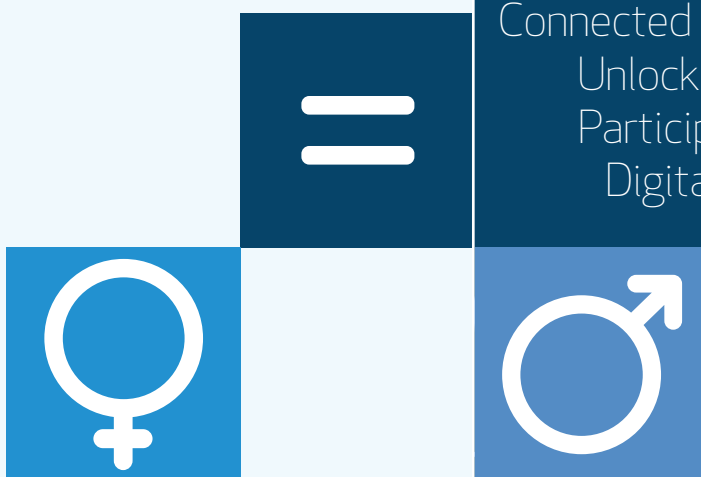




Commission
for Gender
Equality



TRANSFORMATION REPORT

Digital Gender
Transformation and
Women's Participation
in the Digital Economy
Project reference: CGEQ.23/2025/26

Connected but Constrained:
Unlocking Inclusive
Participation in the
Digital Economy





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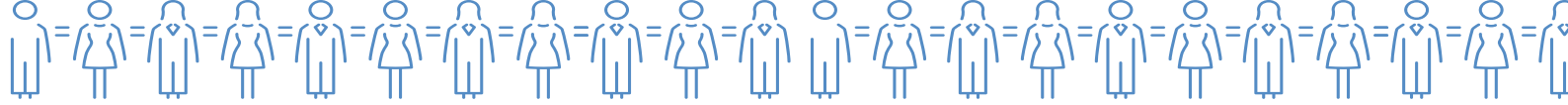
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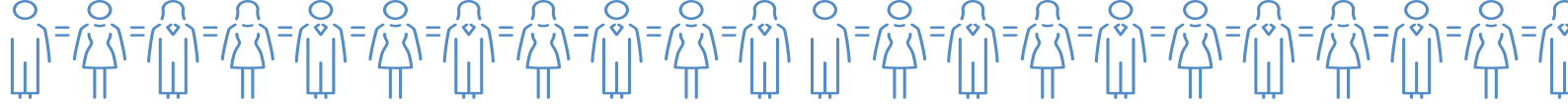
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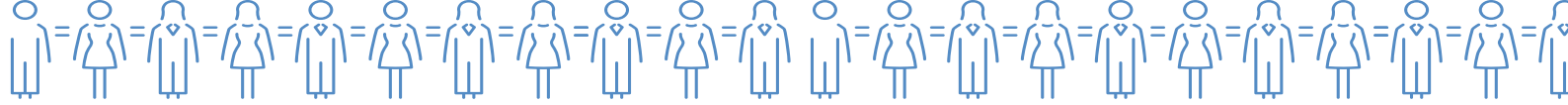


ACRONYMS

AI	Artificial intelligence
B-BBEE	Broad-Based Black Economic Empowerment
BBC	Black Business Council
BOQ	Bill of Quantities
BUSA	Business Unity South Africa
CAT	Computer Applications Technology
CGE	Commission for Gender Equality
CIPC	Companies and Intellectual Property Commission
CSD	Central Supplier Database
DBE	Department of Basic Education
DCDT	Department of Communications and Digital Technologies
DEL	Department of Employment and Labour
DHET	Department of Higher Education and Training
DSI	Department of Science and Innovation
dtic	Department of Trade, Industry and Competition
DTPS	Department of Telecommunications and Postal Services (now merged into Department of Communications and Digital Technologies)
DUT	Durban University of Technology
ECA	Electronic Communications Act
ESD	Enterprise and Supplier Development
FGD	Focus group discussion
GBV	Gender-based violence
HEI	Higher education institution
HDG	Historically disadvantaged group
ICT	Information and communications technology
ICASA	Independent Communications Authority of South Africa
IDC	Industrial Development Corporation
IoT	Internet of Things
ITU	International Telecommunication Union
MEGA (Mpumalanga)	Mpumalanga Economic Growth Agency
MICT SETA	Media, Information and Communication Technologies Sector Education and Training Authority
MVNO	Mobile virtual network operator
NEF	National Empowerment Fund
NCV	National Certificate Vocational



NGO	Non-governmental organisation
NSFAS	National Student Financial Aid Scheme
OTT	Over-The-Top (platforms)
POPIA	Protection of Personal Information Act
QCTO	Quality Council for Trades and Occupations
SARS	South African Revenue Service
SETA	Sector Education and Training Authority
SMME	Small, medium, and micro enterprises
STEM	Science, technology, engineering, and mathematics
Telcos	Telecommunications companies (e.g., Vodacom, MTN, Telkom, Cell C)
TVET	Technical and Vocational Education and Training
UMP	University of Mpumalanga
USAASA	Universal Service and Access Agency of South Africa
VIP	Ventilated
VUT	Vaal University of Technology



1 EXECUTIVE SUMMARY

This section presents a comprehensive summary of this research project commissioned by the Commission for Gender Equality (CGE) under project reference CGEQ 23/2025/26 and conducted by Mashaka Consulting. The research examines how women experience the digital economy in South Africa as community members, students, technology professionals, and small business owners across seven provinces.

1.1 Purpose and context

The CGE commissioned this research to build an evidence base for policy engagement on the intersection of gender equity and digital economic participation in South Africa. The study sits within the CGE's Strategic Outcome 3: monitoring compliance and conducting research on issues that undermine gender equality and constitutes a key deliverable in its 2025/2026 Annual Performance Plan.

Digital transformation has emerged globally as both an economic imperative and a potential social equaliser; however, in South Africa, it is replicating and reinforcing inequality rather than closing the gap. The digital gender gap is not a single problem with a single solution. It manifests across multiple compounding dimensions: physical access to devices and the internet, data affordability, digital literacy and skills, representation in technology sectors, economic use of digital tools, and safety and security in online spaces. These dimensions do not operate independently; deficits in one area compound disadvantages in others, creating cumulative barriers that are worst in rural and peri-urban contexts where most of the women in this study live and work.

1.2 Research design and scope

The study adopted a mixed-methods design, combining qualitative and quantitative instruments across four primary target populations:

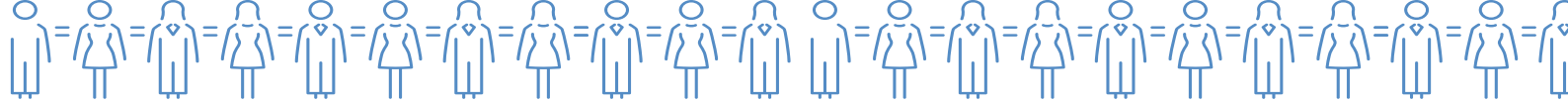
- Community women in rural and peri-urban settings (four focus group discussions in Hammanskraal, Tubatse, Siyabuswa/Tweefontein, and Parys)
- Women in the technology sector (eight in-depth interviews with professionals from intern to CIO level)
- Small, medium, and micro enterprises (SMMEs) and the institutions that support them (two focus groups in Diepsloot; 15 institutional stakeholder interviews; limited online SMME survey)
- Students at higher education institutions (three student focus groups; 11 higher education institution (HEI) institutional interviews; student survey of 459 respondents across five provinces).
- Data collection was undertaken from November 2025 to May 2026 across Limpopo, North West, Mpumalanga, KwaZulu-Natal, Eastern Cape, Free State, and Gauteng. In total, 35 in-depth interviews were completed, nine focus group discussions were conducted, and 459 student survey responses were retained after cleaning, reaching the upper bound of the planned target of 300-500.



