Closing the Digital Skills Gap:

A Gender Perspective on India's Digital Readiness

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India's digital ambitions are accelerating, woven into the pulse of everyday life—from AI-powered services to mobile-first education. Yet, as the country advances toward a tech-driven economy, a quieter, more nuanced challenge emerges: the gendered fault lines of technological access and digital skilling. India's transformation into a digital economy has been swift and sweeping—but not uniformly so.
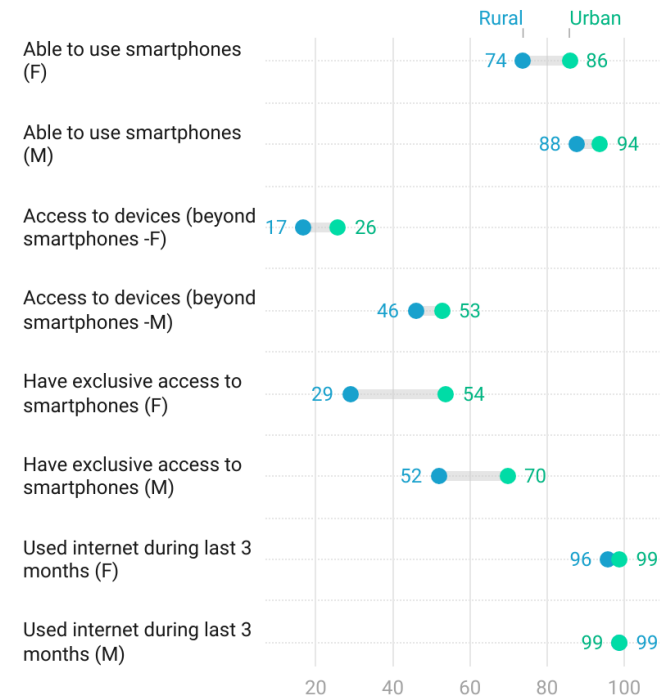
The 79th round of the National Sample Survey, through the Comprehensive Annual Modular Survey (CAMS 2022–23), casts light on this evolving landscape. It offers more than numbers—it brings clarity to where access and ability diverge, and how gender continues to shape that divide.

In rural India, smartphones have become a near-ubiquitous tool, with 86.2% of young men aged 15–29 able to use them. Among young women, that figure stands at 74.2%—a significant uptake, yet reflective of lingering disparities. Urban youth fare better, narrowing the gap: 94.1% of young men use smartphones, compared to 88.2% of women. But the story grows more complex when examining device ownership. Only 29.3% of rural young women and 53.6% of urban young women report exclusive access to a smartphone, while over half of rural men and approximately 70% of urban men do. Shared access, common among women, can mean limited time, reduced privacy, and fewer opportunities to build confidence with technology.
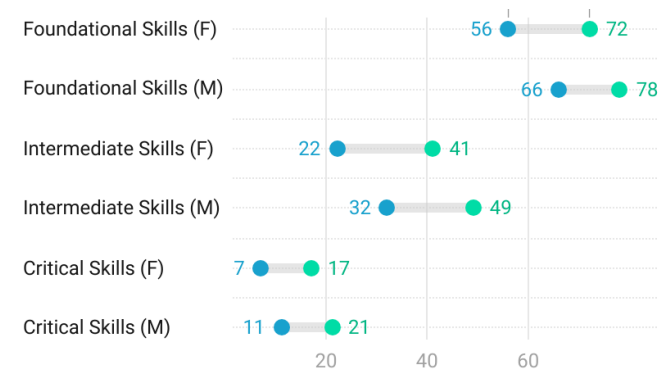
A similar gender gap exists in digital device use beyond smartphones. In rural areas, only 17.4% of young women use digital devices other than smart phones versus 26% of men. Urban figures are higher—46% for women and 53% for men—but the gap remains. These figures underscore a broader pattern: as devices diversify, so do the barriers, with women continuing to face steeper hurdles to full digital participation.

