

Encoding Digital Technologies for a Feminist Social Contract

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1. Overview

The 2021 Generation Equality Forum, convened by the United Nations (UN), identified ‘Technology and Innovation for Gender Equality’ as one of the six [Action Coalition themes](#)ⁱ constituting its Global Acceleration Plan (GAP) for gender equality. The theme pertainsⁱⁱ to a) the gender digital divide — how women and girls access, use, lead, and design digital tools b) online gender-based violence and discrimination, and c) under-representation of women in innovation.

Frontier technologies such as artificial intelligence (AI), robotics and biotechnology are [recognised](#)ⁱⁱⁱ as critical to redressing global inequalities and achieving sustainable development. However, the differences between countries and social groups in their ability to produce, use and distribute the benefits of such technologies remain stark. With the double whammy of the Covid-19 pandemic and the digital divide that it exacerbated, a huge challenge confronts us in the slide-back on gains for gender equality. Although technological innovation has enabled precious [social connection](#)^{iv} and [remote work](#)^v, it has also fuelled [hate](#)^{vi}, [misinformation](#)^{vii} and [gender-based exclusion](#)^{viii}. However, as the UN *Women’s Feminist Plan for Sustainability and Social Justice* [reminds](#)^{ix} us, reverting to an imagined, better past is not the answer. The need of the hour is a visionary agenda that places sustainability, social justice and gender equality at the centre of economic recovery and transformation. Indeed then, it appears to be the right time to ask — “What role can digital technologies play in enabling gender-just economic recovery?”

2. Frontier Technologies Risk Becoming the New Poles of Gender Inequality

The severity, scale and impact of the pandemic has only cemented the ways in which the interlocking trio of digital technologies, economic production and social reproduction in the current neoliberal developmental paradigm, has [reinforced](#)^x precarities and vulnerabilities for those at the margins, particularly women in the Global South. Within weeks of the Covid19 outbreak, as nation-wide lockdowns led to [spiralling rates of domestic violence](#)^{xi} and disproportionate increases in unpaid care work^{xii} burdens among women, it became clear that while the pandemic would spare no one, it would hurt women and girls the most.

Nearly two years later, we are now staring at a world of intense inequality, one in which the wealth of digital behemoths has multiplied [manifold](#)^{xiii}. Even as governments, especially in the developing world, face a [fiscal crisis](#)^{xiv}, big digital firms are taking over the provisioning of essential [infrastructure](#)^{xv}. With 13 million fewer women in employment in 2021 compared to 2019,^{xvi} 57 per cent of the jobs likely to be displaced by digital automation between now and 2026 belonging to women,^{xvii} and significant gender gaps in the so-called “skills of the future”,^{xviii} the economy is poised dangerously to exclude and expel the majority of women. Once touted as a silver bullet for women’s entrepreneurship, e-commerce platforms are [found](#)^{xix} to be failing women entrepreneurs by using ranking algorithms that do not account for the reality of women-led enterprises, most of which are small businesses with low output levels, limited growth potential and very little capacity to bear inventory and customer service overheads. Big Tech’s platformisation of a range of services from agriculture to food delivery, which hinges on the narrative of eliminating the middleman, is actually [bringing](#)^{xx} workers, many of whom are women, into an extended ‘middle’, to do piece-rate work under the control of their invisible command centres. In the [new](#)^{xxi} platform-based labour markets enabled by frontier technologies, the unpaid care work burdens of women are subsumed under the rhetoric of flexibility, while the algorithms of such platforms are trained to reward those who are constantly available online. More concerningly, the failure of platform companies to provide adequate labour and social security provisions come at a time when the [welfare state is globally in retreat](#)^{xxii} and the pandemic has exposed [gaping holes](#)^{xxiii} in social security systems for women. It is now evident that beyond erosion of decent work and job/income losses, we stand in the midst of a full-blown [livelihood crisis](#)^{xxiv} for women.