1.3 Nine cross-cutting themes

Analysis across all four research cohorts and multiple data collection instruments yields nine cross-cutting themes that characterise women's engagement with the digital economy in South Africa. These themes emerge from the voices of women themselves, the experiences of professionals navigating technology careers, the assessments of institutional stakeholders working with SMMEs, and the survey responses of students on the threshold of participation in the digital economy.

#	Theme	Core Finding
1	The smartphone paradox: connected but constrained	Smartphones are the near-universal entry point to digital life across all cohorts, but they are a narrow, inadequate gateway. Women are using phones to run businesses, apply for jobs, support their children's education
2	The infrastructure of exclusion: connectivity, electricity, and cost	Reliable, affordable internet is necessary. Data costs remain prohibitive, network quality is inconsistent, and South Africa's unique electricity instability directly undermines connectivity. These are not peripheral inconveniences; they are issues that determine whether the opportunities of the digital economy are accessible to the women who most need them.
3	The skills gap between confidence and capability	Digital skill levels range widely, but a consistent pattern holds: confidence is shaped less by innate ability than by access to devices, practice, and the quality of training. Women frame digital skills as learnable; what they lack is opportunity. Short, one-off workshops are insufficient; what is needed is sustained, in-person, hands-on training tailored to needs and linked to livelihood outcomes.
4	Women are already doing digital economy work	The narrative of 'digital exclusion' risks obscuring a more accurate picture; women are already digital participants. They are running businesses via WhatsApp, seeking jobs on Facebook, managing finances through banking apps, and using ChatGPT to support their children's homework. What they need is a system that meets their participation with adequate infrastructure, safety, and skills.
5	Online harm: fraud and harassment	Scams, fraud, social engineering, harassment and for students, AI-enabled abuse are part of the ordinary texture of digital life for these women. Their financial and psychological costs are severe and well-documented. Digital inclusion without digital safety is not inclusion.
6	Stacked barriers and the compounding logic of exclusion	Digital exclusion is not produced by any single constraint; it is produced by the interaction of multiple constraints that amplify each other. Device poverty, data costs, gender norms, care burdens, safety threats, and inadequate training do not add up; they multiply. This has direct implications for policy design: single-intervention approaches will not work.



7	Gender norms run through every other theme	From who gets the family laptop to who is encouraged to study mathematics to who receives credit in a meeting room, gender norms shape every dimension of digital participation. These norms operate at the household level, the classroom level and the corporate level, and they are mutually reinforcing across these sites.
8	The leaking technology pipeline has six preventable exit points	Women exit the technology sector at identifiable and preventable stages: school subject choices, first-year tertiary crisis, early career toxic environments, mid-career burnout between ages 35 and 45, post-maternity confidence erosion and the senior leadership threshold. None of these exits is explained by a lack of ability. All are explained by cumulative barriers and the rational decision that the cost of staying is too high.
9	Policy exists; implementation does not	Across every sector examined, HEIs, SMME support, technology employers, government departments, the gap between policy commitments and operational reality is stark. Gender equity frameworks exist on paper; they are not enforced, monitored, or funded adequately. This is the current defining institutional failure.

1.4 Summary of key findings by component

1.4.1 Community women's voices from four provinces

Women across Hammanskraal, Tubatse, Siyabuswa/Tweefontein, and Parys are resourceful, digitally active, and clearly aware of what greater digital access could deliver for them. They are also operating under profound constraints. The accounts from these focus groups reveal the specific, granular texture of digital exclusion: the online application form that keeps glitching at the final submission step; the email that sits in the outbox for three days without sending; the R80,000 lost to a Facebook car scam; the laptop at home with the password only the children know.

The sites reveal important contextual variation. Hammanskraal community health workers navigate digital tools in their work but face stark household power dynamics that restrict their access to laptops. Tubatse participants articulate a demand for sustained, in-person training and express deep frustration at age-based exclusion from digital skills programmes. Siyabuswa women face acute technical infrastructure failures. Parys presents the broadest use of digital tools for livelihood and an explicit articulation of digital technology as a male domain requiring deliberate redress.

Online gambling emerges as a significant finding; driven not by recreation but by economic desperation, gambling platforms exploit low digital literacy through deceptive interfaces. Financial literacy and harm-reduction messaging must be integrated into digital inclusion programmes.

"I had to learn how to use my phone and computer because everything is online now. If you don't know, you get left behind." – Community health worker, Hammanskraal

"When I'm supposed to submit my application, the form does not go through." – Participant, Tubatse focus group



1.4.2 Women in technology: The leaking pipeline

Eight qualitative interviews with women across various career stages in South Africa's technology sector reveal a rapidly expanding sector that systematically fails to retain the women it recruits. The finding is unambiguous: women's exit from the technology pipeline is a rational response to unsustainable conditions, not a failure of ambition, capability, or commitment.

Entry into the sector is frequently non-linear and accidental, driven by a single enabling intervention (a mentor, a lecturer, a chance encounter with a queue) rather than a planned STEM pipeline. This reveals a structural gap in career visibility and guidance that demands deliberate redress, not just more STEM content in schools.

The most significant and consistent finding on pipeline attrition is the clustering of women's exit between approximately 35 and 45 years of age: the mid-career exit cluster. This drop-off is driven by convergent pressures: intensifying caregiving responsibilities, the absence of sponsorship to navigate senior leadership, accumulated exhaustion from managing bias, and the rational reassessment that the sacrifices required to advance are not commensurate with the rewards on offer.

Post-maternity return emerges as one of the most damaging and least addressed pipeline failures. Returning women are systematically placed 'on the back burner', lose training continuity, and experience confidence erosion that can be permanent without active institutional intervention. This is structural neglect, not individual failure.

Race compounds gender in ways that generic 'women in tech' frameworks do not address. Black women navigate a qualitatively distinct experience of professional life: different task allocations, different credit attributions, different remuneration, and crucially, less financial capacity to exit toxic employment.

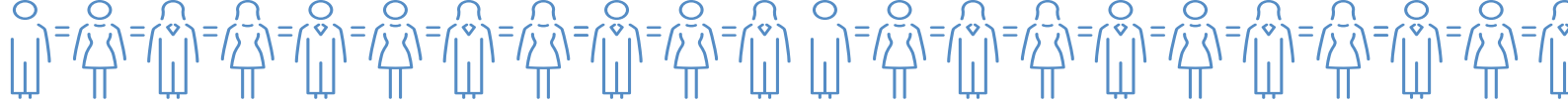
"At work, there are policies, but these policies are silent. They are not enforced. No one is monitoring. Women are letting go of their passion." – Acting government CIO

"Let's bet on our women and ensure that we deliberately support them in their aspirations." – Company director, Private technology firm

1.4.3 SMME stakeholders: Locked out of the digital economy

Thirteen institutional stakeholder interviews across government, corporate, civil society, and development finance reveal a digital economy that is transforming at a pace and leaving the most vulnerable behind at an equal pace. The barriers facing women-owned SMMEs are layered, interacting, and deeply structural: apartheid's legacy of gendered economic exclusion; a financial sector calibrated for established businesses; an infrastructure landscape where affordability remains a luxury; a training ecosystem that measures its own activity rather than its impact; and cultural norms that continue to position women as secondary economic actors.