Despite this, the momentum is shifting. Internet use among youth tells a more optimistic story. Over 96% of young rural women and 98.8% of young urban women report having accessed the internet in the three months prior to the survey, nearly on par with young men. Much of this can be attributed to India's extensive mobile broadband network and the growing familiarity with everyday apps. Even shared devices now open a window into the digital world.

Rural-urban divide (Access)

Rural   Urban

	Rural	Urban
Able to use smartphones (F)	74	86
Able to use smartphones (M)	88	94
Access to devices (beyond smartphones -F)	17	26
Access to devices (beyond smartphones -M)	46	53
Have exclusive access to smartphones (F)	29	54
Have exclusive access to smartphones (M)	52	70
Used internet during last 3 months (F)	96	99
Used internet during last 3 months (M)	99	99

Rural-urban divide (Skills)

	Rural	Urban
Foundational Skills (F)	56	72
Foundational Skills (M)	66	78
Intermediate Skills (F)	22	41
Intermediate Skills (M)	32	49
Critical Skills (F)	7	17
Critical Skills (M)	11	21

Access ≠ Empowerment:

Access alone does not guarantee digital empowerment; the type and level of digital skills one can master are crucial for workforce readiness. The NSS CAMS 2022–23 collected data on a range of digital skills, from basic to advanced, allowing a comparison of skill proficiency between young men and women.


Digital Skills: Rural (Age group: 15-29
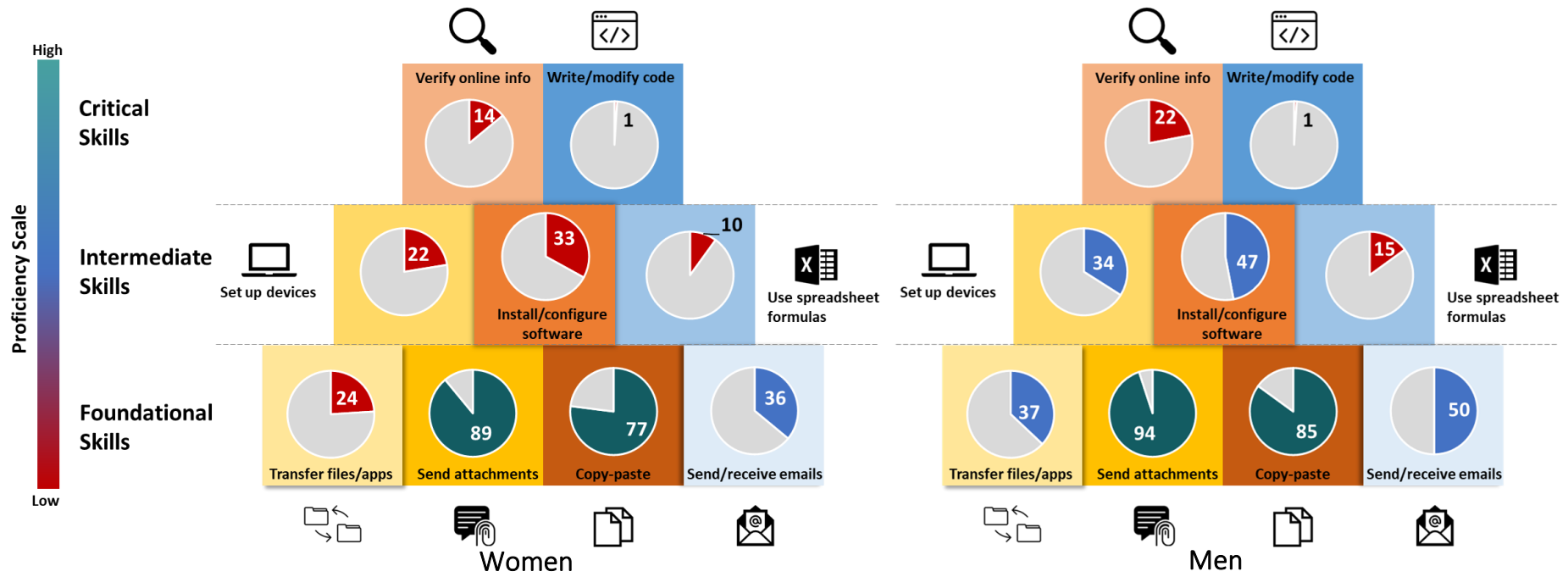
From Clicks to Code: Rural Women Remain Stuck at the Digital Starting Line