Surveillance capitalism^{xxv} has seen the proliferation of algorithmically engineered gender-based violence. Research [cited](#)^{xxvi} by the UN Generation Equality Forum, which was based on a recent survey from the 51 most online-populated countries, showed that nearly 40 per cent of women surveyed had been harassed online and 85 per cent had witnessed harassment or some other form of online violence. Digital technologies are often [used](#)^{xxvii} for repression, censorship and online harassment, especially of women and vulnerable communities. Some of the [fastest-growing](#)^{xxviii}

applications of AI, such as sexbots and female-voiced virtual assistants, are visible manifestations of patriarchal stereotypes. It is now evident that the business models of social media platforms, which allow them to [profit from hate^{xxxix} and abuse^{xxx}](#) run antagonistic to women's rights and are unsustainable for the achievement of gender equality outcomes.

Furthermore, the brazen masculinities of Silicon Valley run parallel to this wave of sexism in technology. [Known^{xxxi} for its glass ceiling, exclusionary culture^{xxxii} and pervasive sexual harassment^{xxxiii}](#) the IT industry perpetuates an environment that is hostile to women. Hence, it is not surprising that 50 per cent of women abandon technology careers by the age of 35 and they quit tech roles at a [45 per cent](#) higher rate than men.^{xxxiv} As a result, we live in a world that is [designed by men^{xxxv}](#) — from seat belts not factoring in a smaller size for women, to certain medications only being tested on men. Women's under-representation in innovation research is [estimated^{xxxvi}](#) to result in a loss amounting to trillions of dollars in the global economy, in addition to reinforcing massive discrimination and exclusion.

If any of this feels like an alarmist sentiment towards technology, one only needs to look back at the economic history of industrialised countries and the uneven development outcomes it produced, to remember that [such alarm is neither ill-informed nor misguided^{xxxvii}](#). Feminist research points to the fact that government policies based on neoliberal ideologies are at the root of the problem, as they align with the powerful against the needs and best interests of the poor, the subordinated and the oppressed.^{xxxviii} After the oil crisis of 1970s and the subprime failures of 2008, the epoch of frontier technologies today, stands before us as yet another moment when the ruptures in the free-market paradigm are colluding with the [breakdown of the social contract](#) between people and institutions, weakening the pathways to SDG 5. Therefore, it is time for us to draw from the [rich and sustained experiences of the feminist movements](#) that have called out the harmful effects of unregulated financial capitalism and the neoliberal economic order on women's work and life, and surface the nexus between neoliberalism, economic rights and gender justice.

3. A New Social Contract Underpinned by Principles of Feminist Digital Justice

Norms that surround the development, distribution and use of frontier technologies today, are antithetical to gender justice. The fact that digital technologies entrench the exploitation and exclusion arising from gender power structures calls for a decisive break from the current techno-economic order. A new techno-

paradigm that serves human rights, social justice and gender equality should centre around a feminist social contract^{xxxix} based on three levers:

3.1 Systemic Overhaul to Address Underlying Aspects of Gender Power

As the UN Secretary-General has [pointed](#) out,^{xl} no meaningful social contract is possible without the active and equal participation of women and girls. This, however, cannot rely on an “add and stir” approach. We need a more holistic understanding of how social norms and practices work at multiple levels to systematically disadvantage women's relationship with technology. What [starts](#) as a gap in skill-sets driven by discriminatory social norms^{xli} and economic constraints, translates into an under-enrollment in STEM; moves over to become a divide in women's employment in technology and STEM fields; and persists as an exclusion in decision-making related to technology development and digital policies. What this means is that policies and practices cannot focus merely on instrumental frames of inclusion, i.e., providing skills or creating jobs. Rather, they need to address the fundamentals of the economy and what is valued. Tackling women's unpaid work burdens is a vital policy priority to effect deep and lasting change, as also creating public infrastructures in social sectors and provisioning care as a public good.^{xlii}

3.2 A Techno-economic Paradigm Based on the Rule of Law

A world in which the normative frames for humanity's technological progress is shaped by venture capitalists and corporations is [completely unsustainable^{xliii}](#). Powerful tech companies cannot don the role of political arbiters of fraught social questions. Unfortunately, the governance of data, AI and platform technologies is marked by a deep democratic deficit. As the digital paradigm intertwines with, and reorders the social paradigm, [feminist perspectives from the margins^{xliiv}](#) — on livelihoods and natural ecosystems, trade and development, reproductive and sexual health and rights, global justice and local autonomy are vital in revamping existing institutional frameworks. Frontier technologies need to be grounded in a people-centred governance framework, scaffolded by the rule of law adequate to gender equality in a pandemic-struck world.