The most significant finding is the reframing of digital skills as a secondary constraint. Access to funding, markets, and procurement opportunities is the primary barrier; digital skills matter, but they cannot compensate for a business environment in which government does not pay small businesses on time, financial institutions cannot fund digital-first enterprises, and 30 years of



operating history is a procurement requirement in a country where women have only recently been permitted to own businesses.

“The government does not pay small businesses on time, and most of them end up collapsing.” – Senior Executive, Black Business Council

The training ecosystem is characterised by a systemic incentive failure; the financial benefit to companies of ‘claiming points’ through B-BBEE digital skills training is not contingent on quality, relevance, or uptake. Microsoft Word and PowerPoint are taught; however, the digital tools that would actually change business outcomes are not. Individuals attend for one day and never return.

“We don’t want a talk show. We want some action.” – Centre manager, SMME support centre

KEY FINDING: Women as multipliers of impact

Multiple stakeholders independently identified women-owned businesses as nodes of multiplied socio-economic impact when given genuine access to economic opportunity. ‘You open an opportunity to a woman, you open to five other women’. The case for prioritising women’s digital economic inclusion is not only moral, but it is also economic.

1.4.4 Higher education institutions: The participation paradox

Twelve institutional interviews and three student focus groups at a technical and vocational education and training (TVET) college and university across five provinces reveal a higher education sector at an uneven stage of digital readiness and a striking participation paradox: women are numerically dominant in many programmes (between 60% and 75% in most institutions), yet they remain underrepresented in the most technically advanced, competitive, and economically valuable digital fields.

High enrolment does not equate to digital empowerment. Women tend to gravitate towards programmes with digital components rather than those that build deep technical and coding skills. This trend is partly attributable to schooling-level barriers, such as a lack of STEM exposure, and partly to cultural norms, including imposter syndrome and caregiving expectations. Additionally, institutional practices, such as generic policies and a lack of women role models in technical roles, contribute to this phenomenon.

The student survey, comprising 459 respondents, corroborates the findings from the qualitative data. Most students rely on smartphones, and data costs remain a persistent barrier. Online harassment and scams are prevalent. Furthermore, women students report less confidence in their digital skills. Nearly half of all students report missing an academic deadline due to connectivity failure.

The most urgent finding concerns the school pipeline: students arrive at higher education institutions (HEIs) without basic digital workflow skills because their schools lacked computers, qualified teachers, and computer-related subjects beyond the most rudimentary level. This represents a foundational failure that HEIs cannot remedy in isolation.



1.4.5 Digital economy’s two gender problems

When read together, the four research components reveal that South Africa’s digital economy faces two distinct yet related gender equity problems. The first concerns women who are attempting to participate in the digital economy as business owners and entrepreneurs, but are blocked by structural barriers, including data affordability, late government payments, financial exclusion, and compliance complexity. The second concerns women who are already employed as professionals within the digital technology sector, but are hindered by organisational culture, workload norms, management failure, pipeline attrition, and the compound disadvantage of race and gender. While these are not identical problems, they share a common root cause: a digital economy built without women’s full participation, by institutions and organisations that continue to default to male-centred norms when no one is actively working against that default.

Cross-report insight: Neither entry nor retention is being done well

The digital economy’s gender equity challenge cannot be resolved by focusing solely on the external pipeline, such as encouraging more girls to enter STEM, while neglecting internal issues, such as whether women in technology organisations can survive, grow, and lead. The evidence from the research suggests that neither aspect is currently being addressed with sufficient urgency, specificity, or accountability.

1.4.6 Summarised recommendations

The research offers targeted recommendations across four stakeholder groups. The following table presents the priority actions. More detailed, component-specific recommendations appear in the main report sections.

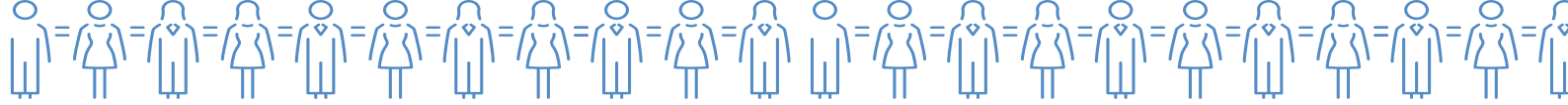


Table 1: Summarised recommendations

Stakeholder priority area	Priority action
Government and connectivity	Drastically reduce the cost of data; expand rural broadband; fast-track universal service obligations under spectrum licence conditions;
Government and Department of Basic Education (DBE) – school pipeline	Mandate digital literacy and coding from
Department of Higher Education and Training (DHET) and HEIs – tertiary Inclusion	Develop gender-responsive digital inclusion policies
National Treasury – SMME finance	Enforce the 30-day government payment rule for SMME suppliers without exception; create specialist patient capital instruments for digital-first enterprises;
Sector Education and Training Authorities (SETAs) – skills training	Reform digital skills training from compliance-box-ticking to needs-led, outcomes-based, sequenced programmes; eliminate Microsoft Word as the standard;
Technology employers (public and private)	Mandate and enforce gender equity policies; audit task allocation, training access
Professional bodies and networks	Formally distinguish mentorship from sponsorship; build sector-wide sponsorship pathways;
Commission for Gender Equality	Increase visibility in business spaces; develop a dedicated business engagement function; publish regular gender equity assessments of the digital economy; advocate for a National Women’s Digital Inclusion Framework with parliamentary accountability.



1.5 Conclusion

1.5.1 What the research has shown

This research set out to answer a question that sounds deceptively simple: to what extent are women participating in South Africa's digital economy, and what is preventing fuller participation? The answers that emerge from 35 in-depth interviews, nine focus group discussions, 459 student survey responses, and a brief review of the literature are neither simple nor reassuring. The research sources describe a society in the midst of rapid digital transformation that is simultaneously deepening the inequalities it claims to want to address.

Women are not absent from South Africa's digital economy. They are everywhere in it: using smartphones to run businesses through WhatsApp, applying for jobs on Facebook, supporting their children's homework with ChatGPT, managing finances through banking apps, and studying IT programmes where they constitute 65–75% of enrolments. The starting point for any credible policy response must be an accurate picture; women are already digital participants. They are not waiting to be included. What they are navigating is a system that meets their participation with inadequate infrastructure, insufficient safety, and skills development that has not kept pace with the economy's demands.

The research also reveals something that is easy to miss when the barriers are analysed individually: stacked barriers that reinforce exclusion. Device poverty intersects with data costs; data costs intersect with connectivity gaps; connectivity gaps intersect with electricity instability; electricity instability intersects with rural geography; rural geography intersects with poor STEM schooling; poor STEM schooling intersects with gender norms that steer girls away from technical subjects; gender norms intersect with imposter syndrome¹ in tertiary institutions; imposter syndrome intersects with organisational cultures that are not designed for women; those cultures intersect with caregiving burdens that are not distributed equitably; and those burdens intersect with career penalties that compound over time. This is stacked exclusion, not individual disadvantage. And it demands stacked interventions, not single-axis solutions.

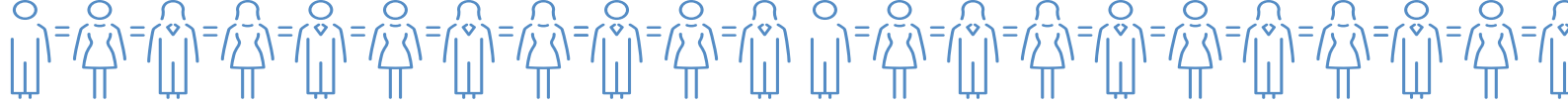
1.5.2 Barriers are policy failures

One of the most important conclusions of this research is the distinction between natural and constructed barriers. The constraints facing women in the digital economy are neither natural conditions nor inevitable outcomes of individual choices. They are, in almost every instance, policy failures with policy solutions.