- Gender gaps persist across all skill levels, with rural women consistently trailing behind men.
- On average, women lag behind men by 10 percentage points in foundational and intermediate digital skills.
- Everyday digital tasks—like sending attachments or copy-pasting text—are widely adopted, reflecting their integration into daily life.
- Limited access to personal devices restricts exposure to higher-order digital skills; while these are rare overall, women are disproportionately excluded.

Digital Skills: Urban Age group: 15-29

Women

Men
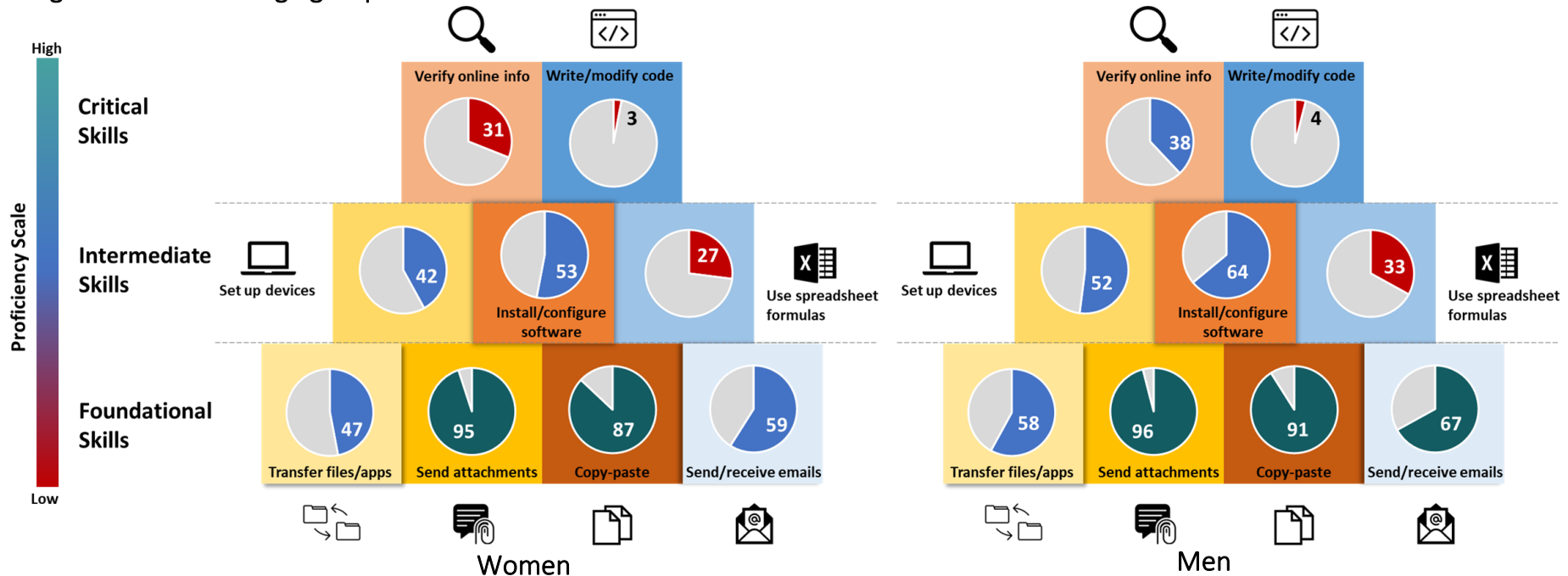
Surface Progress, Subtle Gaps: Urban Women Struggle to Scale the Skills Curve

- On average, women trail men by six percentage points across all skill levels, with the gap widening most notably at the intermediate tier (nine percentage points).
- Skilling levels drop sharply across tiers, with a 50% decline for women and 46% for men as tasks shift from foundational to advanced.
- Women have better access to devices in urban setups, though that doesn't translate to skill proficiency.