3.3 Solidarity and Common Good as the Driver of Innovation

Digital technologies must be moulded to serve the rights and needs of those at the margins. The rules that govern their development, distribution and use need to be based on [feminist policies and practices^{xliv}](#) — the

commitment to address deep inequities, and affirm, acknowledge, share and redistribute knowledge without extraction and exploitation. [Social, economic and environmental considerations](#) must determine how digital technologies will be developed and used to promote human flourishing and social solidarity. Gender transformative innovation requires resources to be dedicated towards harnessing the public and social value of digital technologies. Private capital needs to be disciplined to ensure that market interests in frontier technologies do not supersede social interests.

4. Recommendations: How Can Digital Technologies Facilitate a Gender-just Economic Transition?

As the UNCTAD Technology and Innovation Report 2021 [notes](#),^{xlvi} making sure that the benefits of digital technologies accrue to women in meaningful ways requires agile and inclusive public policy processes — bold plans, public engagement, incentives for local investment and community participation and transnational solidarities. Below, we provide a set of recommendations spanning these areas for four key stakeholder groups: national governments, the UN, technology companies and civil society organisations.

4.1 National Governments

4.1.1. Embed STI Policies in a Feminist Economy and Society: Gender-inclusive STI policies are unlikely to have far reaching impacts, unless, as discussed above, the economy and society are steered towards a feminist transformation. This calls for a paradigm shift in the way policies and programmes are envisioned and executed. There is a need to focus on a holistic approach rooted in decentralising value distribution, prioritising local economies and putting in place institutional guarantees for women’s rights and wellbeing. From enabling women to move to [higher value segments of the digital value chain](#),^{xlvii} providing women-led enterprises incentives for digitisation, to encouraging public innovation to eliminate women’s drudgery and taxing big digital players to generate fiscal resources for care infrastructure, feminist perspectives on digitalisation and economic policy need to be mutually reinforcing.

4.1.2 Develop Digital Policies That Incentivise Women-led Enterprises: Governments must create regulatory standards for data, AI and platform technologies to enable smaller, typically women-run, enterprises to enter the digital economy. [Investments](#)^{xlviii} in high-speed connectivity, public data pools and machine-readable data sets in a wide range of sectors, public cloud infrastructure and public platform marketplaces can open up [new avenues](#)^{xlix} for women producers, micro-

entrepreneurs, artisans and service providers. Furthermore, public-community partnerships and collaborations with local women’s organisations are crucial to support contextual adoption and innovation.

4.1.3 Include Women in STI Policy Processes: Governments must make active efforts to improve gender balance in digital policy making. This must be done by adopting a two-pronged strategy of increasing representation of women in leadership positions — especially in ministries addressing digital and other technologies along with setting up participatory decision-making mechanisms that allow a diverse set of voices from groups of women’s collectives, informal workers, frontline health care staff, domestic worker unions, etc., to be included centrally and substantively in matters of STI policy.

4.2 UN

4.2.1 Increase Women’s Participation in STEM: Various UN agencies, including UN Women, UNESCO, UNICEF, ITU and others, carry a central mandate to enable governments to put in place national policies to bridge the gender digital divide and empower women and girls. Initiatives such as [community public funds](#)ⁱ and Gender and Broadband programmes can catalyse early exposure of women to technology. In partnership with UNESCO and other UN agencies, UN Women must track and report on women’s participation in STEM across countries as a key priority of SDG 5.

4.2.2 Code Feminist Perspectives Into Tech Design: Drawing on its findings from projects like [“Big Data and Gender Equality”](#)ⁱⁱ, the UN Women should launch a flagship pilot programme to deepen feminist perspectives in the design of platform, data and AI technologies. Academic institutions in STEM fields should be on-boarded to run programmes such as “Coding for Equality”, exploring how code can address intersectional discrimination, gender bias and exclusion.