The cost of data is not natural; it is the product of market structure, spectrum policy, and the pace of regulatory enforcement. The absence of digital skills in rural schools is not natural; it is the result of underfunded education infrastructure and a curriculum that has not kept pace with the economy. The clustering of women's exit from technology careers between the ages of 35 and 45 is not natural; it is the predictable outcome of caregiving burdens that society has not chosen to redistribute in workplaces whose cultures have not been required to change.

The invisibility of gender in digital strategies is not natural; it reflects political choices about whose experiences count in policy design.

¹ In this context, reference is to women or students doubting their ability in STEM, ICT, or technology spaces because those spaces are often seen as male-dominated.



This matters for how the CGE frames its advocacy. The evidence in this report does not support a narrative of women as passive victims requiring rescue or saving. It supports a narrative of women as active economic agents who are systematically disadvantaged by structural conditions within the reach of policy to change. That is a fundamentally different and significantly more powerful advocacy frame.

The research has found that generic women-in-tech or 'digital inclusion' frameworks are insufficient. Race, gender, geography, first-generation status, disability, and socio-economic position intersect in ways that create qualitatively distinct experiences of digital exclusion that cannot be addressed through universal interventions.

A Black woman running an SMME in a rural township faces the same headline barriers as a Black woman in an urban technology firm; data costs, gender norms, lack of networks, but the specific mechanisms, the available resources for navigating those barriers and the consequences of failing to navigate them are very different. Policy and programme design that aggregates these women into a single category will, at best, serve some of them and, at worst, serve none of them effectively.

The research specifically identifies the experience of Black women in the technology sector who cannot 'just leave' a toxic employer because financial dependence on continuous employment is greater, whose career trajectory is shaped by racial as well as gender dynamics in task allocation and remuneration and who are least served by the voluntary employer commitments that currently constitute the primary governance response to gender equity in the sector. These work conditions and environment require dedicated, targeted policy attention.

1.5.3 Role of the Commission for Gender Equality

This research highlights an important challenge for the CGE itself. The Black Business Council, one of the most influential advocacy voices for Black-owned SMMEs in South Africa, offered an unambiguous assessment: "We don't feel them. We don't see what they are doing".

The CGE's constitutional mandate positions it as the institution best placed to hold government, employers, and the private sector accountable for gender equity in the digital economy. It has the legal authority to conduct investigations, the standing to appear before Parliament and the institutional legitimacy to convene stakeholders across sectors. What is required now is the strategic presence, the operational visibility, and research data to exercise that mandate with the urgency the evidence demands.

The specific actions required of the CGE are not complex; be present in business spaces; publish regular, accessible assessments of gender equity performance in the digital economy; develop referral pathways for women experiencing digital discrimination; advocate for a National Women's Digital Inclusion Framework with real monitoring and parliamentary accountability; and use the evidence from this research to engage, with specificity, the departments who did not see the relevance to participate in this study, regulators and institutions whose decisions shape the conditions this report has documented.



1.5.4 What women are asking for

Across all cohorts, sites, and research methods, what participants asked for was neither radical nor unreasonable. Their requests were specific, practical and consistent with the policy levers available to a democratic state.

“If they could offer free courses like HR. Like IT courses [...] this could help a great deal.” – Community participant, Tubatse Focus Group

“If IT could be introduced at a lower level, whether it’s robotics or coding, just to introduce the subject matter earlier.” – Senior consultant, Women in Tech interview

“Government should be providing device support and capacity to use those [...] Back in my days, we had computer labs, but these were only accessed by those doing computer science. That should change so that now learners and teachers [...] you come in the morning, you are given a device – it should be used in all learning and not just for computer studies. Each class should have a computer to advance teaching and promote learning” – HEI stakeholder, University

“Digitisation is that bridge; it enables these rural kids to compete.” – Director, Government Agency.

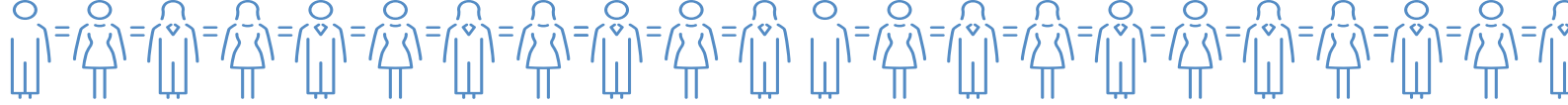
These are demands for the minimum conditions of participation in an economy that already depends on digital tools for employment, banking, business registration, tax compliance, education, and healthcare. The women who spoke to this research are not asking for privilege; they are asking for infrastructure, safety, skills, and a system that treats their economic participation as important.

1.5.5 Final assessment: The cost of inaction

Every woman who cannot complete a job application because the form keeps glitching represents a person excluded from employment by a technical failure within the government’s power to fix. Every SMME entrepreneur who cannot reach opportunities beyond the township market because data is too expensive represents a business that cannot grow and a tax base that cannot expand. Every TVET student who cannot pursue her digital ambitions because her college has fewer than 100 computers for 170 students represents foreclosed potential and compounding inequality. Every woman who leaves the technology sector at 38 because the maternity leave penalty was not addressed represents a loss of leadership and institutional knowledge.

These are not abstract losses. They are measurable, preventable costs borne by individuals, communities, and the South African economy. The evidence in this report is sufficient to act. What is required now is the political will to treat the digital gender gap as the development emergency it is and to invest in its resolution with the urgency and specificity that the women who participated in this research have demonstrated it deserves.

“Women are not waiting to be included in the digital economy. They are already in it. What they are asking for is a system that meets their participation with adequate infrastructure, safety, and skills”.



2. PROJECT OVERVIEW

The CGE is a Chapter 9 institution established in terms of Section 187 of the Constitution of the Republic of South Africa, Act 108 of 1996. Its mandate is to promote, protect, monitor, and evaluate gender equality across all spheres of society. In executing this mandate, the CGE commissioned this study (project reference: CGEQ 23/2025/26). The study was awarded to Mashaka Consulting, which bears responsibility for the design, implementation, and reporting of the research.

The study directly addresses Strategic Outcome 3 of the CGE's strategic framework, which focuses on monitoring compliance and conducting research into issues that undermine the attainment of gender equality. It constitutes a key deliverable in the CGE's Annual Performance Plan for the 2025/2026 financial year. The research is intended to generate empirical evidence on the digital gender gap in South Africa, with specific attention to access, skills, economic participation, and online safety, particularly for women, students at HEIs, and SMMEs in historically marginalised communities.

This section provides an account of the overall research design, data collection instruments, sampling, data collection achievements, and a literature overview. The research findings are divided into three components, with separate reports covering data from the various stakeholder groups as follows:

1. Women's focus groups and interviews with women in tech (this report)
2. Higher education institutions (HEIs) stakeholder interviews, student focus groups, and survey
3. Stakeholder interviews and SMME survey.

Each report is self-contained but must be read with the other two reports in mind. This is the main report and is structured as follows:

- Section 1: Executive summary
- Section 2: Project context, research design, and methodology
- Section 3: Literature overview
- Section 4: Women's focus groups
- Section 5: Women in IT Interviews.

2a.1 Project background and rationale

Digital transformation has emerged globally as both an economic imperative and a social leveller, offering new avenues for participation in education, employment, financial services, and entrepreneurship. However, the extent to which these opportunities are equitably distributed across gender lines remains a substantive policy concern. In South Africa, as in much of sub-Saharan Africa, structural inequalities, including discrimination, negative social stereotypes, and cultural biases, continue to constrain women's and girls' full participation in the digital economy.

