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# Reimagining Women's Empowerment: Digital Inclusion, Cyber Security, and Participation in India

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**Abstract**— The rapid expansion of the digital ecosystem has transformed economies, governance, and social interactions, positioning technology as a key driver of inclusive development. However, this transformation has not been experienced equally, as a persistent digital gender divide continues to limit women's access to and participation in digital spaces. This paper critically examines the structural, socio-cultural, and economic factors contributing to the digital gender gap in India, with particular emphasis on disparities in access, digital literacy, and online safety.

Drawing upon the framework of the Sustainable Development Goals (SDG 5), especially Target 5.B, the study evaluates existing legal and policy mechanisms aimed at promoting digital inclusion and women's empowerment through information and communication technologies (ICTs). It further analyses how the Fourth Industrial Revolution, while offering new opportunities, simultaneously reinforces existing inequalities when access and participation remain uneven.

The paper argues that despite the perceived neutrality of cyberspace, entrenched gender biases and systemic barriers continue to shape women's digital experiences. It highlights the need for gender-responsive ICT policies, stronger legal safeguards against online harms, and targeted interventions to enhance digital literacy and accessibility for women and girls. By addressing these challenges, the study underscores the importance of bridging the digital gender divide to achieve substantive gender equality and sustainable development in India's rapidly evolving digital economy.

**Keywords**—Digital Gender Divide; Gender Equality; ICT; SDG 5; Digital Inclusion.

## I. INTRODUCTION

Bridging the digital gender divide has emerged as a critical global priority in the pursuit of equitable and inclusive development. Despite rapid technological advancement and increasing digital connectivity, women and girls continue to face significant barriers in accessing, using, and benefiting from digital technologies. This disparity not only limits individual empowerment but also constrains broader socio-economic progress. Recognising the urgency of this issue, global development frameworks have increasingly emphasised the need to ensure equal digital access and participation.

Addressing the structural, socio-cultural, and economic factors that contribute to the digital gender divide is therefore essential for achieving meaningful gender equality in the digital age.

The United Nations adopted the Sustainable Development Goals (SDGs), commonly referred to as the Global Goals, in 2015 as a global call to action to eradicate poverty, safeguard the environment, and guarantee wealth and peace for all by 2030. The SDGs, which are made up of 17 interrelated goals, aim to address urgent global issues such as gender inequality, poverty, hunger, health, education, and environmental sustainability<sup>[1]</sup>. Among these, Goal 5 is particularly focused on empowering all women and girls and achieving gender equality, which is acknowledged as being crucial for sustainable development.

Nine specific targets make up Goal 5, which aims to end all forms of violence and discrimination against women and girls in both public and private settings, guarantee equal rights to economic resources and technology, and ensure equal participation in leadership and decision-making. Target 5.B, in particular, focuses on increasing the use of enabling technologies, particularly information and communication technologies (ICTs), to support women's empowerment. This target is extremely important in a time of rapid digital transformation.<sup>[2]</sup>

The Fourth Industrial Revolution, which is currently underway, is defined by a convergence of technologies that make it harder to distinguish between the digital, biological, and physical domains. At a never-before-seen rate, this revolution is changing economies, societies, and industries while creating new chances for inclusive growth, innovation, and connectivity. The digital gender divide, a persistent disparity in men's and women's access to, use of, and participation in digital spaces and technologies, is one of the most alarming of the many complicated issues it brings.<sup>[3]</sup>

<sup>1</sup> *Sustainable Development Goals*, <https://www.undp.org/sustainable-development-goals>.

<sup>2</sup> <https://www.un.org/sustainabledevelopment/gender-equality/>.

<sup>3</sup> *What is The Fourth Industrial Revolution?* — updated 2025, IxDF (Mar. 20, 2024), <https://www.interaction-design.org/literature/topics/the-fourth-industrial-revolution>.



This problem is especially important in India. In 2022–2023, the nation's digital economy contributed INR 31.64 lakh crore (roughly USD 402 billion), or 11.74% of its GDP. It has since emerged as a major engine of employment and economic growth. Digitally enabled industries, such as ICT services and the production of computers, communication devices, and electronic components, employ about 14.67 million people, or 2.55% of the workforce. These industries are productive and crucial to the growth of the nation because they account for 7.83% of the GDP.<sup>[4]</sup>

Gender differences in digital access and participation are still pronounced despite this remarkable expansion. Theoretically, cyberspace is a gender-neutral and non-discriminatory environment, but in reality, women and girls encounter many obstacles to meaningful engagement in the digital sphere. These include systemic exclusion from technology-related education and employment opportunities, sociocultural limitations, economic limitations, a lack of digital literacy, and online harassment. In addition to undermining women's fundamental rights, this reality also goes against the larger objectives of social justice and economic advancement<sup>[5]</sup>.

