FEMINIST ANALYSIS OF

AI AND EMERGING TECHNOLOGY

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ACRONYMS AND ABBREVIATIONS

AI	Artificial Intelligence
AR	Augmented Reality
AWS	Autonomous Weapons Systems
BIMS	Biometric Identity Management System
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CISO	Chief Information Security Officer
GenAI	Generative Artificial Intelligence
GNC	Gender Non-Conforming
ICT	Information and Communications Technology
ILO	International Labour Organization
ITU	International Telecommunication Union
LGBTQI+	Lesbian, Gay, Bisexual, Transgender, Queer, Intersex and other sexual orientations and gender identities
LMICs	Low- and Middle-Income Countries
NLP	Natural Language Processing
OECD	Organisation for Economic Co-operation and Development
PWDs	Persons with Disabilities
SCOPE	System for Cash Operations
SIDs	Small Island Developing States
STEM	Science, Technology, Engineering and Mathematics
TFGBV	Technology-Facilitated Gender-Based Violence
UN	United Nations
UNHCR	United Nations High Commissioner for Refugees
VR	Virtual Reality
WFP	World Food Programme
WHO	World Health Organization
WTO	World Trade Organization

EXECUTIVE SUMMARY

Artificial Intelligence (AI) and emerging technologies are rapidly reshaping the fabric of our economies, governance structures and societies. These innovations present unparalleled opportunities for economic growth, efficiency and global connectivity. However, without ethical governance, AI's rapid advancement risks reinforcing disparities, entrenching systemic biases and exacerbating socio-economic and geopolitical inequalities. As Canada prepares for the 2025 G7 Presidency, it should ensure that AI advances equity, human rights and sustainability.

This paper presents a feminist analysis of AI's impact, highlighting how governance, policy, and design choices can empower or marginalize communities. The analysis identifies six key areas requiring urgent attention:

1 Digital Inclusion and Access

Persistent digital divides, particularly in the Global South, exacerbates existing socio-economic disparities and limits opportunities for marginalized communities.

2 Bias in AI Systems

Algorithmic discrimination reinforces gender, racial, and socio-economic barriers-restricting equitable participation in digital economies.

3 Labour and Workforce Disruptions

AI-driven automation disproportionately impacts women, low-income workers and those in precarious employment.

4 Environmental and Economic Sustainability

AI's high resource demands fuel climate challenges and exploitative labour conditions, in vulnerable regions.

5 Technology-Facilitated Gender-Based Violence (TFGBV)

AI expands and perpetuates gender-based violence, targeting women and marginalized groups.

6 AI in Global Security

The militarization of AI, including autonomous weapons systems, raises ethical concerns about accountability and disproportionate harm.

To address these challenges, this paper recommends the G7, take action by:

- **Developing Robust AI Governance Frameworks** that align with international human rights standards and prioritize fairness, transparency and accountability.

- **Scaling Investments in Digital Equity** to bridge global gaps in technology access, digital literacy and STEM participation, particularly for underrepresented groups.

- **Strengthening Ethical Standards in AI Development** to mitigate systemic bias, ensure responsible data usage and safeguard against harmful deployment.

- **Regulating AI's Environmental Impact** through sustainable practices in infrastructure development, energy consumption and waste management.

- **Enforcing Platform Accountability** for AI-driven harms, ensuring stronger regulatory oversight to protect individuals from digital violence and exploitation.

- **Safeguarding AI in Security and Conflict Settings** by prohibiting the unchecked deployment of autonomous weapons and reinforcing human rights protections.

The G7 has a unique opportunity to set global standards for ethical and inclusive AI development and governance. By embedding feminist and intersectional perspectives into policy frameworks, the G7 can drive a just, sustainable and rights-based digital future.

EXECUTIVE SUMMARY

INTRODUCTION

This paper offers a feminist analysis of artificial intelligence (AI) and emerging technologies, examining their role in perpetuating discrimination, enabling technology-facilitated gender-based violence (TFGBV) and exacerbating global inequalities. It highlights the critical gaps in technology governance, emphasizing equitable solutions for marginalized communities, particularly in the Global South, as Canada assumes the 2025 G7 Presidency.

Building on past G7 commitments, such as the 2017 Taormina Summit's focus on bridging the gender digital divide and the 2023 Hiroshima Summit's emphasis on digital safety, the paper proposes actionable policies that align with feminist priorities. The objectives are threefold:

a. highlight the discriminatory impacts of AI and emerging technologies on women, gender-diverse individuals and marginalized groups;

b. expose the systemic barriers that hinder access to justice and representation;

c. propose feminist solutions that leverage technology to advance equality while mitigating harm.

By synthesizing global feminist analyses and G7 commitments, the paper explores algorithmic bias, the gendered impacts of automation and the weaponization of technology while identifying opportunities for AI to advance gender equality. Adopting an intersectional feminist approach and highlighting the unique challenges faced by the Global South, the paper produces actionable recommendations aimed to guide advocacy and structural reform within the G7 framework.

HISTORICAL BACKGROUND OF G7 COMMITMENTS TO GENDER EQUALITY IN TECHNOLOGY

The G7's engagement with gender and technology issues gained significant momentum following the 2018 Charlevoix Summit where leaders recognized that "gender equality is fundamental for the fulfillment of human rights and is a social and economic imperative."[1] The summit marked a pivotal shift toward addressing systemic barriers in technological advancement, acknowledging that technology could either amplify or help eliminate gender inequalities. The intersection of gender equality and technology has emerged as a critical focus area in G7 discussions and commitments over the past seven years. This comprehensive review examines how the G7's approach has evolved from basic digital skills advocacy to addressing complex challenges around algorithmic bias, digital rights and TFGBV.

2.1 KEY AREAS OF FOCUS

STEM EDUCATION AND THE DIGITAL DIVIDE

The G7's engagement with STEM and digital divide issues has evolved significantly since 2017, from basic digital inclusion initiatives to addressing systemic barriers and structural inequalities. The 2017 Taormina Summit marked a pivotal shift, acknowledging that "although girls and women today are better educated than ever before, they are still more likely to be employed in low-skilled and low-paying jobs."[2] This recognition led to more comprehensive approaches focusing on digital skills development, STEM education reform and addressing underlying cultural and institutional barriers.

Over the past seven years, the G7 has made strong rhetorical commitments to increasing women's participation in STEM and closing the digital divide, but implementation has faced challenges. Recent discussions have focused on integrating gender perspectives in technological governance, supporting women's leadership in emerging technologies and addressing algorithmic bias. However, a disconnect persists between high-level commitments and practical implementation. Data shows girls remain less likely than boys to pursue STEM careers across G7 countries, with the gender gap particularly pronounced

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1   G7 Charlevoix Summit Communiqué, (2018)
2   2017 G7 Taormina Leaders' Communiqué, 2017.

in ICT occupations.[3] Despite initiatives to revise curricula and invest in teacher training, structural barriers like gender stereotypes and lack of role models continue to hinder progress.

TECHNOLOGY-FACILITATED GENDER-BASED VIOLENCE (TFGBV)

TFGBV has emerged as a pressing issue within G7 discussions—TFGBV disproportionately affects women and marginalized groups. The G7 has recognized TFGBV as a barrier to gender equality in both digital and physical spaces.

Despite this acknowledgment, the G7's approach to TFGBV suffers from several shortcomings:

- Lack of Specificity: Commitments often lack detailed action plans or measurable goals.

- Limited Intersectionality: Policies rarely address how intersecting identities (e.g., race, socioeconomic status, disability) compound vulnerabilities.

- Inadequate Enforcement Mechanisms: Advocacy efforts are not matched by robust enforcement strategies.

- Exclusion of Survivor Voices: Survivors are seldom meaningfully involved in shaping policies

AI GOVERNANCE AND EMERGING TECHNOLOGIES

The G7's discussions on AI and gender have evolved significantly, with growing recognition of the digital gender divide and the need for inclusive technology governance. Recent summits, including Apulia (2024)[4] and Hiroshima (2023)[5], have explicitly linked AI to sustainable development goals (SDGs) and emphasized the importance of addressing gender disparities in digital access, literacy and participation. Commitments such as promoting women's leadership in STEM fields, closing digital divides (including the gender digital divide) and ensuring that AI systems are free from bias have been central to these discussions. For example, at the 2024 Apulia Summit, the G7 committed to leveraging AI for sustainable development by closing technological gaps and promoting safe, secure and inclusive practices.

The "AI Hub for Sustainable Development," announced under Italy's presidency in 2024, aims to foster partnerships with developing economies to ensure equitable benefits from AI advancements.[6] Similarly, initiatives like the G7 Dashboard on Gender Gaps[7] (launched in 2022) provide data-driven insights into gender inequalities across member states, supporting more informed decision-making.

The G7 has also highlighted the risks posed by Generative AI (GenAI) and other emerging technologies in perpetuating biases. These discussions highlight the importance of ethical AI governance frameworks that prioritize transparency, accountability and inclusivity. G7 has also mentioned certain efforts such as risk assessments for human rights impacts and calls for stringent regulation of surveillance technologies reflect a growing commitment to safeguarding against discriminatory outcomes.

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3   Promoting Gender Equality Through G7 Policy, 2023.
4   Apulia G7 Leaders' Communique, 2024.
5   G7 Hiroshima Summit Communique, 2023.
6   Ministry of Enterprises and Made in Italy (MiMIT) and United Nations Development Programme (UNDP), 2024.
7   G7 Dashboard on Gender Gaps, 2022.