The digital gender gap manifests across multiple dimensions: physical access to devices and internet connectivity, digital literacy and skills acquisition, representation in technology sectors and STEM disciplines, economic use of digital tools for enterprise development, and safety and security in online environments. These dimensions are not mutually exclusive; deficits in one area compound disadvantages in others, creating cumulative barriers to inclusion that are particularly acute in rural and peri-urban contexts.

The CGE commissioned this study to generate a rigorous, multi-dimensional evidence base on these intersecting barriers. The study is geographically focused on six provinces: Limpopo, North West, Mpumalanga, KwaZulu-Natal, Eastern Cape, and Free State – with Gauteng included as an urban comparator. This provincial spread was deliberate; it enabled the research to surface spatial inequalities



and differentiated digital experiences shaped by geography, infrastructure investment, institutional capacity, and socioeconomic context. The findings are intended to inform the CGE's advocacy work, monitoring and evaluation functions, and policy recommendations to relevant government departments and regulatory bodies.

Four primary target populations were identified for inclusion in the study:

- Women in communities (with a focus on rural and peri-urban areas), to capture lived experiences of digital access, use, and barriers at the household and community level
- Women in technology, to capture their professional experiences
- SMMEs and the entities that support them, to examine the role of digital technologies in small business development, financial inclusion, and entrepreneurship, with particular attention to women-owned enterprises
- Students at higher education institutions and TVET colleges, to assess digital skills, access, career aspirations, and gender dynamics within tertiary educational environments.

The study was designed to complement existing national datasets by providing contextualised, qualitative depth alongside quantitative measurement, enabling both trend identification and a narrative explanation of the mechanisms underlying the digital gender gap.

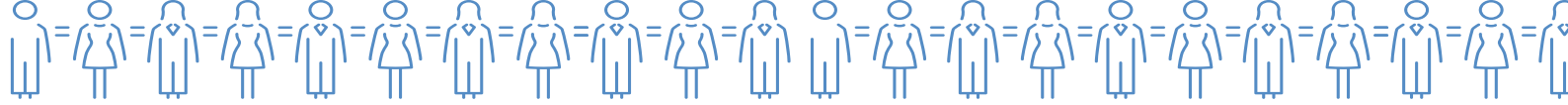
2.2 Research design and methodology

The study adopted a mixed-methods design, combining qualitative and quantitative data collection instruments within a single integrated framework. This approach was selected to provide both the breadth required to quantify trends in digital access, use, and skills, and the depth necessary to understand the contextual, social, and structural factors that shape women's digital experiences. The design allows findings from quantitative instruments to be contextualised and illuminated by qualitative data and vice versa.

2.3 Data collection tools

The following data collection tools were developed and approved by the CGE:

- A structured questionnaire for students at HEIs (online format), covering digital access, device ownership, connectivity, digital confidence, career aspirations, gender perceptions, and online safety
- A structured questionnaire for SMMEs (deployed online, via Google Forms), covering digital tool adoption, business use of technology, access to finance, and training needs
- Semi-structured interview guides for three categories of key informant
 - o Senior academic and administrative officials at HEIs (deputy vice-chancellors, principals, deputy principals, curriculum managers, and innovation managers)
 - o Women working in various digital technology fields
 - o Executives and managers in government departments, as well as organisations that support SMMEs
- Three focus group discussion (FGD) guides for community women, student groups, and SMME participants, exploring digital experiences, access barriers, network quality, use patterns, opportunities, and online safety concerns.



2.4 Ethical clearance applications

Ethical clearance processes were initiated for the HEIs that required approval of the survey tool before students participated. Formal ethical clearance was obtained from three institutions: Vaal University of Technology (VUT), Durban University of Technology (DUT), and the University of Mpumalanga (UMP). Data collection at these institutions could only proceed after obtaining ethical clearance.

2.5 Qualitative data collection

2.5.1 Focus group discussions facilitated

Focus group discussions served as the primary qualitative data collection method for community women, student cohorts, and SMME participants.

Nine focus group discussions were conducted, as indicated in Table 2.

Table 2: Focus group discussions conducted

Group/Location	Province	Participants	Area Type
Tweefontein	Mpumalanga	9 women, 1 man; ages 23–38; unemployed; low education	Rural (standpipes, pit latrines)
Mapodile, Steelpoort, Tubatse	Limpopo	10 women; ages 28–55; unemployed or previously employed	Peri-urban–Township (standpipes, VIP toilets, waterborne flushing toilets)
Sisulu, Tumahole, Parys	Free State	12 women; ages 16–52; mixed employment status	Township (piped water, inside flushing toilets)
Majanaeng, Hammanskraal	Gauteng	10 women; ages 32–57; mixed education, peri-urban	Peri-urban (standpipes, pit latrines)
Ehlanzeni TVET, Mthimba	Mpumalanga	Mixed-gender student group	Institutional/peri-urban (piped water, flushing toilet)
Diepsloot woman-owned SMMEs	Gauteng	Women SMME owners, Thlabologo Opportunity Centre	Urban township (piped water, flushing toilet)
Diepsloot man-owned SMMEs	Gauteng	Male SMME owners, Thlabologo Opportunity Centre	Urban township (piped water, flushing toilet)
UMP students Group 1	Mpumalanga	Mixed-gender students, University of Mpumalanga	Institutional/urban (piped water, inside flushing toilet)
UMP students Group 2	Mpumalanga	Mixed-gender students, University of Mpumalanga	Institutional/urban (piped water, inside flushing toilet)

Each group discussion was designed to explore participants’ digital experiences, perceptions of access and exclusion, network quality, use patterns, and online safety concerns in a structured yet open-ended format. Sessions were audio-recorded with participant consent, transcribed verbatim, and summarised to extract key themes for analysis.



Focus group discussions were conducted across diverse area types, rural, peri-urban, and township settings, to capture how geographic context shapes digital experience. The composition of groups varied by age, employment status, and education level, providing a range of perspectives within each community type.

2.5.2 In-depth interviews conducted

A total of 35 in-depth interviews were conducted, against a target of 60. Interviews were conducted with three categories of respondents: senior officials and academics at HEIs, women in ICT and technology leadership roles, and stakeholders in the SMME support ecosystem. Interview guides were tailored to each category, with semi-structured formats allowing for both comparability across respondents and exploration of institution- or sector-specific issues. Multiple discussions also took place to facilitate access to SMMEs in the City of Tshwane and the City of Johannesburg.

In total, 12 HEI interviews were conducted with principals, deputy principals, IT officers, and academic staff at the following institutions: Umfolozi TVET, Ehlanzeni TVET, VUT, DUT, Ingwe TVET, Buffalo City TVET, Gert Sibande TVET, Mopani TVET, Lephalale TVET, Nkangala TVET, and UMP.

Interviews with women in ICT were conducted with an IT intern and seven senior professionals from two government departments, a mobile operator, a private company, and a Women in IT affiliate.

Stakeholder interviews for the SMME component were conducted with 15 representatives from provincial Departments of Economic Development (Limpopo, Mpumalanga, North West), the Industrial Development Corporation (IDC), the National Empowerment Fund (NEF), the Media, Information and Communication Technologies Sector Education and Training Authority (MICT SETA), a mobile operator, the Independent Communications Authority of South Africa (ICASA), the Black Business Council (BBC), three SMME support centres, Productivity SA, and the City of Tshwane.

2.6 Quantitative data collection

2.6.1 Student survey

A structured online questionnaire was administered to students at HEIs and TVET colleges. The instrument comprised 76 questions across the following thematic areas: demographic profile, digital access and device ownership, connectivity and data affordability, digital tool use and frequency, digital skills and confidence, gender dynamics in technology, online safety and harassment, career aspirations, and institutional support for digital inclusion. The survey was conducted digitally, with interviewers available to assist respondents as needed.