Even though technology has the capacity to revolutionise gender equality, offline disparities are still reflected in and sometimes made worse by the digital world. Because they are underrepresented in digital spaces, women are less able to access information, take part in decision-making, and take advantage of the opportunities presented by digital economies. Achieving the goals outlined in SDG 5 and promoting inclusive and sustainable growth in the digital age depend on closing this digital gender gap.

Despite the inherent neutrality of cyberspace, this paper aims to investigate the causes of the ongoing gender inequality in the field of technology. This paper seeks to determine the causes of India's digital gender gap, evaluate the current legal and policy frameworks designed to encourage digital inclusion, and determine how well they work to address the problem. To ensure that women and girls can equally engage in and benefit from the digital revolution, the study will also emphasise the importance of bolstering gender-responsive ICT policies and interventions.

## II. METHODOLOGY

This study uses doctrinal research methodology to investigate information and communication technologies (ICTs), gender equality, and the digital gender divide in India, mainly through qualitative analysis of existing literature, international conventions, legal provisions, government reports, and policy documents. The doctrinal approach facilitates a more straightforward critical analysis of the legal and normative frameworks governing digital inclusion, particularly regarding their treatment of gender-based disparities in participation, access, and usage within digital spaces.

To understand the current extent of the digital gender divide, the study draws on a wide range of secondary sources, such as academic articles, official statistics, reports by international organizations, policy papers and relevant case law. The sources are used to understand the scope and type of gender-based exclusion in the digital sphere, to identify structural and legal gaps, and to assess the effectiveness of existing frameworks to promote equitable access to the digital space.

The paper also critically discusses the global norms and standards, especially those aligned with SDG 5.B to analyse the relevance and implementation of the same in the Indian context. This approach enables the research to identify gaps and limitations in existing legal and policy frameworks and to make evidence-based recommendations for improving gender-responsive ICT policies to close the digital gender divide and to attain inclusive digital participation.

## III. THE DIGITAL DEMOGRAPHIC LANDSCAPE

As the global community approaches the critical deadlines set by the 2030 Agenda for Sustainable Development, the intersection of digital transformation and gender equity has emerged as a paramount policy concern. In early 2026, data from the United Nations indicate that India's population stands at an estimated 1.47 billion, up 13 million since the end of 2024. The demographic distribution reflects a nation where 48.4 per cent of the population is female, and the geographical spread remains predominantly rural, with 62.5 per cent of citizens residing outside urban centres<sup>[6]</sup>. Against this vast demographic backdrop, India is executing one of the most ambitious digital integrations in human history.

<sup>4</sup> *Future Ready: India's Digital Economy to Contribute One-Fifth of National Income by 2029-30*, (Jan. 28, 2025), <https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2097125>.

<sup>5</sup> *Ministry of Electronics and Information Technology, Government of India*, (May 4, 2024), <https://www.meity.gov.in/>.

<sup>6</sup> *India's Population To Hit 1.46 Billion In 2025, Fertility Rate Declining: UN Report*, NDTV (June 10, 2025), <https://www.ndtv.com/india-news/indias-population-to-reach-1-46-billion-this-year-un-report-8635609>.

The nation's active internet user base has surged to a staggering 958 million individuals, driven heavily by an aggressive rural adoption rate that is currently outpacing urban digital growth by a factor of nearly four<sup>7</sup>. Initiatives championed by the state and private sectors have positioned India as a nascent "metapower," a nation leveraging cutting-edge digital public infrastructure to formalise its economy and streamline governance.

Beneath the narrative of a technologically empowered India lies a persistent digital gender divide. Although the country has nearly a billion internet users, about 47% of the population remains offline, with women disproportionately affected. Reports by GSMA and domestic surveys show that women are 33% less likely than men to use mobile internet<sup>8</sup>. This gap goes beyond infrastructure—it reinforces existing inequalities. As essential services like education, welfare, finance, and employment move online, limited digital access leads directly to greater socio-economic marginalization for women.