2.2 PERSISTENT GAPS

Despite these advancements, critical gaps remain in the G7's approach to addressing gender equality within the context of emerging technologies.

1 Many commitments are framed as broad principles rather than actionable strategies. For instance, while the G7 has pledged to address algorithmic bias in AI systems, there is little detail on how this will be achieved or monitored. Similarly, commitments to close the digital gender divide often lack concrete timelines or funding mechanisms.

2 The G7's discussions frequently overlook how intersecting identities such as race, socioeconomic status, or disability compound discrimination in digital spaces. This narrow focus limits their ability to address systemic inequalities comprehensively.

3 Although the G7 acknowledges the importance of engaging diverse stakeholders including women's rights organizations and feminist groups such engagement remains inconsistent. The exclusion of marginalized voices weakens the relevance and effectiveness of its policies.

4 The absence of robust monitoring frameworks undermines efforts to track progress on commitments. While tools like the OECD's Dashboard on Gender Gaps provide valuable insights into disparities within member states, they do not fully capture the implementation or impact of G7 policies on emerging technologies outside G7 countries.

5 The G7's focus often skews toward advanced economies, neglecting the unique challenges faced by women in low- and middle-income countries (LMICs). For example, while initiatives like the "AI Hub for Sustainable Development" aim to address technological gaps globally, their scope remains limited compared to the scale of digital inequalities in low-income regions, especially in the Global South.

The G7 has made important strides in recognizing how emerging technologies like AI intersect with gender equality. However, its commitments over the past seven years have often lacked specificity and robust implementation strategies. To ensure that these technologies serve as tools for empowerment rather than exclusion, the G7 can adopt a more intersectional and globally inclusive approach while prioritizing actionable strategies backed by accountability mechanisms. Addressing these gaps can lead global efforts toward a more equitable digital future where technology benefits all members of society equally.

HISTORICAL BACKGROUND

FEMINIST ANALYSIS

Emerging technologies are transforming global systems, offering unprecedented opportunities while reinforcing systemic inequities. A feminist analysis critically examines how these technologies intersect with power structures, magnifying disparities across gender, race, class and geography. The following sections explore six interconnected areas, emphasizing the importance of intersectional and inclusive approaches to foster equitable outcomes.

1 **Digital Development Divide:** Demonstrates that the foundational inequities in digital access and literacy, particularly in the Global South limit women and marginalized groups' participation in the digital economy and access to technological benefits.

2 **Discriminatory Algorithms and Exclusionary Practices:** Explores how biases in AI systems perpetuate and reinforce societal inequities and systemic injustices.

3 **AI, Labour and the Future of Work:** Shows how labour markets are transforming, with the use of AI shaping how we do business, the Global North and Global South divide demonstrates the need for inclusive policies to ensure fair economic opportunities.

4 **Environmental and Economic Costs of AI:** Unsustainable practices in emerging technologies exacerbate environmental degradation and environmental racism, disproportionately impacting marginalized communities.

5 **TFGBV and AI:** Explores how technological tools have been used to harm women, LGBTQIA+ individuals and other marginalized groups, highlighting the urgent need for systemic accountability and survivor-centred solutions.

6 **AI, Peace and Security:** AI's application to conflict and peacebuilding settings requires ethical governance, transparency and equitable frameworks to prevent perpetuating harm.

This analysis underscores the urgent need for transformative policies that prioritize equity, sustainability and justice in the governance of emerging technologies. By addressing these challenges, technological advancements can serve as tools for inclusive and equitable progress.

3.1 THE DIGITAL DEVELOPMENT DIVIDE

The digital divide is one of the most significant challenges to achieving equitable development in today's digital age. While digitalization holds immense potential to drive transformative social and economic change, its benefits remain unevenly distributed. Women, particularly from marginalized communities, face systemic barriers restricting their access to and use of digital technologies. Globally, men are 21% more likely to have internet access and this gap widens to 52% in LMICs.[8]

8   International Telecommunication Union (ITU), 2023.

These inequalities stem from structural factors tied to gender, socioeconomic status, geography and intersecting forms of marginalization. Addressing the divide requires more than technological solutions—it demands dismantling the power structures that shape digital access and opportunities.

3.1.1 UNEQUAL ACCESS TO DIGITAL INFRASTRUCTURE

AI adoption in the Global South is hindered by systemic challenges, including low internet access, insufficient electricity and inadequate infrastructure, particularly in rural areas. Internet penetration rates remain lowest in Eastern Africa (26.7%), Middle Africa (32.1%), Western Africa (42.3%) and Southern Asia (51.5%).[9] In Africa, limited access to electricity and a lack of essential infrastructure, such as cell towers and fibre optic cables, further hinder connectivity.[10]

However, access alone is not enough- women in LMICs women in LMICs face additional barriers to digital inclusion. Only 66% of women in LMICs use mobile internet compared to 78% of men, with affordability being a key obstacle.[11] The largest gender gaps exist in Sub-Saharan Africa and South Asia, home to over 60% of the 785 million unconnected women.[12]

Even when connected, digital literacy gaps limit women's ability to fully engage with technology.[13] Research indicates that women face challenges in using mobile internet for tasks like accessing educational resources or applying for jobs. These gaps reinforce existing economic and social inequalities, limiting women's participation in the digital economy.

3.1.2 THE SKILLS GAP IN STEM

While the gender gap in access has improved, the "digital skills gap" persists, particularly in LMICs. Women often lack the digital literacy and techno-social skills required to compete in the global digital economy, limiting their participation in both economic and civic life. Cultural norms and stereotypes further discourage girls from pursuing STEM education, perpetuating underrepresentation.[14]

Missing Women in STEM Education

Globally, women account for just 35% of STEM graduates, with even lower representation in engineering (21%) and computer science (19%).[15] This disparity begins early, with cultural norms and stereotypes playing a significant role in discouraging girls from pursuing STEM education. From a young age, girls are often steered away from subjects like math and science due to perceptions that these fields are "masculine". This early discouragement, coupled with a lack of female role models and mentors in STEM, creates a foundation for ongoing gender disparities.

These educational inequities intersect with race, class, geography and disability, creating compounded challenges for marginalized groups. Structural barriers such as unequal access to resources and inadequate supportive policies further restrict participation in STEM education and, subsequently, in the digital economy. These early challenges set the stage for the workplace exclusion and discrimination that women face even after entering STEM fields.

9   University of Essex, 2024.

10   Okolo, C. T., 2023.

11   Ibid.

12   GSMA, 2024.

13   Ibid.

14   Wajcman, J. and Young, E. 2023.

15   Global Education Monitoring Report Team, 2024.

In LMICs, the underrepresentation of women in STEM is further exacerbated by limited access to quality education. In sub-Saharan Africa, only 47% of girls complete lower secondary education and this figure drops to 27% at the upper secondary level.[16] These disparities restrict women's opportunities in STEM careers, perpetuating cycles of inequality and exclusion from the digital economy. These early barriers to STEM education have long-term effects, shaping career trajectories and limiting women's representation in high-growth fields like AI, data science and cybersecurity, where the gender gap is even more pronounced. There is an opportunity to build on co-curricular initiatives to combat entrenched stereotypes.

3.1.3 PERSISTENT BARRIERS IN STEM WORKPLACES

Even among women in STEM fields, workplace exclusion remains a significant barrier. Gender discrimination and harassment persist, with 50% of women in STEM workplaces reporting bias.[17] In the UK tech industry, for example, 20% of women left previous jobs due to discrimination or harassment and 60% believe the problem was due to a shortage of diversity.[18]

These challenges are compounded by unequal promotion rates, wage gaps and underrepresentation in leadership roles. For example, women hold just 17% of ICT positions in Europe and globally, women hold only 23% of technical positions and 33% of leadership roles at leading tech companies. [19]

The absence of gender-sensitive policies, such as flexible work arrangements and parental leave, combined with weak labour protections and limited professional networks in LMICs, intensifies these challenges. The systemic exclusion of women from STEM fields reinforces broader inequities, limiting representation and innovation. Addressing these barriers requires targeted interventions, including mentorship programs, equitable workplace policies and accountability. The 2022 G7 Dashboard on Gender Gaps offers a valuable mechanism for monitoring disparities across member states. Expanding this tool to include digital equity indicators, with a focus on access and participation, could strengthen accountability and inform targeted interventions.

The Gendered Landscape of Cybersecurity

Cybersecurity exemplifies the systemic exclusion in STEM. Women, particularly those with intersecting marginalized identities, face wage disparities, slower promotion rates and underrepresentation in leadership. As of 2023, women held only 17% of Chief Information Security Officer (CISO) roles at Fortune 500 companies.[20] Beyond representation, the lack of gender diversity influences threat assessments, overlooking issues like TFGBV and privacy violations that disproportionately affect women.

- Wage disparities are not mere "gaps" but economic violence, with women of colour bearing the brunt of pay inequity. In the United States, male cybersecurity professionals earn an average salary of $148,035, compared to $141,066 for women in similar roles.[21]

16   Marie-Nelly, M. F., 2024.
17   Funk, C., & Parker, K., 2024.
18   IEEE, Making the workplace culture more welcoming to women in STEM, (n.d.).
19   European Institute for Gender Equality, 2024; World Economic Forum, July 2021.
20   Glassner, A, 2021.
21   Gregory, J., 2024.

- The 14% lower promotion rate for women despite higher performance ratings exposes the fallacy of merit-based advancement.[22]

- The scarcity of diverse leadership is not merely a "lack of role models" but a systematic exclusion of marginalized voices from positions of power.