The target sample comprised 300 to 500 student respondents; ultimately, 541 responses were received, exceeding the upper bound of the target range. After removing non-consenting and null records, an effective sample of 459 respondents was retained for analysis. The sample spans multiple institutions across Limpopo, Mpumalanga, Gauteng, KwaZulu-Natal, and the Eastern Cape.

2.6.2 SMME survey

A separate structured survey was deployed to SMMEs via Google Forms, targeting 300 respondents. Given the indirect nature of SMME access, whereby engagement proceeded primarily through provincial economic development departments, municipal enterprise development centres, and SMME support organisations, uptake was limited. Invitations to participate in the study were also emailed to over 2,000 SMMEs. A total of 24 SMME survey responses were received.

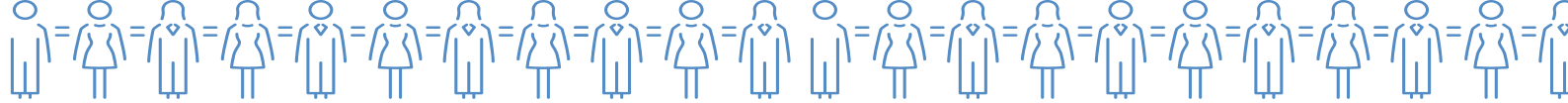


Table 3: Data collection achieved against plan

Component	Original target	Achieved
In-depth interviews	~60 interviews	35 completed (8 women in IT; 12 HEI; 15 SMME stakeholders)
Focus group discussions	9 groups	9 completed (4 women; 3 HEI students; 2 SMMEs)
Student survey (HEIs)	300–500 responses	541 submitted; 459 retained after cleaning
SMME survey	300 responses	24 responses submitted

Data collection commenced at the end of November 2025, following stakeholder participation requests issued in October 2025 and the approval of the data collection instruments. The following section presents a component-by-component account of the data collected.

2.6.3 Focus group discussions

Nine focus groups were completed as planned. All four women’s community focus groups were completed between November and December 2025, covering Mpumalanga (Tweefontein), Limpopo (Mapodile/ Tubatse), Free State (Parys/Tumahole), and Gauteng (Hammanskraal). Transcripts, audio recordings, and summary output reports are available for each completed women’s FGD.

Three student focus groups were conducted – one at Ehlanzeni TVET (Mpumalanga) in February 2026 and two at the University of Mpumalanga in April 2026. Two SMME focus groups were conducted in April 2026 at the City of Johannesburg’s Thlabologo Opportunity Centre in Diepsloot, separately covering SMME cohorts of men and women.

2.6.4 In-depth interviews

In total, 35 in-depth interviews were completed across the three target categories, against a total target of approximately 60. Realised interviews by category is as follows:

- **HEI interviews (12 completed):** Interviews were conducted with senior officials at 11 institutions spanning TVET colleges (Umfolozi, Ehlanzeni, Ingwe, Buffalo City, Gert Sibande, Mopani, Lephalale, Nkangala) and universities (Vaal University of Technology, Durban University of Technology, University of Mpumalanga). Respondents included acting principals, deputy principals for innovation, IT officers, gender studies lecturers, and heads of department. A systematic tracking system was established to monitor outreach and follow-up across all HEIs on the project list.
- **Officials and managers from various organisations (15 completed):** These included provincial economic development departments (Limpopo, Mpumalanga, North West), government funding and regulatory bodies (IDC, NEF, ICASA, MICT SETA), a corporate entity (mobile operator), advocacy organisations (Black Business Council), and municipal SMME support centres (City of Johannesburg, City of Tshwane). Additionally, engagements were held with Productivity SA to explore SMME support programmes.

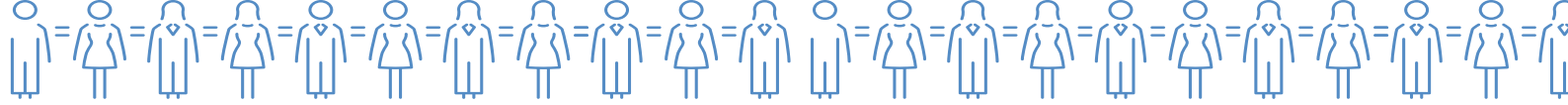


Table 4: SMME stakeholders consulted and participation status

Organisation	Type	Participation status
Limpopo Department of Economic Development	Provincial Government	Group interview
Mpumalanga Department of Economic Development	Provincial Government	Group interview
North West Department of Economic Development	Provincial Government	Interview
Industrial Development Corporation (IDC)	Government Funding Agency	Group interview
National Empowerment Fund (NEF)	Government Funding Agency	Interview
Mobile operator	Corporate	Group interview
ICASA	Government Regulator	Group interview
Black Business Council	Advocacy Organisation	Interview
SMME Support Centres (3)	Municipal support structures	Group interviews
City of Tshwane, Productivity SA	Municipality, Government Agency	Provided access and referral to SMMEs
MICT SETA	Sector Education and Training Authority	Group interview
Recruitment and Youth Placement Agency	Corporate	Interview

- **Women in IT interviews (8 completed):** Eight interviews were conducted with women in senior or practitioner-level technology roles in the public and private sectors, providing sector-specific insights on career pathways, institutional culture, and barriers to women's advancement in technology.

The study noted a poor response from the national government departments approached. Several government departments acknowledged receipt of the invitation to participate, but did not grant any interviews. Conversely, private companies, state-owned entities, and provincial departments responded positively, with many expressing a wish to collaborate further on digital gender transformation to ensure women, students, and SMMEs are not left behind.



2.6.5 Student survey

The student survey constitutes the most substantive quantitative achievement of the project. A total of 541 student responses were submitted, exceeding the upper bound of the 300 to 500 target range. After data cleaning, which involved removing non-consenting entries and records with insufficient substantive responses, an effective sample of 459 was retained. The sample spans students from Limpopo (65.4%), Mpumalanga (17.2%), Gauteng (7.2%), KwaZulu-Natal (4.6%), and the Eastern Cape (4.1%).

The primary institutions represented in the sample are Mopani TVET College (51.4% of responses), Sir Val Duncan TVET College² (13.3%), the University of Mpumalanga (7.2%), Durban University of Technology (4.8%), and Buffalo City TVET College (2.2%). Women are 71.5% and men are 26.4% of the sample, with a median age band of 16–24 years (70.4% of respondents).

It should be noted that HEIs were closed or on academic recess for much of November and January, which constrained early-stage on-campus data collection. Active survey administration resumed when institutions returned to the academic calendar in late February 2026.

2.6.6 SMME survey

The online SMME survey was administered via Google Forms, with a tracking system in place to categorise responses. A total of 24 responses had been received at the time of this report, against a target of 300. This low response rate occurred despite sending out over 2,000 invitations to SMMEs and large companies. The large companies were requested to share the survey link with SMMEs they support or with which they work.

The primary constraint on SMME survey uptake was the indirect nature of access. The project engaged SMMEs through intermediary organisations, including provincial economic development departments, enterprise development centres, and SMME support programmes. Over 50 organisations were approached through this indirect route. This approach was complemented by directly inviting over 2,000 SMMEs; however, it did not yield a sufficient response.

2.7 Analytical framework

2.7.1 Qualitative data

Focus group transcripts and interview recordings were subjected to thematic analysis, using an inductive-deductive approach. Initial codes derived from the data were organised into themes aligned with the study's conceptual framework on the digital gender gap. Transcripts are available in audio and written form for all completed focus groups.