Throughout the survey, a clear pattern is observed across all levels of digital skills: as complexity increases, proficiency drops, and the gender gap grows wider. What emerges is a digital skills pyramid: broad at the base with basic familiarity, narrow at the top where critical skills are rare, especially among women. Rural young women sit at the lowest rung of this hierarchy, consistently reporting the least proficiency.
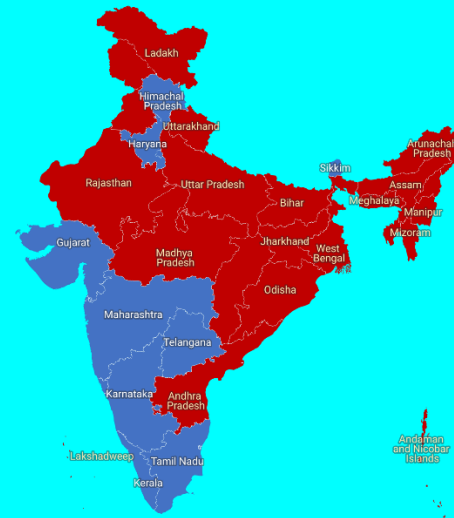
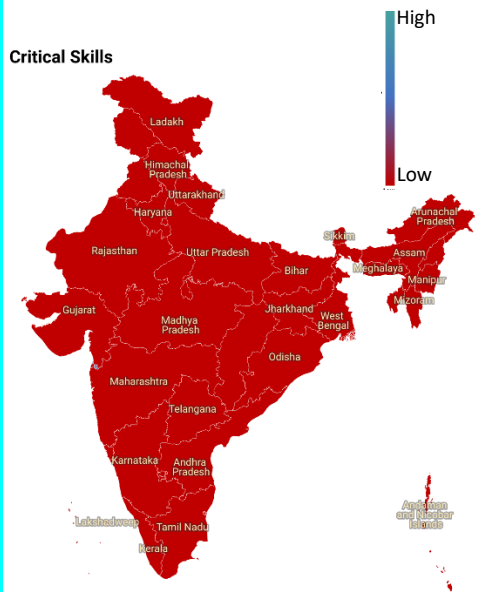# State Wise Variations in Digital Skills of Young Women

Foundational Skills

Intermediate Skills

Critical Skills

High

Low

There is a noticeable skill divide between northern and southern states—women aged 15–29 in the south show stronger foundational and intermediate skills.

However, this advantage fades at the advanced level, where all states uniformly reflect a lack of critical skills among women.

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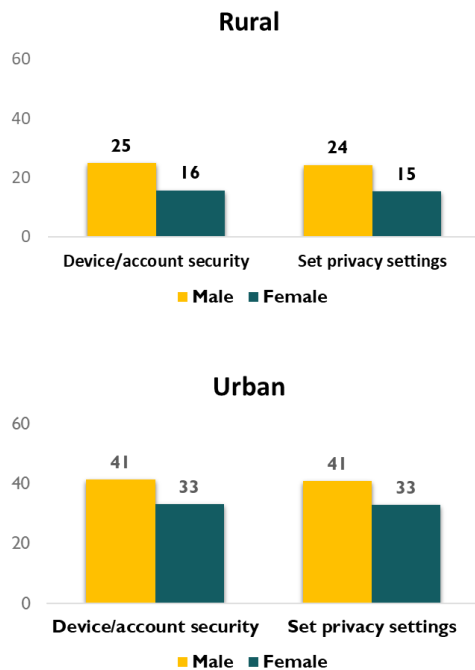
Security and Privacy: The Overlooked Digital Skills

Rural

Urban

In an increasingly connected world, knowing how to protect one's data is no longer optional—it's essential. From strong passwords to adjusting privacy settings, digital safety is now a baseline skill for anyone navigating the online world. Yet, CAMS data reveals low engagement across the board, with as many as five in six women in rural and two in three women in urban setups not subscribing to basic cybersecurity hygiene.