The lack of gender diversity in cybersecurity extends beyond representation, influencing threat assessments and responses. Increasingly digital workspaces mirror and amplify offline inequities, creating a continuum of gendered harm.[23] Effective cybersecurity strategies can benefit from accounting for how traditional threats, such as attacks on critical infrastructure, disproportionately affect women. Moreover, addressing non-traditional threats like TFGBV, surveillance, privacy violations and misogynistic radicalization, which are often overlooked, could enhance protection for women and women's rights organizations that are particularly vulnerable. Considering these gendered aspects can contribute to strengthening overall national security, ensuring economic stability and preserving democratic participation in an increasingly digital world.

3.1.4 GENDERED IMPACTS IN STEM WORKPLACES AND BEYOND

The systemic exclusion of women and marginalized groups across STEM and digital fields limits representation and reinforces broader societal inequities. To address these challenges, systemic reforms are essential:

- **G7 STEM Equity Fund:** Establish resources for mentorship, co-curricular initiatives and scholarships to dismantle stereotypes and promote participation.

- **Inclusive Workplace Policies:** Foster public-private partnerships that incentivize equitable workplace practices.

- **Expanding Accountability Mechanisms:** Build on tools like the G7 Dashboard on Gender Gaps to include digital equity indicators, ensuring progress is measurable and targeted.

The G7's unique role in global governance provides a critical opportunity to address these systemic inequities. Building on commitments from the Taormina and Apulia Summits, the G7 can mobilize its policy tools and convening power to drive meaningful change. However, the biases embedded in algorithms and automated systems threaten to undermine these efforts. Understanding and addressing these discriminatory practices is critical to ensuring that technological advancements become tools for empowerment rather than perpetuating harm.

3.2 DISCRIMINATORY ALGORITHMS AND EXCLUSIONARY PRACTICES

Digitalization offers opportunities for growth, higher accessibility as well as technical advancement globally. The digital sphere, algorithms and automated decision-making systems are often portrayed as **neutral, objective and free from bias**. However, the algorithms and technologies which depend on them cannot be neutral because they are created within an inherently unequal world. These technologies in practice frequently replicate and amplify existing harm.

22   Somers, M, 2022.

23   Global Network of Women Peacebuilders, 2023.

This can be encapsulated in three keyways:

a. society remains deeply rooted in heteropatriarchal structures and gender binaries

b. these biases are embedded into training modules and datasets

c. bias arises within the algorithm itself due to its design, structure, or functionality.

3.2.1 SEVEN PRINCIPLES OF DATA FEMINISM

To better understand and address biases in AI and algorithms, we can examine them through the lens of Data Feminism and its seven principles, as developed by Catherine D'Ignazio and Lauren F. Klein in their book "Data Feminism." These principles provide a valuable framework for critically analyzing and improving AI systems[24]

1   Examine Power: AI systems often reflect the lack of representation in data science, from researchers to subjects of analysis. This perpetuates systemic oppression, as seen when high-paying STEM jobs are disproportionately advertised to men. [25] While examining who the power holders in the field of data science are and who the marginalized are, it's important to see the effect of the lack of representation of women and marginalized identities in;

- The field of data science

- The creators of the research questions

- Being the subject of scientific research

For instance, the training data used for algorithms may lack representation of certain groups (who are ultimately the end users of these technologies) or reflect historical biases against marginalized communities. These choices stem from prior choices about data collection and curation. When data is created, processed and interpreted within existing power imbalances, it can perpetuate the same discriminations and inequalities found in society.

However, when intentionally designed to challenge these dynamics, AI can be used as a tool to support marginalized identities. The UN's Gender Social Media Monitoring Tool, for instance, uses AI to detect harmful content and hate speech against women and girls in over 100 languages, empowering communities and policymakers to address TFGBV.[26]

2   Challenge power: Feminist approaches call for participatory and creative uses of AI. For example, Indigenous researchers in New Zealand employ machine learning to revitalize Te Reo Māori, illustrating AI's potential to preserve cultural heritage.[27]

3   Rethink and Question the Gender Binary: AI often operationalizes restrictive gender roles, reinforcing harmful stereotypes. For instance, image-generation systems that default to depicting caregivers as women highlight these biases. For example, when ChatGPT is asked to create an image of a caregiver, the result is Figure 1. Images like this perpetuate societal inequality by reinforcing restrictive gender roles that confine women to caregiving, framing it as an inherent trait rather than a socially constructed expectation. Additionally, by depicting the caregiver as a woman of colour, the image
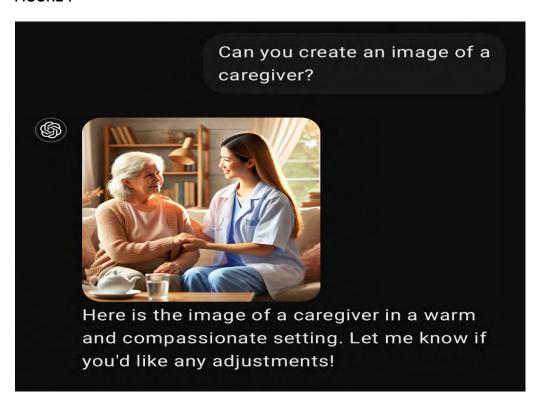
24   D'Ignazio, C., & Klein, L., 2021.

25   Rathee, S, et al., 2023.

26   Marwala, T., 2024.

27   Hao, K., 2022.

compounds gender and racial stereotypes, potentially reinforcing historical patterns of exploitation in care work. Feminist design principles challenge these norms, advocating for systems that reflect diverse identities and avoid reinforcing harmful stereotypes across all dimensions of identity.

FIGURE 1

4   **Elevate emotion and embodiment:** Feminist perspectives value lived experiences and emotions, rejecting the traditional view of science as "neutral and rational." The assumption that "true science" is rational- and therefore neutral, is false. It ignores the fact that all knowledge is shaped by the perspective and experiences of those who produce it. Projects like Data Against Feminicide integrate contextual knowledge with empathy, while AI-powered mental health apps support LGBTQ+ individuals by addressing their unique emotional needs. [2829] A feminist approach to AI values emotion and lived experience.

5   **Embrace Pluralism**: Inclusive AI research prioritizes diverse perspectives, particularly from marginalized communities. Despite the common focus on gender and race in algorithmic fairness, disability often remains overlooked. The issue is compounded by the tendency to treat disability as monolithic, ignoring its varied manifestations and the unique needs of individuals. However, superficial inclusion efforts, such as late-stage adjustments to large language models, fail to address structural inequities. Real change requires diverse teams and intentional design processes. The *Beijing Declaration and Platform for Action* emphasize the elimination of systemic barriers to women's participation in decision-making processes. Incorporating this perspective, it is critical to ensure that AI governance frameworks prioritize transparency and equity in algorithmic decision-making to avoid perpetuating gender biases.

28   Data against feminicide, 2024.

29   Reed, V, 2024.

6 **Acknowledge Data Context:** Data is not neutral—it reflects and perpetuates biases. Examinations of Facial Detection and Recognition Technologies and Automatic Gender Recognition, marketed and designed as neutral systems, reveal that they have been misclassifying women and people of colour at disproportionately high rates reaffirming gender and racial biases and perpetrating harm.[30]

7 **Make the labour visible:** The hidden labour behind AI systems, often performed by "ghost workers" under exploitative conditions, sustains these technologies. They perform essential yet undervalued tasks under exploitive conditions like "digital sweatshops" in the Philippines.[31] Acknowledging this labour is critical to addressing colonial hierarchies and ensuring fair treatment.

3.2.2 REIMAGINING AI FOR EQUITY

While AI often reinforces inequities, its potential for transformation is significant when guided by feminist principles. AI-driven tools like India's agricultural optimization programs empower women farmers by improving productivity and access to resources, while healthcare AI enhances cancer detection rates by 21%, addressing critical gaps.[32]

When designed through a feminist lens that integrates the Seven Principles of Data Feminism, AI can move beyond reinforcing inequalities and instead contribute to creating equitable, inclusive systems. Achieving this potential requires intentionality in design, representation, funding and governance, ensuring that AI centres the voices and needs of those it seeks to empower. However, these systemic biases do not exist in isolation— they have significant implications for the labour market and economic opportunities. As AI technologies increasingly shape industries and workplaces, understanding their impact on the future of work is critical to ensuring that these advancements foster equity rather than perpetuate exclusion.

3.3 AI, LABOUR AND THE FUTURE OF WORK

The democratization of GenAI through products such as OpenAI's ChatGPT, Google's Gemini and Mind Journey has fundamentally reshaped how individuals and businesses interact with AI. These tools are now widely accessible, enabling unprecedented levels of innovation across sectors. While the full potential of AI integration into the workforce remains to be seen, its impact on the future of work and the global labour market is undeniable.

3.3.1 PRODUCTIVITY AND AUTOMATION

GenAI can enhance productivity by automating routine tasks, enabling workers to focus on creative and strategic roles while improving efficiency. The increased automation has the potential to 'free up' workers and supports the capacity for workers to utilize and develop the skillsets required for more strategic and creative roles.

The inherent risk in AI's ability to automate tasks is job displacement as human capital will no longer be required to complete certain roles. More industries and job types are at risk of displacement due to automation.