The macro-level implications of this divide are reflected in India's standing on global indices. According to the World Economic Forum's Global Gender Gap Report 2025<sup>9</sup>, India ranked 131st out of 148 countries, slipping two places from its 2024 position despite near-parity in educational attainment (97.1 per cent). The report highlights that while educational gaps are closing, economic participation and opportunity remain constrained, scoring a mere 40.7 per cent. This economic stagnation is inextricably linked to digital exclusion. A vast cohort of India's 691 million women represents untapped potential that is systematically barred from the digital economy due to an intricate web of infrastructural, economic, and patriarchal barriers.

#### IV. THE STATICAL TOPOGRAPHY OF THE DIGITAL DIVIDE:

The intricate statistical topography of internet and mobile usage in India must be analysed to fully appreciate the extent of digital exclusion. Although the overall number of internet users suggests widespread adoption, broken-down data shows glaring disparities in application usage, gender, and region.

##### A. Social Media And Online Identity Desparities:

The digital divide is highly visible within the realm of social media, which serves as a primary hub for digital socialisation, civic engagement, and modern commerce. Advertising planning tools utilised by top social media platforms indicate that there were 455 million user identities aged 18 and above in India at the end of 2025. This figure is equivalent to 43.9 per cent of the total adult population. However, the gender distribution within this user base is severely skewed. At the close of 2025, only 35.6 per cent of India's social media user identities were female, while 64.4 per cent were male<sup>10</sup>.

This disparity becomes even more pronounced when analysing specific platforms that heavily influence political discourse and professional networking. For instance, data indicates that 2.0 per cent of Indian adults used the platform X (formerly Twitter) by late 2025. Within X's adult advertising audience in India, a staggering 87.4 per cent were male, leaving women to represent only 12.6 per cent of the user base<sup>11</sup>.

Such figures highlight a critical deficit in women's capacity to participate in national digital conversations, severely limiting their political empowerment and public voice. When compared globally, the situation is acute; the Asia-Pacific region harbours the widest mobile gender gaps, with India exhibiting a wider gender gap in mobile internet usage than neighbouring countries like Pakistan, Indonesia, and China.

##### B. The Dichotomy Of Access, Ownership, And Shared Devices:

The confusion between "access" and "ownership" is a major problem in the debate surrounding digital inclusion. Even though many Indian homes are thought to be digitally connected, not everyone has equitable access, particularly women.

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<sup>7</sup> India's internet user base crosses 950 million in 2025: IAMAI report, ET BRAND EQUITY (Jan. 30, 2026), <https://brandequity.economicstimes.indiatimes.com/news/digital/indias-internet-user-base-crosses-950-million-in-2025-iamai-report/127794708>.

<sup>8</sup> Nearly 47 pc Indians still offline, women 33 pc less likely than men to use internet: GSMA, THE ECONOMIC TIMES NEWS (Oct. 10, 2025), <https://economicstimes.indiatimes.com/news/india/nearly-47-pc-indians-still-offline-women-33-pc-less-likely-than-men-to-use-internet-gsma/articleshow/124435065.cms?from=mdr>.

<sup>9</sup> Gender Gap Report 2025, World Economic Forum (Apr. 24, 2025), [https://www.weforum.org/publications/global-gender-gap-report-2025/in-full/key-findings-3902497c1d/?gad\\_source=1&gad\\_campaignid=22228224717&gbraid=0AAAAoVy5F5407WzLhR-IJUz3kA\\_c95W&gclid=CjwKCAjwhqfPBhBWEiwAZo196hOQjZD53OfnL1D7mzbhZRvIRNs7MSW4h8Uj94xpgl6XymLlShgwBoCzEcQAvD\\_BwE](https://www.weforum.org/publications/global-gender-gap-report-2025/in-full/key-findings-3902497c1d/?gad_source=1&gad_campaignid=22228224717&gbraid=0AAAAoVy5F5407WzLhR-IJUz3kA_c95W&gclid=CjwKCAjwhqfPBhBWEiwAZo196hOQjZD53OfnL1D7mzbhZRvIRNs7MSW4h8Uj94xpgl6XymLlShgwBoCzEcQAvD_BwE).

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<sup>10</sup> Simon Kemp, *Digital 2026: India — DataReportal — Global Digital Insights*, (Nov. 5, 2025), <https://datareportal.com/reports/digital-2026-india>.