4.2.3 Encourage Alliance-building Amongst Feminist Initiatives: Evidence [suggests](#)^{lii} that inclusive and interconnected feminist networks that combine diverse groups of women and have close connections with LGBTQI+ organisations, indigenous communities, etc., are better equipped to block the rollback of women’s rights and keep institutions accountable. UN Women can play an important role in encouraging progressive alliance-building on matters relating to gender equality and women’s empowerment. Support for such alliances can also take the form of investments in a network of feminist technology and innovation hubs.

4.2.4. Initiate a Process for Global, Multilateral Norm-building on Data and AI Governance: The report of the

UN Special Rapporteur on the right to freedom of opinion and expression [underscores](#) the necessity of a new global legal framework clarifying the specific obligations of States and responsibilities of companies with respect to ensuring reinforcement of, and respect for, human rights as the “power, reach and scope of AI technology grows”.^{liii} Under prevailing legal regimes, corporations from advanced AI economies are able to consolidate control over data-based intelligence, [disproportionately impacting women in the Global South](#).^{liv} The UN must take the lead to move the discourse away from industry-led self-regulation, which [has failed to yield dividends](#).^{lv} In protecting, promoting and respecting human rights in AI systems, especially for women from the South and from vulnerable social locations. A multilateral norm-building exercise for data and AI is urgently needed to anticipate emerging risks for women’s agency, autonomy and rights, including in futuristic technologies like the metaverse.

4.2.5 Secure Women’s Rights in a Platformising Labour Market: The ILO’s [Call to Action](#)^{lvi} for a human-centered recovery that is inclusive, sustainable and resilient, requires rebooting of labour regulations to combat algorithmic gender discrimination and ensure equal pay and opportunities for women to participate in the digital economy. Given the impacts of automation-induced displacement, retraining and workforce transition programmes [specifically targeted at women](#)^{lvii} in the informal and traditional labour-intensive sectors such as agriculture become crucial. The ILO should play an active role in enabling States to navigate the transition to a digital economy, also equipping them to implement [social protection schemes](#)^{lviii}, health insurance, and financial inclusion programmes to offset livelihood losses owing to labour market disruptions.

4.3 Private Sector

4.3.1 Adopt a Human Rights-based Approach: Technology companies must mandatorily adopt [UN Guiding Principles on Business and Human Rights \(UNGPs\)](#)^{lix} in the development of new products and services. The new [B-tech workstream](#) of the OHCHR,^{lx} centred around three pillars — the State’s duty to protect, the corporate responsibility to respect, and access to remedies — must form the basis for holding technology companies accountable for their responsibilities towards women and girls with regard to

adverse impacts of digital technologies. Tech environments need to be designed with attention to harm in specific cultural contexts and algorithms need to be accountable to gender-based social consequences.

4.3.2 Embrace Public Transparency: The current transparency reports released by social media companies provide [little insight](#)^{lxi} into how platforms manage gender-based online hate. This needs to be fixed through enhanced public disclosure on compliance with local laws regarding gender-based violence, including complaints received, steps taken and course corrections made. Platform companies must also provide the right to access information about, and challenge [algorithmic bias in automated decision-making](#).^{lxii}

4.3.3 Prioritise Workforce Diversity: Technology companies must adopt and set targets for gender diversity across levels, while also publishing information about this proactively. Additionally, they must actively implement initiatives such as hiring women and individuals from non-normative gender locations for STEM roles, increasing representation by geography and race, and providing STEM scholarships for female students, particularly to those from marginalised populations.

4.4 Civil Society Organisations

4.4.1 Build Capacity of Women’s Groups to Influence Policy: Civil society has been instrumental in ensuring that the voices and the rights of women and marginalised communities are privileged in the development of technologies. Meaningful alliances for collective action across traditional and emerging sectors are important to strengthen the capacity of feminist actors to respond to the challenges brought about by new waves of technological change, enabling cross-sectoral and sector-specific engagement in local to global policy processes.

4.4.2 Amplify Local Innovations: Civil society organisations are well-placed to gather and share knowledge on alternative, human rights-based, people-centred technology practices, particularly those developed, run, and owned by local communities. Developing strategies to amplify such experiments through communities of practice is vital to destabilise top-down ideas of innovation.

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- ^{lxii} Athreya, B. (2021, May 21)