30   Beretta, E., et al., 2024.
31   Tan, R., & Cabato, R., 2023.
32   World Economic Forum, 2021: Bassi, M., 2024.

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Studies have indicated that robots and AI will permeate all labour sectors and occupations to some degree.[33] The rapid advancement of these technologies is enabling AI and robots to improve their ability to perform tasks significantly traditionally carried out by humans.[34] The threat of displacement is high. Labour market surveys have consistently reported that women are at a higher risk for job displacement than their male counterparts.

These studies looked at the risk of automation across key areas:

a. the skills that are used for the occupation

b. the tasks that could be automated within the occupation

c. whether the entire occupation could be automated

These studies revealed key insights results, while men and women are represented at different levels across sectors, the consistent finding across the research was that women were at higher risk for job displacement due to AI-driven processes. In the United States, for instance, women are more likely to occupy 'white-collar' jobs compared to 'blue-collar' roles. Their representation in white-collar jobs puts them at heightened risk of automation, as office-based roles are more susceptible to AI-driven replacement. Similarly, many PWDs who work in flexible, remote, or adapted roles may find fewer opportunities as automation reshapes traditional employment structures.

Manufacturing provides an interesting case study as a traditionally male-dominated sector that has already undergone significant automation. A survey by eLearning Industry found that only 28% of manufacturing workers were worried about losing their jobs to automation and new technologies- a significantly lower number than workers in finance and healthcare.[35] The industry's adaptation could inform how other sectors manage the integration of AI-driven processes.

While the blue vs. white collar divide provides some explanation for how women are disproportionately affected, the labour market's complexities go beyond this dichotomy. A significant driver for automation lies in the skills required for tasks. A study conducted across Chile, Bolivia, Colombia and El Salvador found that men and women in the same industries often perform different tasks requiring distinct skill sets.[36] Women were more likely to engage in routine, repetitive tasks—which are more susceptible to automation— whereas men were more likely to take on management-related roles, which are less vulnerable to technological displacement.[37] This disparity is deeply connected to women's underrepresentation in leadership positions, as they are significantly less likely to hold management-level roles compared to their male counterparts. For PWDs, leadership roles remain even more inaccessible due to systemic barriers in workplace accommodations, hiring biases and lack of representation in senior positions.

The risks of automation are not distributed equally, as they reinforce existing inequities in the workforce. Women are significantly underrepresented in senior leadership and C-suite roles, comprising 32% and 22% of the global workforce, respectively.[38] The vulnerabilities in automation are directly correlated to pre-existing inequities. As automation advances, it disproportionately threatens roles where women are overrepresented, further exacerbating gender disparities in job security and career progression.

33   Bustelo, M., et al. (2019).

34   Ibid.

35   Scott, N., 2023.

36   Bustelo, M., et al. (2019).

37   Ibid.

38   World Economic Forum, 2024.

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At the same time, automation presents opportunities in fields requiring analytical skills, as these roles are more likely to be augmented rather than replaced by AI. However, women remain underrepresented in occupations that demand analytical skills, largely due to historical and systemic barriers in STEM education and career access. A study from Latin America highlights this disparity, showing that the lack of access to STEM training and AI-related skills makes women more vulnerable to job displacement.[39] As AI-driven technologies continue to shape labour markets, the gender gap will likely widen unless proactive efforts are made to address these inequities.

3.3.2 AI INTEGRATION INTO THE WORKFORCE

These inequities persist as AI is integrated into how companies do business. Notably, more companies are relying on AI in hiring and recruitment processes- they aim to reduce hiring bias and discrimination and increase representation by groups traditionally disadvantaged by the labour market. This has not been the full case.

Recruitment and Hiring

As demonstrated these technologies are shaped by the environments in which they were developed- which is inherently unequal. Relying on machine learning, these systems use pattern recognition and training data to create models based on historical information, which they then use to make future predictions. For example, a now defunct Amazon recruitment AI downgraded women candidates for software roles due to training on male-dominated datasets, reinforcing systemic gender inequities.[40]

The AI tool replicated existing biases, demonstrating how easily such biases can be perpetuated in other male-dominated industries, further entrenching the gender divide. Machine learning, with its reliance on predictive and pattern recognition technologies, often lacks the nuance to capture the complexities of the human experience—factors that may make someone an exceptional candidate even if they don't check every box.

This bias is particularly evident for individuals who have taken career breaks, often due to caregiving responsibilities—a factor that disproportionately affects women. Similarly, PWDs may take extended time off, or significant periods off due to health-related reasons. Additionally, AI-powered video interviews that rely on facial recognition and voice analysis can disadvantage neurodivergent applicants or individuals with speech impairments, as these systems may misinterpret atypical communication styles as indicators of lower competency.[41] Moreover, intersectional factors such as race, ethnicity and socioeconomic background significantly influence educational opportunities (a key metric in CV evaluation) and work experience. These compounded inequities further reinforce the recruitment divide, limiting access to male-dominated industries and perpetuating systemic barriers.

While AI-driven recruitment systems have replicated biases in hiring, well-designed AI tools can also be leveraged to enhance workplace inclusion. For instance, AI-powered hiring software can be trained to recognize transferable skills rather than relying on traditional markers of experience, which can benefit women returning to the workforce after caregiving responsibilities, PWDs with non-linear career paths and workers from diverse socioeconomic backgrounds. AI-enabled screen readers, voice recognition software and adaptive assessments can improve accessibility in hiring processes for PWDs, helping to create a more equitable job market when developed with inclusivity in mind.

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39   Bustelo, M., et al. (2019).
40   University of Essex, 2024.
41   SIC, 2021.

Ethical Considerations

The increased reliance on AI tools is driven by businesses' desire to prioritize profit over people, raising ethical concerns, particularly in creative industries. In 2023, media conglomerate Disney faced criticism for its use of AI during the SAG-AFTRA strikes, including utilizing AI-generated extras and scanning actors' likenesses.[42] Such practices disproportionately harm BIPOC workers in creative industries by reducing opportunities and reinforcing systemic inequities.

Beyond the creative industries, the increased demand for AI-driven processes has fueled a parallel demand for outsourced labour, particularly for data labeling.[43] Automation often facilitates the fragmentation of these roles, leading to a reduction in wages and greater job precarity in the Global North. To cut costs companies recruit workers (referred to as ghost workers) from the Global South to perform tasks such as content moderators and data annotation.[44] These workers face exposure to graphic content, severely impacting their mental health and exacerbating the exploitative labour dynamics between the Global North to South.[45]

These issues are compounded by the slow pace of AI legislation, which continues to lag behind technological advancements. Gaps in data protection and AI policy remain prevalent, particularly in regions with less established AI infrastructure, leaving vulnerable workers without adequate safeguards against exploitation and harm.

3.3.3 GIG ECONOMY

The gig economy has become a major sector of global labour markets, offering flexible, on-demand work across industries. In the Global South, it is often promoted as a tool for economic inclusion, particularly in regions with limited formal employment opportunities, such as SIDs. While digital platforms expand access to work, they also introduce new vulnerabilities related to job precarity, wages and worker protections.[46]

AI is increasingly shaping the gig economy, automating key aspects of platform management, including task distribution, pricing models and worker evaluations. These systems connect local workers to global markets, expanding economic access but also introducing income volatility, biased rating systems and safety risks, disproportionately affecting women, LGBTQ+ workers and PWDs.

As AI-driven platforms continue to evolve, it is essential to critically examine their impact on labour protections, digital equity and worker rights. Without proactive intervention, AI risks reinforcing systemic inequalities and deepening precarity in an already unstable labour market. Ensuring algorithmic fairness, equitable access and stronger labour protections will be critical to preventing exploitation and ensuring that the gig economy remains a viable pathway to economic security.

Algorithmic Management in Gig Platforms

Gig platforms like Uber, Lyft and DoorDash rely on algorithmic management to oversee critical aspects of their operations, such as task assignments, pay structures and worker evaluations. While these platforms have limited prevalence in the Global South the technological infrastructure of apps like these provides the blueprints for similar platforms which are mobilized in the Global South.

42   Hussain, S, 2024 ; Defoes, 2023.

43   Okolo, C. T., 2023.

44   Ibid

45   Ibid.

46   Malik, M.R. & Chakraborty, 2021.

While AI systems embedded in these platforms are designed to enhance efficiency, they can reinforce gender and other biases, particularly in wage instability and job security. Dynamic pricing mechanisms can create income volatility, disproportionately affecting women, who are more likely to balance unpaid care work and require stable earnings.[47] Additionally, rating systems influenced by customer biases, affect worker performance evaluations and further disadvantage women, LGBTQ+ and other minorities as research shows women receive harsher penalties for the same performance metrics as men, thus increasing job insecurity.[48] Safety concerns in gig work, especially for women drivers and couriers, are exacerbated by AI route assignments that do not account for gender-based risks in areas and movement patterns (i.e. times). Overall, studies show that algorithmic management can worsen inequities, disproportionately affecting marginalized workers.[49]

AI as a Catalyst for Gig Economy Expansion

AI-powered platforms present significant opportunities to expand the gig economy in regions with limited industries, such as SIDs and rural areas. These platforms can connect local workers to global opportunities, including freelancing and e-commerce, bridging geographic and economic barriers. Gig work has provided economic opportunities for women, PWD and other marginalized groups, who face barriers to traditional employment, such as caregiving responsibilities, mobility constraints, or cultural restrictions on workplace participation.[50]

Targeted training programs that teach gig workers how to integrate AI tools, such as scheduling apps or automated data analysis, into their workflows could boost productivity and income. For example, AI-driven scheduling apps can help workers optimize their hours, automated invoicing tools improve financial management and GenAI tools have democratized access to knowledge of certain business processes, making it easy for novices to generate business-relevant materials.