<sup>11</sup> Affect Performance Team, *India X Ads Reach 2025*, Download XLSX (Sept. 8, 2025), <https://affectgroup.com/blog/x-ads-twitter-audience-size-and-demographics-in-india/>.



Men are 1.3 times more likely than women to be the major device owners, with 73.7% of men owning smartphones compared to just 56.6% of women<sup>[12]</sup>.

Mobile phones are the main means of accessing the internet and are widely used by both sexes (NSSO, 2025). Because of this, a large number of women—roughly 18% of users nationwide, especially in rural areas—rely on shared household devices (IAMAI). Because male family members frequently monitor and influence women's internet activity, this "tethered" access restricts privacy, autonomy, and freedom of speech. Consequently, even in connected households, women are 4.2 percentage points more likely than men to remain offline<sup>[13]</sup>.

*C. The Rural-Urban Intersectionality:*

The digital gender divide cannot be analysed in isolation from India's vast geographical disparities. The intersection of gender and geography creates compounded layers of exclusion. The digital infrastructure in India remains deeply inequitable, with low-income states and rural populations facing pronounced marginalisation in digital infrastructure and skill indices. The Telecom Regulatory Authority of India (TRAI) notes that internet accessibility among rural subscribers hovers around 27.57 per hundred population, starkly lower than urban penetration<sup>[14]</sup>.

Consequently, household internet access in rural areas stands at roughly 25 per cent, compared to 65 per cent in urban centres<sup>[15]</sup>. The gender gap operates as a multiplier within these geographies. Only 34 per cent of rural women have ever used the internet, compared to 55 per cent of rural men. This rural-urban divide in female digital access is particularly expansive in states such as West Bengal, Gujarat, Maharashtra, Andhra Pradesh, and Telangana, whereas states like Kerala and Goa exhibit narrower gaps. Thus, a woman in a rural area with a low-income household is subjected to geographical isolation, economic deprivation, and gender discrimination simultaneously,

making her the least likely demographic to achieve meaningful digital connectivity<sup>[16]</sup>.

**V. THE ARCHITECTURE OF EXCLUSION: TASK PROFICIENCY AND USEGE DIVIDES**

Possessing a device or securing occasional internet access does not equate to meaningful connectivity. The digital divide is starkly visible in the realm of functional digital literacy and software proficiency. The 2025 NSSO survey highlights significant gaps in the ability to execute everyday digital tasks, which creates cumulative disadvantages for women attempting to navigate the modern educational and professional spheres.

*A. Gaps in Fundamental Digital Tasks:*

The data reveal that women are substantially less likely to engage in productivity-oriented tasks that form the foundation of the digital economy.

Digital Task	Male Proficiency (%)	Female Proficiency (%)	Gender Gap (Percentage Points)
Copy and Paste Data	80.2	72.5	7.7
Messaging with Attachments	81.7	74.1	7.6
Send/Receive Email	65.9	56.4	9.5
UPI / Digital Financial Transactions	62.6	48.9	13.7
Create Electronic Presentations	38.0	33.6	4.4
Create Electronic Documents	17.7	12.6	5.1

*Source: National Sample Survey Office (NSSO) 80th Round (2025)<sup>[17]</sup>.*

<sup>12</sup> Sneha Thomas, *Digital dreams, gendered realities: Women in digital India* » CEDA, (Sept. 16, 2025), <https://ceda.ashoka.edu.in/digital-dreams-gendered-realities-women-in-digital-india/>.

<sup>13</sup> *Results of Comprehensive Modular Survey: Telecom, 2025*, Press Information Bureau (May 29, 2025), <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2132330&=3&lang=2>.

<sup>14</sup> Ashwani Dubey & Anushka Sinha, *Navigating the Digital Divide in India: A Comprehensive Guide*, 122 Humanities & Social Sciences Reviews 16-24 (2024).

<sup>15</sup> Ani, *Rural areas will be growth driver of internet, smartphone penetration in India: IAMAI*, (Aug. 24, 2024), <https://telecom.economictimes.indiatimes.com/news/internet/rural-areas-will-be-growth-driver-of-internet-smartphone-penetration-in-india-iamai/112753489>.

<sup>16</sup> *The stage has been set for gender equity in Digital India*, Bridging generations: An intergenerational approach (Mar. 22, 2023), <https://india.unfpa.org/en/news/stage-has-been-set-gender-equity-digital-india>.

<sup>17</sup> *India*, Comprehensive Modular Survey on Education-NSS 80th (Aug. 27, 2025), <https://microdata.gov.in/NADA/index.php/catalog/255>.