This gap matters. Without these skills, women are more vulnerable to online threats—fraud, harassment, and data misuse. In response, many may limit their digital presence, resulting in lower confidence, autonomy, and agency while engaging with the digital economy. That cautious approach, while understandable, can also lead to missed opportunities in education, employment, and civic life.

In the workplace, where cloud computing and AI tools are becoming the norm, digital safety goes beyond personal use—it's about professionalism. Employees are expected to manage data responsibly. A lack of familiarity with privacy protocols may leave women less prepared for roles that demand these competencies.
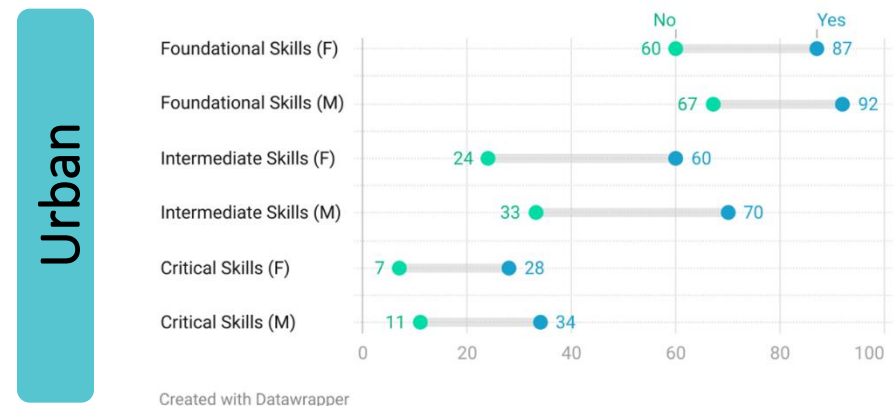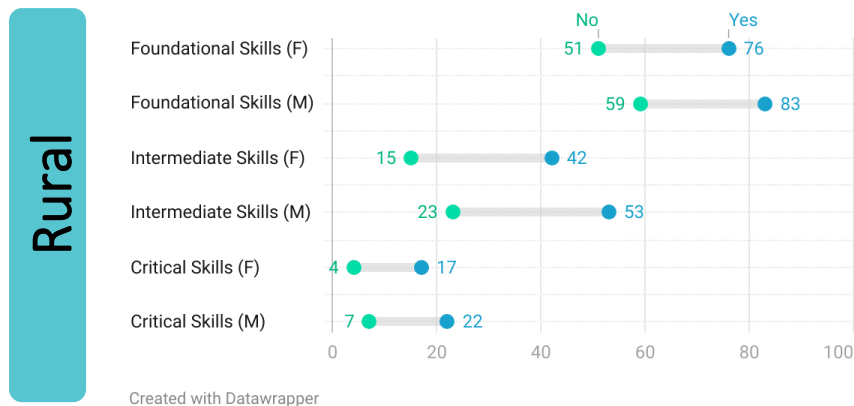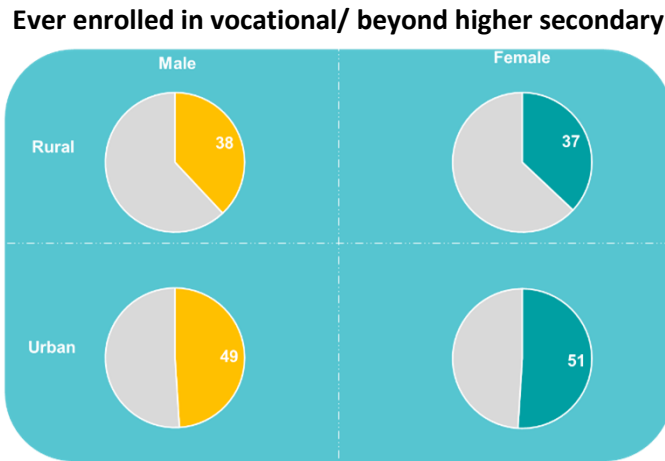
Understanding one's digital footprint—how data is collected, stored, and used by algorithms—is critical for agency in an AI-powered world. If women are less equipped to navigate these systems, they risk being not just underserved, but systematically sidelined by the very tools shaping the future.