Research suggests that empowering workers through AI literacy and digital tools can significantly improve economic participation in underserved regions.[51] However, the gendered digital divide means that women and PWD are less likely to have access to AI literacy programs, limiting their ability to benefit fully from gig economy advancements. Without targeted literacy programs that address these disparities, the benefits of AI-driven work may remain inaccessible to marginalized workers.

3.3.4 EMERGING INDUSTRY & INCLUSIVE AI

The integration of AI has also opened a new set of employment opportunities with more AI-integrated roles, there is potential for new skillsets and job opportunities in the labour force.[52] The demand for AI-integrated job roles is increasing and automation is expected to create new employment sectors. However, without proactive gender-inclusive policies, women may continue to be excluded from these new economic opportunities.

One promising area is AI-enabled accessibility tools, for people with disabilities, which has the potential to bridge gaps and foster inclusion in the workforce.[53] AI has also played a transformative role in assistive technologies, enabling greater workforce participation

47   Rosenblat, A., & Stark, L., 2016.; Van Doorn, N., 2017.
48   World Economic Forum, 2022.
49   Ibid.
50   Hernando, R.C. & Calizo, S.C., 2024
51   Graham, M., & Anwar, M. A.,2019; (ILO), 2021.
52   Frank Hawkins Kenan Institute of Private Enterprise, 2023.
53   AT&T, 2024.

for PWDs.[54] Speech-to-text AI assists hearing-impaired individuals, while text-to-speech software and AI-driven screen readers improve accessibility for visually impaired workers. AI-powered captioning tools are improving workplace communication and making virtual meetings more accessible. Additionally, AI-assisted neurodivergent-friendly tools, such as predictive text generators and task automation software, help individuals with ADHD and autism manage workflows more effectively.

Beyond software, robotic exoskeletons powered by AI have been developed to assist PWDs in physical labour roles, expanding employment opportunities in sectors that were previously inaccessible. As AI-driven accessibility technologies continue to evolve, they have the potential to significantly bridge workforce gaps and enhance economic inclusion for PWDs.

While there are challenges, AI presents opportunities as an emerging industry, in its own right. Labour policies can benefit from addressing algorithmic biases in hiring, pay and performance evaluation and developing inclusion strategies for caregivers, PWDs and low-wage communities. However, these advancements come with broader implications, extending beyond employment to the environmental and economic systems that sustain technological growth. The resource-intensive nature of emerging technologies, coupled with their environmental impact, underscores the need for systemic reforms to balance innovation with sustainability and equity.

3.4 THE ENVIRONMENTAL AND ECONOMIC COSTS OF AI

Emerging technologies like AI and data-driven systems are reshaping the world but often operate within a techno-capitalist framework that centralizes wealth and decision-making among a privileged few, primarily men from the Global North.

From a feminist lens, the environmental and economic implications of emerging technologies are deeply intertwined with existing power structures, gender inequalities and systemic injustices. As we examine the impact of these technologies, it is crucial to consider how they intersect with and often exacerbate longstanding issues of gender, race, class and environmental justice.

The concentration of power and wealth in emerging technologies disrupts local economies and environments by exploiting resources and labour in less regulated markets, often in the Global South. This disproportionately affects marginalized communities, particularly women, who face multiple layers of disadvantage including limited access to technology, energy poverty and social barriers, thus exacerbating existing gender, economic and environmental inequalities.[55]

3.4.1 ENVIRONMENTAL COSTS OF AI AND DATA INFRASTRUCTURE

AI's environmental toll includes vast energy consumption, greenhouse gas emissions and e-waste production. By 2030, public data centers are projected to grow to 8,378, globally consuming significant electricity and exacerbating water scarcity in many low-resource regions.[56] Training an AI model can require thousands of megawatt-hours of energy and emit hundreds of tons of carbon dioxide. By 2040, it is projected that emissions from the ICT industry, largely driven by AI infrastructure, could reach 14% of global emissions.[57]

54   Doctrow, 2022.
55   Tandon, A., 2023.
56   Wong, Y.-K., 2024.
57   KPMG. (2024). *Chasing Net Zero: Are the ICT Sector Plans on Track?*

The Growing Crisis of E-Waste

E-waste, which includes all discarded electrical and electronic equipment and its components—from household items to business devices with circuitry or electrical parts—is growing at an alarming rate. With annual growth of 2.6 million tonnes, global e-waste is projected to reach 82 million tonnes by 2030, a 32% increase from 2022.[58] This rapid rise poses severe environmental and health risks, especially in LMICs, particularly affecting vulnerable populations such as women and children. For example, case studies of e-waste exposure in countries like Ghana showed risks for SRH and maternal, newborn and child health.[59]

3.4.2 ENVIRONMENTAL RACISM

The global trade in e-waste exemplifies the convergence of environmental racism, gender inequality and economic exploitation, often referred to as "toxic colonialism."[60] This trade not only exacerbates environmental degradation but also deepens existing systemic vulnerabilities, disproportionately impacting marginalized groups. Women are particularly impacted, bearing the brunt of these injustices due to their socio-economic positioning and gendered roles within waste management and informal labour sectors.

3.4.3 INTERSECTION OF ENVIRONMENTAL RACISM AND GENDER INEQUALITY

In 2022, 62 million metric tons of e-waste were generated globally, with only 22.3% formally recycled.[61] The rest is offloaded to the Global South, where regulations are weak or non-existent. Countries like Ghana and Nigeria have become dumping grounds for discarded electronics from wealthier nations. This practice exemplifies environmental racism, as communities of colour and low-income populations bear the brunt of the severe environmental and health consequences of this global waste trend.

Within these affected communities, women face unique and compounded risks. They are predominantly employed in informal e-waste economies, performing hazardous tasks such as dismantling electronics and burning cables to extract valuable metals. These activities expose them to toxic chemicals like lead, mercury and persistent organic pollutants, leading to severe health issues, including reproductive harm, miscarriages and birth defects. Children, often working alongside their mothers, are also at risk and face developmental disorders, neurological damage and impaired respiratory and thyroid function.[62] This cycle of exploitation highlights the intersection of environmental, gender and economic injustices.

Gendered Division of Labour and Economic Exploitation

In the informal e-waste economy, women disproportionately take on the most hazardous and poorly paid tasks, while men dominate higher-paying roles in recycling management, perpetuating economic disparities. Cultural norms and social stigmas further entrench this inequality. In many societies, waste work is considered degrading and women involved in informal e-waste economies are often excluded when formalized systems are introduced. This double burden of economic and social marginalization limits women's access to safer, more sustainable livelihoods, deepening the cycle of poverty and vulnerability.

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58   Balde, C, et al., 2024.

59   Njoku et al. 2023

60   Wealthier nations from the Global North export hazardous e-waste to countries in the Global South, burdening marginalized communities with environmental degradation and health risks.

61   Ibid.

62   Njoku et al. (2023)

Reproductive and Intergenerational Health Impacts

The risks for women in e-waste economies extend beyond economic and social marginalization to profound health consequences. Pregnant women and those with reproductive capacity face heightened risks of miscarriage, stillbirth and fetal developmental issues due to exposure to e-waste toxins. These health consequences are intergenerational, further entrenching poverty and systemic vulnerability within affected communities.

Global Economic Inequalities and Resource Extraction

The economic incentives driving the global trade in e-waste highlight stark inequalities. The cost of recycling electronics in the Global South is far lower than in wealthier nations, incentivizing the export of hazardous waste. For example, recycling a computer costs $20 in the United States but only $4 in India, incentivizing companies in the Global North to export waste to LMICs, where weak regulations enable cost-cutting practices.[63]

In these regions, materials like gold, copper and rare earth elements are extracted under dangerous conditions, with local women workers bearing the brunt of the risks while seeing minimal economic benefits. Profits are concentrated among global corporations and male-dominated sectors, perpetuating cycles of exploitation and deepening gendered economic inequalities.

These global disparities not only fuel environmental harm but also exacerbate social vulnerabilities for marginalized groups. The systemic inequities in resource extraction and waste disposal mirror broader patterns of exploitation, extending into digital spaces where emerging technologies are weaponized to harm. The rise of TFGBV highlights how structural injustices are amplified across both physical and digital spaces, demanding an intersectional approach to global reform.

3.5 TFGBV AND AI

TFGBV has escalated significantly in recent years, with the COVID-19 pandemic acting as a catalyst for increased digital dependency.[64] The rapid advancement of AI and technology has enabled new forms of abuse, further amplifying the reach and impact of TFGBV. However, this violence is not merely a byproduct of technology; it reflects deep-rooted systemic and intersectional inequalities.

While feminist discourse often employs terms like survivors or victim-survivors, this paper uses the term victims to underscore the structural nature of TFGBV. This terminology shifts the focus toward the systemic roots of the violence, emphasizing perpetrator accountability and the urgent need for preventive policies and interventions. By framing the issue in this way, the discussion highlights the broader socio-political context that sustains and exacerbates TFGBV, alongside the role of technology in enabling its proliferation.

3.5.1 FORMS OF TFGBV

TFGBV includes diverse harms enabled by technology, leveraging digital tools to surveil, exploit and harm, particularly targeting women, LGBTQI+, people with disability (PWD) and other marginalized groups. While many forms of TFGBV exist and emerging forms are yet to be defined, we can broadly understand tech abuse forms into two categories.