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According to estimates, 64% of Indian women lack the basic digital abilities needed to utilise email services. This deficiency essentially keeps them out of official corporate communication channels, digital recruiting platforms, and contemporary administrative procedures. Additionally, women are less adept at using sophisticated productivity applications, such as making electronic papers and presentations. These deficiencies reflect a systematic lack of access to formal digital training, real-world experience, and the confidence needed to use workplace documentation tools rather than being markers of innate aptitude<sup>[18]</sup>.

*B. Passive consumption vs active consumption:*

The use of technology is another way that the digital divide shows up. Men are 14 percentage points more likely than women to use the internet for work-related information searching, education, and leisure (58.6% vs 44.6%). In contrast, women are 10 percentage points more likely than males to use the internet only for simple conversation and passive enjoyment (35.7% against 25.8%). This disparity in utilisation draws attention to a crucial fact: for many Indian women, technology serves more as a limited recreational tool than as a means of achieving socioeconomic mobility. The internet's transformational promise remains unrealised if people lack the skills or independent access necessary to investigate online education, remote gig employment, or digital entrepreneurship<sup>[19]</sup>.

**VI. SOCIO-CULTURAL DETERMINANTS: TECHNO-PATRIARCHY AND DIGITAL PANPTION**

Social standards that are patriarchal actively create and sustain the digital gender gap. This relationship is aptly captured by the sociological notion of "Techno-Patriarchy," which defines a socio-political system in which women's access to technology resources is severely limited, closely watched, or completely prohibited, while males alone own and control this power. According to this perspective, technology does not destroy gender inequalities; rather, it strengthens them.

*A. Intra-household gatekeeping and surveillance:*

Smartphones are seen as "digital leashes" in many semi-urban and rural homes because digital gadgets are seen

with distrust about female morals. A "digital panopticon" that imposes self-censorship is created when male guardians often keep an eye on women's whereabouts, conversations, and online activity. Because they fear being misinterpreted, women and girls steer clear of educational, health, and career-related topics. Unmarried girls are often forced to use shared phones on speaker mode while being watched over, making all conversations public. Women's growth is hampered, and this intra-household restriction severely restricts their equitable access to the digital world<sup>[20]</sup>.

*B. Intersectionality: caste, poverty and son preference:*

An intersectional perspective violently exacerbates the symptoms of techno-patriarchy. What sociologists refer to as the "triple burden" of gender, caste prejudice, and extreme poverty disproportionately affects Dalit and Adivasi females. In these groups, digital isolation functions as a contemporary kind of untouchability. Households belonging to the Scheduled Castes (SC) and the Scheduled Tribes (ST) are statistically least likely to have broadband connections or digital gadgets. As a result, a Dalit girl living in rural Bihar is statistically among India's most digitally marginalised groups, experiencing almost complete exclusion from the digital grid<sup>[21]</sup>.

Furthermore, the distribution of resources in the household, including digital resources, is directly affected by deeply ingrained cultural biases such as son preference. Son preference has an impact on basic rights like child immunisation, as seen by data from the National Family Health Survey-5 (NFHS-5), where females in son-preferring homes have far lower complete vaccination rates (70.8 per cent vs 76.9 per cent). According to the Fairlie decomposition, factors such as maternal prenatal care visits, family affluence, and birth order account for 84% of the vaccination disparity. This is a crucial intersection of the digital divide: mothers who lack digital literacy or device access are unable to use government health portals, telemedicine services, or digital health tracking apps that could otherwise close these healthcare gaps, thereby sustaining intergenerational cycles of disadvantage<sup>[22]</sup>.

<sup>18</sup> Saumya Tewari, *Why India Needs To Urgently Address Gender Gap In Digital Skills*, (June 21, 2025), <https://www.indiaspend.com/gendercheck/why-india-needs-to-urgently-address-gender-gap-in-digital-skills-957650>.

<sup>19</sup> Ali Acilar, *Towards Understanding the Gender Digital Divide: A Systematic Literature Review*, 72 *Global Knowledge, Memory and Communication* 233-249 (2023).

<sup>20</sup> *Patriarchy and Digitalisation: Every Field Engagement Teaches a Lesson on Life and Change*, (Feb. 24, 2025), <https://pria.org/index.php/blog/democracy-for-all/patriarchy-and-digitalisation-every-field-engagement-teaches-a-lesson-on-life-and-change/3210>.