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Ever enrolled in vocational/ beyond higher secondary

Role of Formal Training

Women are just as likely as men to have pursued vocational training or formal education beyond higher secondary, a critical stepping stone for digital skill development. Insights from the CAMS survey underscore the importance of structured training in equipping youth aged 15 to 29 with the digital competencies required for today's job market.

However, significant disparities persist. In rural areas, the average gap in digital skill acquisition between those who have completed vocational training or post-secondary education and those who have not stands at 23 percentage points. This gap widens to 28 percentage points in urban settings. These differences remain consistent across genders and skill levels, highlighting that access to educational opportunities, rather than gender alone, plays a decisive role in digital readiness.

Rural

	No	Yes
Foundational Skills (F)	51	76
Foundational Skills (M)	59	83
Intermediate Skills (F)	15	42
Intermediate Skills (M)	23	53
Critical Skills (F)	4	17
Critical Skills (M)	7	22

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Urban

	No	Yes
Foundational Skills (F)	60	87
Foundational Skills (M)	67	92
Intermediate Skills (F)	24	60
Intermediate Skills (M)	33	70
Critical Skills (F)	7	28
Critical Skills (M)	11	34

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Skill gap -

● Never enrolled
● Ever enrolled in vocational/ beyond higher secondary

Barriers

The barriers women face in accessing digital technology are neither simple nor singular—they are woven from threads of economy, culture, and confidence. In lower-income households, the allocation of devices and data often tilts toward male family members, a quiet prioritisation that can sideline girls and women from the start. Cultural norms add weight—concerns about autonomy or safety often translate into hesitancy around women owning phones or spending time online.

For first-time users, this leads to a confidence gap. Limited exposure and digital literacy leave many women navigating technology tentatively, more out of necessity than empowerment. Systemic hurdles—from restricted access to entrenched gender roles—further complicate progress. Safety concerns, too, loom large. Fears of online harassment or surveillance often mean rural women, especially, go online in monitored settings or through shared devices.

These constraints not only reduce the time spent online but also the quality of engagement, making it harder to develop the digital fluency required for jobs, education, or participation in the AI-powered economy. But awareness is growing, and so is opportunity. With targeted support, the shift from passive use to confident digital agency is within reach.

Toward an Inclusive Digital Future

The evidence is unmistakable: gender gaps in digital access and skills remain widespread in India, with rural young women facing the steepest barriers. From sending an email to writing code, women consistently trail their male peers—gaps that not only limit individual opportunity but also constrain national progress in the digital era.

Closing this divide is both a question of equity and a matter of economic strategy. Studies show that bridging the digital gender gap could add billions to global GDP. Connecting 600 million more girls to the internet alone could generate $13–18 billion.[1] Yet in high-growth fields like AI, women remain underrepresented—making up just 33% at the junior level and even fewer in senior roles.[2] These outcomes are not accidental; they trace back to the foundational gaps visible in India's data.

India's National Education Policy (NEP) 2020 offers a timely and viable blueprint for change. It places digital readiness at the center of educational reform and introduces coding and computational thinking from Class 6 onward—helping normalize early exposure to technology for both girls and boys. Just as important, NEP emphasizes digital literacy and citizenship, equipping students not only with technical know-how but also the critical thinking and online safety skills needed for meaningful digital participation.

If implemented effectively, these reforms can shift the trajectory. They offer a chance to prepare the next generation of women—not just to use technology, but to shape it. And in doing so, they bring India closer to a digital future that is inclusive, innovative, and truly representative.

[1] South Asia's Digital Gender Divide – World Economic Forum
[2] GenAI: The Diversity Game Changer We Can't Ignore