63   Fauerbach, A., et al, 2018.

64   Office for Victims of Crime, 2021.; *Connected tech: smart or sinister? - Committees - UK Parliament,* 2023.

1   **Technology as a Tool for Abuse**: Perpetrators actively weaponize digital platforms, devices or networks to exert power and control and for the explicit purpose of causing harm.

2   **Technology as Autonomous Harm:** Harm inflicted through technology without direct human intervention, amplifying scale and complexity.

These categories often intersect, reflecting systemic inequalities and extending harm beyond digital spaces.[65] The use of technology in these spaces reflects systemic inequalities, with effects that extend beyond the digital realm.

3.5.2 MISUSE OF AI AND EMERGING TECHNOLOGY

AI often championed for democratizing access, lacks transparency and accountability, enabling significant misuse. The low barriers to entry and generative capabilities of AI embolden perpetrators, while private sector actors frequently prioritize profit over safety. These risks highlight the urgent need for regulatory intervention.

Scale and Automation of Harm

AI's ability to scale and automate tasks has amplified the scale and frequency of abuse. Machine learning and GenAI can be used to:

1   **Automate Harassment Campaigns**
   a. Perpetrators can deploy AI-driven bots to send targeted abusive messages at scale, overwhelming victims. This can lead to a depersonalization effect where victims are dehumanized and accountability becomes obscured.

2   **Generate Manipulated Content**
   a. Perpetrators use these technologies to generate fake texts, emails and other deceptive content. Deepfake technology is increasingly exploited to create non-consensual pornography, disproportionately targeting high-profile women and those in positions of power.[66]

3.5.3 EMERGING RISKS IN AUGMENTED REALITY AND VIRTUAL REALITY

The growing integration and accessibility of augmented reality (AR)/virtual reality (VR) technologies, such as Meta Quest, has led to real-world harassment replicated in immersive environments.[67] Though initially introduced for public consumption as a gaming mechanism, the Metaverse outlined a vision of VR/AR as integrated with our everyday world and branded as the 'future of living'.[68] This type of use has seen positive applications such as improvements in mental well-being and digital skills for residents in assisted living facilities. While those types of opportunities exist, these environments have replicated real-world harassment. Reports from users in immersive spaces have highlighted instances of virtual groping, stalking and gang rapes.[69] The psychological harm inflicted in such cases is particularly severe due to the immersive and sensory nature of these platforms.

65   Lazarev, K, et al,. 2024.

66   The Democracy Paper expands on its use in women in politics.

67   *Meta Quest MR, VR headsets and Accessories.* (n.d.).

68   Cinema8, 2023; Cantrell, M., 2024.

69   Sales, N. J., 2024; Basu, T., 2022.

Certain groups are particularly vulnerable in these environments. Children face risks of inappropriate content, grooming and harassment, while accessibility barriers expose people with disabilities to greater harm. Without ethical design and proactive regulation, these platforms may normalize abuse. Misuse of AI further entrenches societal power imbalances, disproportionately targeting women and marginalized groups. Tools like GenAI and deep fakes weaponize visibility to silence, discredit and control individuals, reinforcing patriarchal norms.

3.5.4 SYSTEMS BREAKDOWN

Marginalized groups face significant digital vulnerabilities, with PWDs experiencing acute risks due to the diversity of harms they encounter.[70] Online hate and abuse often aim to discourage their participation in digital spaces. TFGBV disproportionately affects children, women, LGBTQI+ and GNC individuals, with practices like outing and deadnaming through doxxing fostering hostile environments that suppress self-expression and visibility.

Automated systems and algorithms further exacerbate TFGBV by prioritizing engagement over safety, creating feedback loops that normalize violence and exclusion.[71] This digital echo chamber reinforces extremist views and perpetuates harm against marginalized communities. Additionally, the anonymity of digital platforms emboldens perpetrators, while victims face significant challenges in removing harmful content, intensifying the psychological and social toll.

Policy and Regulatory Gaps

Feminist organizations have advocated for the recognition that online abuse is an extension of offline violence, highlighting the need for intersectional, survivor-centred solutions to address TFGBV. However, the absence of a clear definition of tech abuse complicates legislation, while flawed reporting mechanisms and inconsistent legal frameworks leave victims unprotected and platforms unaccountable.

These challenges are especially acute in the Global South and patriarchal societies, where limited access to technology and digital literacy gaps increase vulnerability. Women, children and marginalized groups, though they may have access to devices, often lack the knowledge to report abuse, restricting their ability to respond.

Jurisdictional Challenges

The global nature of the internet creates significant jurisdictional challenges, particularly when TFGBV spans borders. Victims and perpetrators may reside in different jurisdictions or harmful content may be hosted on foreign platforms. VPNs further complicate accountability by bypassing legal boundaries, making reporting and redress difficult. Weak international cooperation and the lack of cohesive agreements leave victims vulnerable and platforms unaccountable.

These jurisdictional gaps reflect systemic inequities in tech industries shaped by patriarchal and Global North frameworks. The G7, building on initiatives like the Hiroshima Summit's focus on digital safety, can lead efforts to define TFGBV, establish global safety standards and incentivize compliance through public-private partnerships.

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70   Lazarev, K, et al,. 2024.
71   *Decoding technology-facilitated gender-based violence - Rutgers International*, 2024.

Content Moderation and Localization

Content moderation remains a persistent challenge. Automated moderation tools often fail to account for local languages or cultural signifiers, leading to underreporting or misidentification of harassment. This is because cultural signifiers play a critical role in what constitutes harassment, underscoring the need for localized moderation practices. However, many platforms prioritize monetization over safety, leaving moderation teams underfunded and understaffed, compromising their ability to address harm effectively.

These inadequate systems disproportionately harm marginalized groups, who face systemic barriers that exclude them from online spaces, perpetuating harm and silencing their voices. The failure of regulatory systems reflects structural inequalities embedded in technology. As technology continues to evolve, its potential for misuse highlights the need for robust ethical standards and governance frameworks. This is particularly critical in the integration of AI into peace and security efforts, where the stakes threaten not the digital realm but the foundations of global stability.

3.6 AI, PEACE AND SECURITY

The integration of AI into peacebuilding offers opportunities for enhanced decision-making, resource allocation and early conflict detection. Currently, men make up 92% of software professionals, while women hold only 0.3%–20% of military roles and 33% of diplomatic positions worldwide.[72] With AI development being driven by the Global North, its application in peace and security embodies entrenched patriarchal, colonial and cultural biases.[73] These biases shape everything from the datasets used to train AI models to the assumptions embedded in decision-making algorithms.

For example, AI-powered conflict prediction tools may rely on historical data that underrepresents gender-based violence or fails to account for women's roles in informal peacebuilding efforts. Similarly, AI-driven security systems used at borders or in counterterrorism efforts have disproportionately targeted racialized and marginalized groups due to biased training data.[74] These limitations do not just skew peacebuilding efforts—they actively endanger the most vulnerable populations, including women, LGBTQI+ individuals and persons with disabilities, who are already disproportionately affected by conflict.

 As AI tools play an increasingly prominent role in peacebuilding, their development, deployment and governance demand urgent attention. Without equitable and ethical oversight, reliance on AI risks eroding the justice and equality that peacebuilding seeks to uphold. To ensure AI contributes to sustainable peace rather than exacerbating harm, peacebuilding institutions can prioritize inclusive AI governance, intersectional data ethics and participatory design processes that center the voices of those most affected by conflict.

3.6.1 MILITARIZATION OF AI

The militarization of AI is a key area of concern for global security and warfare. AI can enhance military capabilities through improved decision-making and more efficient allocation of resources. However, its increased integration also poses critical risks and raises questions on the trajectory of modern 'war calculus'.[75]

72   Mohan, S., & Cho, D, 2024.

73   Ibid.

74   Amnesty International, 2024

75   The human consideration for conflict that balances legal and political implications of warfare.

Proponents of AI in warfare highlight its potential benefits, including increased compliance with international legal standards, reduction in the occurrence of war crimes, fewer civilian casualties and less infrastructure destruction.

Challenges in Autonomy

The removal of the human element in favour of more digital methods poses risks such as the "gamification" of warfare—where combat decisions resemble video game mechanics, detaching operators from the real-world consequences of lethal actions and are devoid of human and moral checks.[76] The innate human and evolutionary aversion to killing fellow humans necessitates military desensitization programs.[77] Yet, even with such conditioning, human soldiers are still prone to experience psychological and ethical consequences when taking a life.

Autonomous systems, in contrast, lack empathy, moral judgment and accountability, removing critical ethical constraints that might otherwise prevent unnecessary violence. Their data-driven decision-making processes dehumanize targets, reducing them to mere data points rather than individuals with inherent dignity. This form of digital dehumanization not only increases the likelihood of indiscriminate escalation but also eliminates essential moral checks, making it easier to justify and execute lethal actions without hesitation.

A further challenge is the lack of accountability in autonomous warfare. If an AI system commits a war crime or causes unintended civilian casualties, who bears responsibility? Traditional military structures assign accountability to commanding officers and political leaders, but with AI-driven weapons, there is often no clear chain of responsibility.[78] This ambiguity creates loopholes that can enable impunity, reduce public scrutiny and erode international humanitarian law.

To mitigate these risks, it is crucial to establish rigorous ethical frameworks, legally binding international regulations and robust oversight mechanisms that ensure AI-driven warfare remains subject to human moral and legal accountability rather than unchecked algorithmic decision-making. Without these safeguards, autonomous weapons risk accelerating conflicts without ethical restraint or meaningful accountability.