2.7.2 Quantitative data

Quantitative survey data were analysed using descriptive statistics, disaggregated by gender, age group, institution type, province, and area of residence where relevant. Cross-tabulations were used to identify associations between variables. Where sub-samples were sufficiently large, inferential analysis was applied.

The student survey dataset (n=459) is of sufficient size for multi-variable disaggregation; the SMME dataset (n=24) is treated as preliminary and descriptive only. The sample is too small and not generalisable.

² A campus of Mopani TVET College.



2.8 Literature review

The literature review was completed prior to the commencement of fieldwork. It provides the conceptual and theoretical grounding for the study, covering the global and South African evidence base on the digital gender gap, women's participation in STEM and technology sectors, SMME digital adoption, financial inclusion through digital platforms, and online safety and harassment. The review informs the analytical frameworks applied to both qualitative and quantitative data.

2.9 Contextual factors affecting implementation (limitations)

Several contextual factors affected the pace of implementation relative to the original project plan.

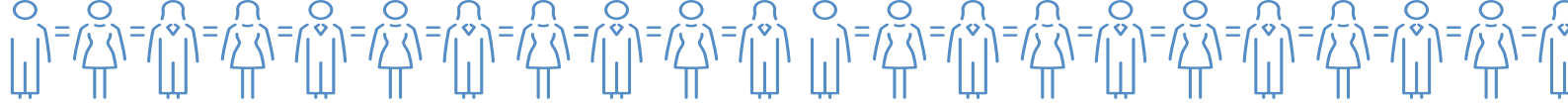
- **Academic calendar constraints:** The study coincided with the start of end-of-year examinations and recess from late November 2025 through late January 2026, limiting access to student populations; delaying the survey and focus groups.
- **Ethical clearance timelines:** Ethical review processes at participating HEIs followed institutional schedules that could not be accelerated.
- **Government and SMME stakeholder response rates:** Engagement with government departments and SMME intermediary organisations proved slower than anticipated. Some departments were unfamiliar with the CGE and required additional orientation before considering the invitation to participate.

2.10 Methodology conclusion

The study adopted a mixed-methods design combining focus group discussions, in-depth interviews, and structured online surveys. The design provides both quantitative breadth and qualitative depth, enabling the study to quantify trends in digital access, use, and skills while also capturing the lived experiences, perceptions, and structural barriers that shape women's participation in the digital economy.

The student survey component yielded an effective sample of 459 respondents across five provinces and multiple institution types. Nine focus groups were completed across women's community, student, and SMME cohorts, spanning rural, peri-urban, township, and urban settings. Thirty-three in-depth interviews were conducted with HEI officials, women in technology leadership, and SMME ecosystem stakeholders. A literature review providing the conceptual framework for the study was completed.

The methodology provides the foundation for findings that are directly responsive to the CGE's constitutional mandate.



3. LITERATURE OVERVIEW: OVERVIEW OF KEY ISSUES

3.1 Overview of digital transformation

Digital transformation is defined as the integration of digital technologies into all areas of society and the economy. Fundamentally, it changes how individuals, businesses, and governments operate, deliver services, and create value. This transformation goes beyond the adoption of new technologies; it also requires organisational change, new skills, regulatory adaptation, and shifts in social norms. The UNDP's digital transformation framework advocates for these processes to be intentionally inclusive, thoughtfully designed, and implemented to ensure that all people are included (UNDP, 2023).

In the South African context, digital transformation encompasses expanding broadband and mobile access, digitising public services, the growth of fintech and e-commerce, digitising health and education, and increasing use of data and algorithmic systems for decision-making. The South African government has adopted an ambitious approach to driving technological transformation, with the vision of creating an "inclusive information society" as a tool to spur social change and stimulate economic growth (Department of Communications and Digital Technologies, n.d.)

Digital inclusion aims to bridge the digital divide, ensuring equitable access to technology and enhancing digital literacy across all communities. Digital gender transformation refers to the process of using digital technologies and strategies to promote gender equity, particularly by increasing the participation, representation, and empowerment of women in the digital economy. This transformation involves:

- Adopting digital transformation strategies within organisations that intentionally address gender gaps
- Implementing initiatives that support women in digital roles, such as training, mentorship, and leadership development
- Collecting and analysing data to assess the impact of digital programmes on gender equity, ensuring that progress is measured and policies are evidence-based
- Leadership perspectives and recommendations to further advance women's inclusion in digital sectors.

Digital gender transformation is important as it bridges the gender gap in technology and digital industries, empowers women to access new opportunities, jobs, and leadership roles, shapes policy for a more inclusive digital economy, and drives innovation by ensuring diverse perspectives in digital transformation.

Despite its transformative potential, digital transformation is not inherently inclusive. In highly unequal societies such as South Africa, the expansion of digital technologies often mirrors and reinforces existing socioeconomic disparities rather than mitigating them. The concept of the digital divide has evolved beyond simple measures of connectivity to encompass disparities in affordability, digital skills, access quality, and the ability to translate digital engagement into meaningful social and economic outcomes.

The first level of the digital divide, commonly referred to as the access divide, concerns individuals' access to ICT infrastructure, such as mobile phones, laptops, and internet connectivity (van Deursen & Helsper, 2015). Importantly, this level also encompasses autonomy over, and continuity of, access to these devices. The second level of the digital divide concerns inequalities in use, arising from differences in digital skills and literacy (Singh et al., 2025). The third level of the digital divide refers to inequalities in outcomes, capturing variations in individuals' ability to translate access to, and use of, digital technologies into tangible social, economic, and political benefits, including improved employment prospects, access to public services, and enhanced civic participation.



Individuals who lack stable income, adequate education, or reliable infrastructure are less able to benefit from digitalisation, even when basic access exists. As a result, digital transformation risks deepening exclusion by privileging those already positioned to leverage digital tools, while marginalised groups remain constrained by structural barriers. This uneven distribution of digital benefits underscores the importance of understanding digital transformation as a political and social process, shaped by power relations, institutional arrangements, and historical inequalities, rather than a neutral technological shift.

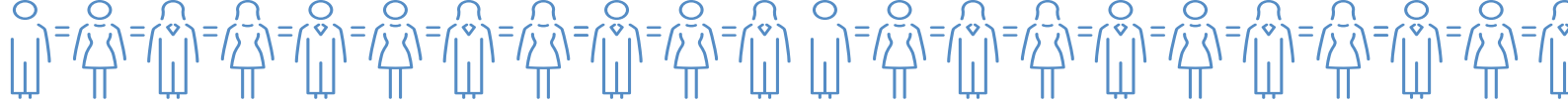
Existing scholarship on digital transformation and gender highlights a range of structural and gender-specific challenges that shape women's unequal participation in digital economies and societies. Rather than viewing digital exclusion as a consequence of limited access alone, the literature emphasises how socioeconomic inequality, labour market segmentation, unpaid care work, and gendered power relations intersect to constrain women's ability to benefit from digitalisation. The following discussion synthesises key issues identified in this body of work, situating them within a gender and development framework relevant to the South African context.

A foundational challenge in narrowing the gender digital gap in South Africa is inequitable access to digital infrastructure and the affordability of key technologies. Although the country has relatively high overall internet penetration and widespread mobile connections, persistent infrastructure limitations continue to leave significant segments of the population offline.

As of January 2025, South Africa had 50.8 million internet users, translating to an internet penetration rate of 78%. This represented an increase from the previous year's 74.7%, adding 2.6 million users (HelloYes, 2025). However, approximately 13.6 million South Africans, 21.1% of the population, remained offline. Most of these individuals live in remote and rural areas. Inadequate broadband connectivity, coupled with inconsistent electricity supply, substantially limits individuals' ability to participate meaningfully in the digital ecosystem (Nirmani, 2025).