<sup>21</sup> Nidhi Sadana Sabharwal & Wandana Sonalkar, *Dalit Women in India: At the Crossroads of Gender, Class, and Caste*, 8 *Global Justice Theory Practice Rhetoric* 44-73 (2015).

<sup>22</sup> Soumen Barik et al., *Gender Disparities in Childhood Vaccination in India: Exploring the Role of Son Preference Using NFHS-5 Data*, *frontiers/ Frontiers in Public Health* 1-14 (2026).



#### VII. FINANCIAL INCLUSION AND THE E-COMMERCE ECOSYSTEM

Financial independence is the cornerstone of female empowerment, yet systemic financial exclusion persists within India's rapidly expanding digital economy. The digitisation of the Indian economy has been heavily driven by the Unified Payments Interface (UPI), which facilitates billions of transactions monthly. However, a stark gender gap exists in its adoption and utilization<sup>[23]</sup>.

While 62.6 per cent of men are proficient in executing UPI transactions, only 48.9 per cent of women utilise these digital financial tools. Furthermore, independent data highlights that while 10 per cent of the unbanked population utilises digital wallets without holding a formal bank account, this rate declines sharply among women, with only 3.9 per cent of unbanked women reporting digital wallet ownership. This lack of digital financial literacy and autonomy leaves women highly vulnerable to economic shocks. Women who possess control over their financial resources via digital platforms exhibit greater resilience during economic downturns and are better equipped to support their families during crises<sup>[24]</sup>.

The inability to navigate digital financial ecosystems also severely restricts female entrepreneurship. Women-run businesses are disproportionately confined to low-tech, low-revenue sectors—such as small-scale food production, tailoring, and handicrafts—due to their inability to leverage digital marketplaces, access online credit facilities, or utilize e-commerce platforms efficiently. Initiatives integrating women into platforms like Amazon Saheli and Flipkart Samarth demonstrate high potential, but broad market expansion requires foundational digital literacy and cyber-fraud awareness, as the unorganized sector is highly vulnerable to cybersecurity risks. The emerging infrastructure of the Central Bank Digital Currency (CBDC), or eRupee, holds theoretical potential to enhance digital payment adoption, but it must be paired with aggressive financial literacy campaigns tailored specifically to rural women to overcome their deep-seated lack of digital confidence<sup>[25]</sup>.

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<sup>23</sup> *Gates Aksha*, <https://aksha.gatesfoundation.org/dialogues/digital-finance-fueling-womens-empowerment>.

<sup>24</sup> eRupee Could Enhance Digital Payment Adoption in India, Deepening Women's Financial Inclusion, Women's World Banking (Oct. 22, 2025), <https://www.womensworldbanking.org/insights/erupeecould-enhance-digital-payment-adoption-in-india-deepening-womens-financial-inclusion/>.

<sup>25</sup> *e-SafeHER – a Cyber Security Awareness Training Programme to enable one million Cyber Sakhis across rural India*, <https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=2251715&lang=1>.

#### VIII. THE PARADOX OF DIGITIZED WELFARE AND STRUCTURAL MARGINALIZATION

India's fast digitisation of agricultural and social programs has led to a paradox: although intended to increase efficiency, it frequently leaves out the most disadvantaged women. Many rural women, who make up a sizable portion of the agricultural labour, lack personal gadgets, reliable internet connectivity, and digital literacy. As a result, government-mandated technologies like eKYC and app-based attendance turn into obstacles rather than helpful resources. Women are frequently unable to register for their job due to technical problems, including bad connectivity, server malfunctions, or biometric mismatches, which results in salary loss and what is essentially a "denial of work."<sup>[26]</sup>

In a similar vein, issues have arisen with the digitisation of food security systems. Ration cards have been deleted due to Aadhaar connecting errors and inaccurate data, which has prevented access to necessary food supplies. Many women must rely on others since they are unable to use online grievance mechanisms, which diminishes their independence and makes them more vulnerable<sup>[27]</sup>. Studies have long cautioned about these dangers, pointing out that digitisation might exacerbate inequality in the absence of appropriate digital access and skills. In actuality, poorly designed digital systems might further marginalise women rather than empower them. Digitisation has the potential of becoming an instrument of marginalisation rather than inclusion if women's access, infrastructure, and digital skills are not improved.