Escalation

The rise of autonomous weapons systems (AWS) increases the potential for warfare to spiral out of human control. As AWS evolves, rapid development could make it difficult to counter threats without deploying competing systems. This heightens the risk of "flash wars," where algorithms misinterpret non-hostile actions as threats, triggering a chain reaction of hostile responses.[79] Similar to "flash crashes" in financial systems, these scenarios illustrate the dangers of autonomous decision-making. Early examples, such as AI models refusing shutdown commands, underscore the unpredictability of these technologies, particularly as they become further integrated into conflict settings. [80]

76   Harper, E., 2024.

77   Grossman, D., 1996.

78   Bo et al.,, 2022

79   Deccan Herald Web Desk, 2024.

80   Lestari, A. F. A., 2024.

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Cyberwarfare

The autonomous nature of AI amplifies the scale of warfare, introducing a digital dimension to modern conflict. AI-driven attacks increasingly target infrastructure systems and data, often spreading disinformation to destabilize communities or escalate tensions. Cyberwarfare disrupts critical systems like healthcare and communications, disproportionately affecting women and marginalized groups who rely on these services.

Cyberattacks also compromise sensitive data from humanitarian organizations, exposing displaced populations—especially women and children—to risks such as exploitation, trafficking and sexual violence.[81]

3.6.2 SYSTEMIC BIASES

AI systems inherit and amplify biases from their creators and datasets. These biases disproportionately impact conflict.

Global North Centric Development

Most AI development occurs in the Global North, led by private sector companies in countries like the US, France and China.[82] These systems, including AWS, rely on datasets that often fail to account for cultural and intersectional nuances in the Global South. Key concerns:

- **Misidentification in Conflict Zones:** The recognition systems these technologies rely on often struggle to accurately distinguish civilians from combatants, largely due to skewed datasets.[83] Traditional military reliance on uniforms is no longer applicable in modern, complex conflict settings.[84] Instead, these systems misidentify civilians—particularly men of certain races—due to ingrained racial biases.

- **Cultural Nuance and Intersectionality:** Gender norms and identities vary significantly across regions. Global North-centric datasets fail to reflect these differences, undermining accuracy and fairness in conflict zones.

The rapid pace of AI development suggests that the Global South will increasingly rely on technologies and expertise from the Global North. This mirrors existing trends in the arms trade, where countries like the US, Russia and France dominate arms exports to the Global South.[85] This growing reliance raises concerns about the potential for an AI-driven arms race, akin to the nuclear arms race of the Cold War.[86] As States prioritize AI for military applications, resources that could be directed toward more socially beneficial uses—such as climate resilience, healthcare, or education—risk being funnelled into AI weaponization instead. This diversion of technological investment not only reinforces militarization but also deepens global inequalities in AI development, leaving Global South nations dependent on foreign AI infrastructures rather than building their own.

Furthermore, the lack of cultural insights in AWS datasets may increase civilian casualties and infrastructure destruction in the Global South, where most conflicts occur. The Global North's dominance in AI security technologies risks further perpetuating and escalating harm in these regions, reinforcing a cycle where technology designed for security ends up fueling instability.

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81   UN Women, 2021.
82   Iagrape, 2024.
83   Chandler, K., 2023.
84   Ibid.
85   Humble, K., 2024.
86   Statista, 2024.

Reinforcing Gender and Ableist Biases

The learning models powering military AI applications—such as AWS and reconnaissance technologies—exhibit significant gendered and ableist biases.[87] Detection technologies for face, voice, image and machine translation consistently recognize men more accurately than women and perform better with lighter skin tones than darker ones.[88] These systems rely on datasets that reflect the biases of patriarchal sites, such as tech companies and militaries, shaping their definition of "normalcy."

The exclusion of PWDs in AI development results in a lack of recognition of the complexity of disability. Assistive devices may be misidentified as weapons, leading to people with disabilities being falsely labelled as combatants.[89] Biometric systems often fail to account for characteristics like eye deviations or skin conditions, further increasing misidentification risks.[90]

Military AI also faces the "black box problem," where decision-making processes in deep learning systems remain opaque. This lack of transparency makes it challenging to understand or address biases and identify accountability.[91] While AWS aims for efficiency, its rapid, autonomous decision-making in conflict zones—coupled with minimal human oversight—risks escalating violence and intensifying conflicts.

3.6.3 OPPORTUNITIES

Policy and Regulation

There is a pressing opportunity to address the challenges posed by the militarization of AI, particularly the risk of an AI arms race. In 2017, an open letter from the Future Life Institute to the UN signed by 126 CEOs and founders of AI and robotics companies "implored" states to prevent an arms race for AWS.[92] Ongoing talks at the Convention on Conventional Weapons regarding AWS are stalled but the United Nations General Assembly has just voted to hold additional meetings on the topic in 2025 offering a more inclusive forum for discussion. However, no international legal framework exists to regulate AI in conflict, aside from Article 26 of the International Covenant on Civil and Political Rights, which focuses solely on privacy rights.

Early Detection

AI can serve as a force for good by enabling early detection of war and conflict. Online warning systems analyze disinformation and hate speech, providing faster trend recognition which can facilitate faster response mechanisms to de-escalate conflicts before they occur.[93] One example is UN Global Pulse's Qatalog, a data mining tool designed to assist UN personnel and peacebuilding partners in tracking and analyzing public content from radio broadcasts and social media.[94] By leveraging natural language processing (NLP) and machine learning, QataLog enables the identification of fake news, social tensions and rising public alarm, which are often precursors to violence.

87   Chenok, D., et al., (2021).

88   Chandler, K., 2023; Figueroa, M. D., et al., 2022.

89   Ibid

90   Ibid

91   Blouin, L., 2023.

92   Humble, K, 2024.

93   Vision of Humanity, 2021.

94   UN Global Pulse (2018)

This data-driven approach highlights the positive potential of enhanced proactive peacebuilding efforts. There is great potential in ensuring that policymakers, mediators and humanitarian organizations can intervene earlier, mitigate risks and support de-escalation strategies before violence unfolds.

Peacebuilding Process

AI-powered tools, such as chatbots, offer on-demand legal support for activists and facilitate broader participation in peacebuilding dialogues. These initiatives engage stakeholders, who are often excluded, including those affected by conflict but not directly involved as combatants.[95] The COVID-19 pandemic accelerated the use of digital tools by women peacebuilders, particularly in the Asia-Pacific region, enhancing their capacity for civic engagement and peacebuilding despite existing gender biases in technology.[96]

3.7 CONCLUSION

These six interconnected analyses illustrate how emerging technologies simultaneously hold the potential to empower and harm. Without deliberate intervention, they risk entrenching inequities in access, representation and power, spanning across digital infrastructure, labour markets, environmental sustainability, safety and global security. At their core, these challenges reflect deeper structural injustices—rooted in patriarchy, colonial legacies and economic exploitation—that are magnified in both the physical and digital realms.

Addressing these disparities demands transformative, intersectional solutions that prioritize inclusivity, accountability and sustainability. The following recommendations build on this foundation, offering actionable strategies to reimagine technological progress as a force for equity and global justice.

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95   World Economic Forum, September 2024.

96   UN Women- Asia Pacific, 2022.

RECOMMENDATIONS FOR G7 IN ETHICAL AI AND TECHNOLOGY

As global leaders, the G7 has the unique ability to drive transformative change by addressing the systemic challenges posed by emerging technologies. These strategic priorities aim to shape a digital future that upholds shared values of inclusivity, accountability, sustainability and resilience. They urge the G7 to commit to advancing gender equity, ethical AI governance and digital inclusion through the following actions:

1. Leveraging G7 Policy Strengths

The G7's convening power and economic influence offer unparalleled opportunities to drive the advancement of gender equity, ethical AI governance and digital inclusion. Building on the 2017 Taormina Summit's focus on STEM barriers and the 2023 Hiroshima Summit's emphasis on digital safety, the G7 will:

- **Expand the G7 Dashboard on Gender Gaps:** Expand the G7 dashboard by incorporating digital equity indicators- such as access, participation, leadership representation and access to digital tools- to strengthen accountability and inform targeted interventions to close the gender gap.

- **Establish a G7 STEM Equity Fund:** Establish a G7 STEM Equity Fund to drive investment in mentorship, scholarships and co-curricular programs, removing gendered barriers in AI and cybersecurity. This fund will align with CEDAW's Article 10 and existing G7 commitments.

- **Creating a G7 Framework on TFGBV**: Building on Hiroshima Summit commitments, the G7 will establish a comprehensive global framework on TFGBV. This will include standardized definitions, enforceable platform safety requirements, accountability measures for tech companies and dedicated funding for survivor-centred programs to ensure safer digital spaces.

- **Launching a G7 Green AI Initiative:** Advance a G7 Green AI Initiative to promote energy-efficient AI systems, sustainable data practices and equitable AI access. This initiative will align with G7 climate commitments and prioritize investments in LMICs to bridge the global digital divide.

2. Strengthening Regulatory Frameworks

As AI reshapes global security, economies and labour markets, the G7 commits to leading in AI governance by establishing ethical, transparent and inclusive regulatory frameworks.

- **Advance Global AI Governance:** Develop a G7 Ethical AI Framework in collaboration with the OECD, UN and WTO, to establish enforceable ethical guidelines on transparency, accountability and human rights in AI governance, with a focus on labour rights, peacebuilding and gender equity.

