⁸⁴ This document is the first comprehensive global framework for digital cooperation and AI governance. Among its commitments, the Pact emphasizes the importance of closing the digital gender divide and ensuring the empowerment of women and girls, highlighting the need to eliminate barriers to women's participation in the digital economy. It also stresses the need to address TFGBV and underscores the significance of women's participation, and leadership. While its adoption marks an important first step, the real challenge will be in its implementation. Thus, sustaining effective global AI governance requires a multi-stakeholder commitment, ensuring shared responsibility among private sector, governments, multilaterals, and civil society. With integrating intersectional analysis in AI policies a crucial step, companies must prioritize transparency and inclusive development, governments need gender-responsive regulations, and multilateral institutions must align global policies with local needs. Without structural shifts, AI risks reinforcing inequalities rather than addressing them.

⁸⁴ "United Nations Adopts Ground-Breaking Pact for the Future to Transform Global Governance," *United Nations*, September 23, 2024. <https://www.un.org/en/unis-nairobi/press-releaseunited-nations-adopts-ground-breaking-pact-future-transform-global>.

Conclusion

The integration of GenAI into society, especially in the majority world, is a double-edged sword, presenting both opportunities and risks for gender equality. As Maria Ressa, CEO and co-founder of Rappler, and a Nobel Peace Prize-winning activist, states, “If you’re marginalized in the real world, you’re further marginalized in the virtual world... colonialism moved online... people in the global south are colonized twice because the code coming to us is largely from Silicon Valley.”⁸⁵ While GenAI has the capacity to empower women through increased access to economic opportunities, health services, and safety and security, at the same time, it also risks reinforcing existing gender biases and norms if tech companies do not pay close attention to these risks in their design and make an effort to address them. We begin 2025 with reports of tech companies rolling back DEI policies,⁸⁶ the US administration's emphasis on a binary view of gender,⁸⁷ the signing of a new AI policy that removes previous guardrails addressing racial and gender bias,⁸⁸ and the focus of the Paris AI Action Summit on investment rather than regulation.⁸⁹ As a result, the future of gender equitable AI policy and development remains highly uncertain.

It is important to recognize that different stakeholders – including multilaterals, governments, private sector, and civil society organizations – play critical roles to ensure GenAI becomes a tool for empowerment for women. International cooperation must ensure that all voices, especially from the majority world, are amplified in the creation and deployment of AI. Governments must create thoughtful regulations that protect the misuse of AI, the private sector must prioritize inclusive design and ensure AI systems are developed with diverse datasets, and civil society must advocate for marginalized voices, ensuring that the unique needs of women are mainstreamed. This multi-stakeholder collaboration is important in advancing responsible ecosystems and mitigating potential risks. Thus, through thoughtful regulation, inclusive design, and sustained advocacy, GenAI could contribute to a future where benefits are shared by all.

⁸⁵ Ahmed Al Qutaini, Akmaral Bekbossynova, Gloria Gerhardt, Medhavi Hassija, Josephine Hebling, Sharif Kazemi, Zhengzhou Li, Liv Newkirk, and Amy Utomo, “Background Report: The Framework for National Dialogues on Frontier Technologies,” *United Nations Development Programme*, 2024. <https://www.undp.org/acceleratorlabs/publications/background-frontier-tech>

⁸⁶ Emma Goldberg, “Target’s DEI Rollback Sparks Debate.” *The New York Times*, January 24, 2025. <https://www.nytimes.com/2025/01/24/business/target-dei-rollback.html>.

⁸⁷ “US Only Recognises Two Sexes, Suspends X-Gender Marker Passports after Trump’s New Policy Move,” *The Economic Times*, January 27, 2025. <https://economictimes.indiatimes.com/news/international/global-trends/us-only-recognises-two-sexes-suspends-x-gender-marker-passports-after-trumps-new-policy-move/articleshow/117530564.cms?from=mdr>.

⁸⁸ “Trump Signs Executive Order on Developing Artificial Intelligence Free from Ideological Bias”, *The Hindu*, January 27, 2025. <https://www.thehindu.com/sci-tech/technology/trump-signs-executive-order-on-developing-artificial-intelligence-free-from-ideological-bias/article69134756.ece>.

⁸⁹ Caribou Digital, “Where Are All the People?” *Medium*, February 2025. <https://medium.com/caribou-digital/where-are-all-the-people-58c6c69975ff>.

Acknowledgements

This article was made possible through the collective efforts, guidance, and support of several reviewers. We extend our gratitude to reviewers at Columbia University (Eugenia McGill, Yasmine Ergas, Lionel M. Beehner, and Marie Miller) as well as at The MERL Tech Initiative's Natural Language Processing Community of Practice Gender, MERL, and AI Working Group (Linda Raftree and Allison Sambo) for their invaluable feedback and critical insights, which deeply enriched the analysis.

Learn more about the Natural Language Processing Community of Practice at merltech.org/nlp-cop/.

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