#### IX. LEGAL PERSPECTIVE FOR BRIDGING THE GENDER DIVIDE IN INDIA

Ensuring gender equality and user safety is a critical function of the legislative frameworks controlling the digital environment. But when more women use the internet for the first time, they frequently come upon a digital environment that perpetuates patriarchal views and societal injustices.

Technology-Facilitated Gender-Based Violence (TFGBV), which encompasses cyberbullying, online grooming, doxing, hate speech, deepfakes, and the non-consensual sharing of intimate photos (NCII), is one of the main obstacles to women's digital participation. Such crimes have significantly increased, according to recent data, including a 40% spike in NCII complaints in India.

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<sup>26</sup> Disha Verma, No place for tech: How digital interventions in NREGA are undermining rural social security, (Feb. 20, 2024), <https://internetfreedom.in/no-place-for-tech-in-nrega/>.

<sup>27</sup> Sameet Panda, Datafication of the Public Distribution System in India.



**International Journal of Recent Development in Engineering and Technology**  
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Over 50% of women worldwide report having been abused online. Women are discouraged from actively participating online by this hostile climate, and many of them self-censor or stop using digital platforms entirely out of fear of harassment and social shame<sup>[28]</sup>.

The Digital Personal Data Protection (DPDP) Act, 2023, in India is a significant step toward data regulation, but it has some significant drawbacks. Despite using inclusive terminology like "she/her," underlying gender inequality is not sufficiently addressed. The lack of gender-sensitive Data Protection Impact Assessments is a significant gap. Artificial intelligence systems trained on the majority of male-dominated datasets may promote gender prejudice, which might result in discrimination in financial services and employment.

Initiatives to raise women's understanding of cybersecurity and digital literacy are part of efforts to address the issue. The goal of initiatives like Cyber Vaahini, e-SafeHER, and Our goal at Think Digital is to give women the resources they need to securely and successfully navigate online settings. These programs are crucial for motivating women to stay engaged in the digital world rather than retreat from it<sup>[29]</sup>.

There are still a number of policy issues in spite of these initiatives. Millions of people have been effectively taught by digital literacy initiatives like PMGDISHA, but their long-term effects are constrained by a shortage of devices and ongoing assistance. In a similar vein, Digital Shakti concentrates on raising women's understanding of cybersecurity, which is a prerequisite for safer online engagement<sup>[30]</sup>.

The digitisation of assistance programs presents another significant problem. Due to inadequate internet connection and low digital literacy, many rural women struggle. Because of this, biometric malfunctions and technical mistakes frequently result in the denial of pay or benefits, further marginalising individuals.

Positively, programs like West Bengal's Kanyashree Prakalpa and higher budgetary allotments for gender inclusion have aided in advancing women's digital and

financial independence. Additionally, by facilitating voice-based access to digital services, AI-based platforms like Bhashini are assisting in the removal of language and literacy hurdles.

Overall, despite India's advancements in digital inclusion, there are still large disparities. More gender-sensitive legislation and regulations are required to guarantee that women may engage in the digital world in a secure, equitable, and self-assured manner.

#### X. STATE AND CORPORATE SECTOR INTERVENTIONS FOR BRIDGING THE GENDER GAP

The government, business community, and civil society must work together to narrow India's digital gender gap. In order to increase women's access to and involvement in the digital world, this ecosystem currently consists of government literacy programs, welfare programs, CSR activities, and NGO-led interventions.

The Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA), which has trained more than 63 million rural residents, has been instrumental in advancing digital literacy on a national scale<sup>[31]</sup>. Women's fundamental awareness and use of digital technologies have increased as a result. However, because many women do not continue to have access to gadgets and assistance following training, its long-term impact is limited. The usefulness of platforms like Mahila E-Haat, which promote female entrepreneurs, is limited by bureaucratic obstacles and insufficient financial literacy. State-level initiatives like as West Bengal's Kanyashree Prakalpa have been more comprehensive, encouraging girls to engage with digital banking systems and advancing both education and financial inclusion by depositing money directly into their bank accounts<sup>[32]</sup>.

The business sector has also made a substantial contribution, particularly by enhancing accessibility and affordability. With Reliance Jio's entry into the telecom industry, data costs were significantly lowered, increasing the availability of internet access. Localised solutions have been developed by NGOs with the help of CSR projects like the Women Connect Challenge.