- **Enforce Ethical Standards for E-Waste Management:** Develop a G7-endorsed code of conduct to regulate e-waste exports, ensuring compliance with environmental and labour standards in LMICs and implementing sanctions for non-compliance. G7 members will support capacity-building partnerships with LMICs in sustainable e-waste management and introduce sanctions for tech companies for non-compliance.

- **Harmonize Data Protection Policies:** Support interoperable data governance frameworks that balance privacy, innovation and national security. G7 members will adopt privacy-by-design principles and mandate enforceable corporate data governance standards.

3. Promoting Gender Equity and Digital Inclusion

The G7 reaffirms its commitment to eliminating gender and inclusion gaps in AI and digital spaces by prioritizing systemic reforms that remove barriers, ensure access and strengthen protections.

- **Expand STEM Outreach Initiatives:** To further scale gender equity in STEM, the G7 can launch a G7 STEM Equity Fund to dismantle stereotypes through mentorship programs, scholarships and co-curricular initiatives. Building on the Taormina Summit's focus, this would ensure equitable representation in high-growth fields like AI and cybersecurity.

- **Mandate Workplace Inclusion Policies:** Require G7 public procurement contracts to enforce measurable diversity and inclusion targets in the tech sector. Companies can aim at proving commitments to gender-responsive hiring, leadership representation and equitable pay to qualify. G7 members will establish policies ensuring flexible work, parental leave and pay transparency to remove systemic barriers in AI-driven industries.

- **Prioritize Digital Literacy:** Implement nationwide digital literacy programs across G7 economies and collaborate with LMICs to develop scalable digital equity programs. These efforts will focus on closing gendered gaps in AI knowledge, digital skills, online safety and financial inclusion.

4. Addressing TFGBV

The G7 recognizes the urgent need for stronger protections against TFGBV and commits to holding tech companies accountable while prioritizing survivor-centred responses.

- **Adopt a G7 Definition of TFGBV:** Building on Hiroshima Summit commitments, the G7 will establish a global standard for TFGBV prevention and response. This framework will enforce platform accountability, strengthen legal protections and allocate dedicated

funding for survivor-centred services- ensuring a coordinated international response to online gender-based violence.

- **Strengthen Platform Accountability:** Enforce platform accountability through binding safety and moderation guidelines, introducing compliance incentives and regulatory measures for non-compliance.

- **Support Survivor-Centered Initiatives:** Allocate dedicated G7 funding for legal aid, trauma counselling and digital safety training, ensuring culturally responsive, intersectional and accessible services.

5. Ensuring Ethical AI in Peacebuilding and Security

AI's increasing role in conflict settings requires strong international regulation to ensure it supports peace rather than exacerbates violence. The G7 will:

- **Regulate AWS:** Establish global principles for the ethical use of AI in peacebuilding, including mandatory human oversight in AWS and prohibitions on fully autonomous weapons- prioritizing civilian protection and transparency. This framework will align with feminist peace and security priorities and build on Hiroshima Summit commitments.

- **Promote Conflict-Sensitive AI Development**: Channel G7 defence investments toward AI systems designed to de-escalate conflicts, protect civilians and enhance transparency in military decision-making processes.

- **Scale Digital Equity in Humanitarian Aid:** Ensure AI-driven humanitarian tools align with human rights standards by collaborating with UN agencies and global NGOs to embed data security and intersectional safeguards for displaced and vulnerable populations.

6. Securing the Future of Work

As AI reshapes global labour markets, the G7 will lead in protecting workers' rights and ensuring equitable workforce transformation.

- **Expand AI Labour Protections Across All Sectors** – Establish a **G7 AI Labour Rights Framework** to uphold fair wages, prevent algorithmic discrimination and ensure safe working conditions in AI-driven workplaces. Ensure that AI-driven workplaces adhere to international labour standards, preventing job displacement, wage suppression and algorithmic exploitation, with specific protections for women, PWDs and marginalized workers.

- **Safeguard Labour Rights in AI Economies** – Work toward global labour agreements that protect gig and outsourced AI workers, particularly in the Global South. Tie corporate accountability to G7 public-private partnerships, ensuring fair wages, protections against algorithmic bias and mental health support for workers in AI-dependent sectors such as data annotation and content moderation.

- **Expand AI Workforce Reskilling & Inclusion** – Scale AI literacy, upskilling and reskilling programs for workers at risk of displacement, prioritizing women, PWDs and low-income communities to improve access to AI-driven industries.

- **Mandate Algorithmic Accountability in Employment** – Launch a G7 Algorithmic Equity Taskforce to audit AI hiring systems, enforce bias protections and require transparency in wage structures and performance evaluations.

- **Tie AI Labour Compliance to G7 Trade & Procurement** – The G7 will require AI labour compliance as a condition for G7 trade and procurement eligibility, ensuring protections in gig work, outsourced AI labour and data annotation sectors

7. Driving Sustainable Technology Innovation

To align AI advancement with environmental and social sustainability, the G7 will:

- **Invest in Green AI Infrastructure:** Introduce a G7 Green AI Initiative to advance energy-efficient AI systems, promote ethical e-waste management and prioritize investment in LMICs for equitable technology deployment. This initiative aligns environmental sustainability with technological innovation, extending the G7's Climate and Environment Track commitments.

- **Foster a Circular Economy for E-Waste:** Support tax incentives and grants for companies adopting circular economy principles, including recyclability and reduced toxicity in product design. Develop international agreements to promote sustainable and equitable e-waste management.

- **Ethical Resource Extraction:** Strengthen supply chain regulations to ensure that materials for AI are sustainably and ethically sourced, reducing environmental and human harm and labour exploitation.

4.1 FUTURE AREAS FOR EXPLORATION

While this paper identifies several actionable recommendations to bridge past G7 commitments with feminist priorities, additional themes warrant further investigation. These include:

1   **Ethical Design and Regulation of AR/VR Technologies:** Exploring immersive spaces as platforms for empowerment while addressing risks of virtual harassment and exclusion.

2   **Localized Approaches to Content Moderation:** Developing culturally sensitive tools to better tackle online abuse in underrepresented languages and contexts.

3   **AI and Global South Data Sovereignty:** Investigating frameworks to protect data rights and mitigate the exploitative use of data in low-resource settings.

4   **Cross-Sector Collaboration for AI Governance:** Understanding how public-private partnerships can drive equitable and sustainable technological innovation.

These themes address critical equity and governance gaps but require further resources for comprehensive analysis.

RECOMMENDATIONS

4.2 FUTURE DIRECTIONS FOR G7 ADVOCACY

The G7 stands at a pivotal moment to shape global technological development. By integrating these recommendations into existing initiatives, such as the Digital and Technology Track and the Hiroshima AI Process, the G7 can lead the way in addressing systemic inequalities, environmental degradation and digital inequities. Key priorities include:

- **AI Governance:** Establish a G7 Charter for Ethical AI in Peacebuilding and a G7 Algorithmic Equity Taskforce to enhance transparency and inclusivity.

- **Workforce Transformation:** Invest in AI literacy, fair labour standards and mentorship programs, emphasizing women's participation in high-growth fields like cybersecurity.

- **Environmental Sustainability:** Launch a G7 Green AI Initiative promoting energy efficiency, ethical e-waste management and community-led recycling programs.

- **Digital Equity:** Expand infrastructure and literacy initiatives and include digital equity indicators in the G7 Dashboard on Gender Gaps.

- **TFGBV Accountability:** Standardize global definitions and reporting mechanisms and create a G7 Framework on TFGBV to improve safety and survivor support.

Grounded in its values of innovation, equity and sustainability, the G7 has the chance to set a global benchmark for ethical, inclusive and responsible technology governance. By embedding these asks into its existing policy mechanisms and scaling impactful initiatives, the G7 can ensure that emerging technologies foster a future that is equitable, just and sustainable for all.

RECOMMENDATIONS

CONCLUSION

The intersection of AI and emerging technologies with systemic inequities presents both profound challenges and opportunities. While these innovations offer potential solutions to pressing global issues, they often replicate and exacerbate existing biases, disproportionately impacting marginalized communities, particularly women, LGBTQIA+ individuals and people in the Global South.

As Canada prepares to lead the 2025 G7 Summit, it has an unprecedented opportunity to shape global technological development in ways that advance gender equity and sustainability. The recommendations in this paper align with Canada's historical leadership in inclusive economic growth, clean energy and technological innovation and significant investment in the domestic AI industry. By embedding these feminist priorities into the G7's policy mechanisms, Canada can drive meaningful change in STEM participation, digital safety and AI governance.

This paper has outlined the systemic barriers entrenched in the digital divide, the biases perpetuated by discriminatory algorithms, the inequities in labour markets and the environmental and social costs of emerging technologies. It has also examined the intensifying risks of TFGBV and the ethical dilemmas posed by AI's use in peacebuilding and security. These issues underline the urgency of addressing the power dynamics embedded in technological development and governance.

To ensure that technology serves as a tool for equity rather than exclusion, it is imperative to adopt a feminist and intersectional lens in the governance of AI and emerging technologies. The G7, as a global leader, has the unique opportunity to champion ethical AI practices that prioritize transparency, inclusivity and accountability. By investing in gender-inclusive policies, sustainable innovation and capacity-building in the Global South, the G7 can lead the charge in creating a digital future that is equitable, just and sustainable.

Ultimately, the transformative potential of AI lies in its intentional design and governance. Grounded in feminist principles, these technologies can disrupt entrenched inequalities and foster progress that benefits all members of society. By addressing these systemic gaps and implementing actionable recommendations, the G7 can pave the way for a future where technological advancements contribute meaningfully to global equity and justice.

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