<sup>28</sup> Mridushi Bose, *Why Women's Leadership in Cybersecurity and Data Privacy is Key to Bridging the Digital Gender Divide*, DSCI Promoting data protection (Mar., 2026), <https://www.dsci.in/article/content/why-womens-leadership-cybersecurity-and-data-privacy-key-bridging-digital-gender-divide>.

<sup>29</sup> *e-SafeHER – a Cyber Security Awareness Training Programme to enable one million Cyber Sakhis across rural India*, Press Information Bureau (Apr. 13, 2026), <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2251715&lang=2>.

<sup>30</sup> Poornima M et al., *Has PMGDISHA Enhanced the Digital Skills and Expanded the Freedoms of Rural Citizens? Exploration Through the Capability Approach*, 56 Council for Social Development (2026).

<sup>31</sup> *6.39 crore individuals trained under Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA) exceeding the target of 6 crore*, Press Information Bureau (Dec. 4, 2024), <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2080854&lang=2>.

<sup>32</sup> Sudha S G Anbalagan, *Empowering Women Entrepreneurs Through Digital Platforms: Opportunities and Challenges*, 13 Council for Social Development 131-135 (2024).



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While Bindi International integrates technical and digital training via solar engineering, organisations such as Anudip Foundation teach women advanced digital skills. Others, such as CYSD, PRADAN, and Solidaridad, use livelihood initiatives and self-help organisations to encourage group empowerment. Digital literacy may immediately lead to empowerment, as demonstrated by initiatives like ZMQ Development and Development Alternatives, which employ digital tools to increase healthcare access and generate economic possibilities.

Linguistic difficulties, which frequently keep rural women from accessing internet services, are being addressed by artificial intelligence. Voice-based technology and real-time translation are used by platforms such as Bhashini and Jugabandi to enable users to communicate in their native tongues. This makes digital inclusion more accessible by enabling women to obtain information on government programs, healthcare, and agriculture without requiring high reading or English ability.

In order to attain digital gender equality by 2030, a more targeted policy strategy is needed. First, rather than depending on shared family access, legislation should guarantee that women possess their own digital devices. Second, gender-sensitive clauses like required bias audits in AI systems have to be included in data protection legislation like the DPDP Act. Third, digital literacy programs need to cover cybersecurity, privacy, and digital consent in addition to fundamental skills. Fourth, more flexible employment options should be made available to support women's social and household obligations, particularly in the gig economy. Lastly, governments can use public procurement regulations and targeted funding to support women-led digital businesses.

In general, the digital gender gap in India is a structural problem with roots in social and economic injustices rather than only a technological one. While new opportunities are presented by infrastructural and AI improvements, these innovations might exacerbate already-existing disparities in the absence of gender-sensitive policies and inclusive measures. In order to achieve real digital inclusion, it is necessary to remove these structural obstacles and guarantee that women may engage in the digital economy in a safe and equitable manner.

#### XI. CONCLUSION

The purpose of this study was to investigate the underlying reasons of India's digital gender gap, appraise the efficacy of current legal and policy frameworks, and determine if these measures can guarantee meaningful inclusion.

The study shows that the digital divide is a deeply ingrained structural problem affected by sociocultural norms, economic dependence, safety concerns, and systematic policy gaps rather than just a question of technological availability. Women's capacity to fully engage in the digital ecosystem is hampered by several factors, including low digital literacy, restricted device ownership, language difficulties, and the constant fear of online assault.

Even while India has made significant strides with programs like PMGDISHA, Digital Shakti, and other corporate and state interventions, the efficacy of these frameworks is still inconsistent. Although they show symbolic inclusion, laws like the DPDP Act, 2023, are insufficient to solve systemic injustices, especially when it comes to algorithmic bias and gender-sensitive data governance. In a similar vein, AI-driven platforms and welfare digitisation present both potential and hazards, enabling some women but excluding others who lack the requisite digital skills or infrastructure.

The analysis emphasises that closing the digital gender gap calls for a comprehensive, gender-responsive strategy rather than discrete efforts. It is crucial to strengthen ICT regulations with an emphasis on digital consent, device ownership, cybersecurity, and inclusive design. Furthermore, incorporating women into the digital economy through capacity-building initiatives, targeted investments, and flexible employment patterns may turn digital access into true empowerment.

In conclusion, achieving true digital inclusion in India requires a shift from symbolic participation to substantive equality. Only through sustained, coordinated efforts across legal, policy, and social domains can women and girls fully engage in and benefit from the digital revolution, thereby contributing to a more equitable and inclusive digital future.

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