These infrastructural constraints are not gender neutral. Research indicates that provinces with larger rural populations, such as KwaZulu-Natal, Limpopo, and Eastern Cape, exhibit wider digital gender gaps compared to more urbanised provinces like Gauteng and Western Cape (Shiferaw, 2024). Thus, geographic location impacts one's access to technology. Notably, these provinces are also characterised by higher proportions of female-headed households, which are disproportionately associated with poverty and economic vulnerability. Consequently, Black women living in rural areas and under-resourced provinces face compounded barriers to digital access, reflecting the intersection of race, gender, geography, and socioeconomic inequality in shaping digital exclusion in South Africa. At the continental level, these challenges are reflected in broader patterns of exclusion. According to the Global System for Mobile Communications Association (GSMA), the mobile internet gender gap in Africa stands at 29%, meaning that approximately 205 million women lack access to mobile internet on the continent (Jeffrie et al., 2025). Mobile internet is the primary means through which people in low- and middle-income countries engage with digital services and platforms.

Mobile connectivity continues to dominate the landscape. Over 69% of internet users in South Africa access the internet via mobile devices, while approximately 13% of households have fixed-line home internet as of 2024 (Techstock2, 2025). Mobile broadband is often the only option in townships and rural areas; however, public Wi-Fi initiatives help fill the gap through government programmes such as SA Connect. This programme has installed thousands of community Wi-Fi hotspots at schools, libraries, clinics, and public areas to provide affordable internet access to underserved communities (Techstock2, 2025). The revised SA Connect Phase 2 model aims to roll out broadband infrastructure to enable connectivity nationwide, with a target of 100% broadband access for all communities by 2026 as part of the government's efforts to bridge the digital divide.



Affordability remains a significant barrier to digital access in South Africa, despite the widespread availability of mobile networks. Prepaid mobile data, which is the primary mode of internet access for most South Africans, remains prohibitively expensive for low-income users. In 2020, the average cost of 1GB of mobile data amounted to 2.17% of the average monthly income, placing South Africa 33rd out of 46 African countries in terms of mobile data affordability (Alliance for Affordable Internet, 2021). Although mobile network operators have introduced lower-cost data packages, access remains highly stratified by income.

Internet penetration in South Africa is strongly stratified by income, reaching 82.4% among adults earning over R30,000 per month, but declining sharply as income decreases, falling to 61.3% for those earning between R14,000 and R18,000, 42% for individuals earning between R3,000 and R6,000, and below 30% among those earning less than R2,500 per month (World Wide Worx, 2017).

Affordability constraints are not experienced evenly. Across sub-Saharan Africa, women are less likely than men to own smartphones or access mobile internet. This disparity is largely due to upfront device costs and mobile data prices, which constitute a disproportionately higher share of women's incomes. This situation reflects broader structural inequalities, including women's lower average earnings, limited financial autonomy, and overrepresentation in informal and precarious forms of employment. In South Africa, these dynamics are further compounded by entrenched gender norms and high levels of poverty among women, particularly among female-headed households. As a result, women's digital engagement is often intermittent, shared, or constrained to low-bandwidth use. In relation to the second (inequalities in use) and third levels (inequalities in outcomes) of the digital divide, women and girls face constraints that limit their ability to benefit from online education, digital financial services, employment platforms, and e-government. Without targeted interventions to address gendered affordability, such as subsidised data, affordable devices, and gender-responsive digital policy, digital transformation risks reinforcing existing patterns of exclusion rather than advancing inclusive and equitable development.

3.2 Digital skills, education, and gender norms

Beyond access and affordability, gendered disparities in digital skills and education present another obstacle to women's and girls' participation in digital transformation. Digital skills encompass not only basic abilities such as navigating the internet and using mobile applications but also higher-level competencies in information evaluation, content creation, and participation in advanced digital and technological fields. Digital literacy empowers individuals to be informed, productive citizens, providing them with the tools to succeed in a rapidly evolving technological landscape. In educational settings, digital literacy is crucial as it impacts both teaching and learning. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), digital literacy enables students to access vast amounts of information, collaborate on projects, and develop problem-solving skills. Thus, digital literacy plays a central role in bridging the educational divide and ensuring that students have the skills necessary for academic success and future career opportunities.

In South Africa, persistent inequalities in education quality, particularly between urban and rural areas and along racial and socioeconomic lines, continue to shape unequal digital literacy outcomes. Women and girls, especially those from low-income and rural communities, are less likely to have access to formal digital training, reliable ICT infrastructure in schools, or opportunities to develop advanced technological skills (Aruleba & Jere, 2022). These educational disparities limit women's capacity to move beyond passive or low-level digital use and restrict their ability to engage fully with digital economies and services.

Digital skills gaps are not solely the result of unequal educational access but are also shaped by gender norms, social expectations, and confidence. Research indicates that women often report lower confidence



in their digital abilities than men, even when skill levels are comparable. This dynamic is linked to broader patterns of gender socialisation and persistent underrepresentation in STEM-related fields (Tal et al., 2024).

In South Africa, women's limited presence in ICT and technology-intensive sectors reinforces perceptions of digital spaces as male-dominated, discouraging participation and constraining aspirations. These dynamics begin at the basic education level, where traditional gender roles and societal expectations continue to dissuade girls from engaging with STEM subjects (Mkhize, 2023). Ultimately, gendered expectations deepen the perception of technology as a masculine domain. Gendered stereotypes entrenched through socialisation processes often steer girls towards humanities and caregiving roles, while boys are encouraged to pursue technical and scientific pathways. These patterns continue in the higher education milieu, where women comprise only 13% of STEM graduates at the undergraduate level (Van Osch et al., 2022). Women's underrepresentation in technology-related fields further extends beyond education, as limited access to post-graduation digital exposure, mentorship, and career pathways continues to restrict entry into the digital workforce. As women hold only 23% of South Africa's 236,000 ICT and technology roles, the urgency of coordinated policy and industry interventions to address structural barriers and advance gender equality in the digital economy is underscored (MTN, 2024). These confidence gaps are further compounded by time poverty arising from unpaid care responsibilities, which constrains women's ability to pursue digital training or upskilling opportunities.

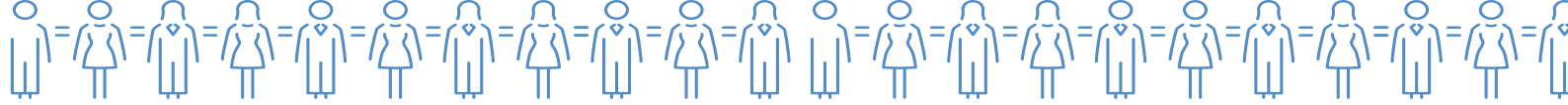
Unequal digital skills acquisition reflects the third level of the digital divide, as women are less able to convert access to technology into improved employment prospects, economic security, and empowerment.

3.3 Labour markets, precarity, and the digital economy

Digital transformation is fundamentally reshaping South Africa's labour market; however, its benefits are unevenly distributed, often reinforcing historical, gendered patterns of employment. While technology-enabled work is frequently marketed as a tool for economic liberation, women are increasingly concentrated in precarious forms of digital labour. These roles, ranging from platform-based services to low-paid microtasks, are characterised by income instability and a lack of labour protections, mirroring the broader "feminisation of precarity" found in the traditional economy (Sibiya & Du Toit, 2022).

This precarity is starkly visible in the ride-hailing sector. Although platforms like Uber are male-dominated, research indicates that women drivers are more likely to rely on such platforms as their primary source of income, whereas their male counterparts often use them to supplement existing regular jobs (Anwar, 2022). Furthermore, women are structurally excluded from the most lucrative aspects of this work, as peak demand and higher surge pricing occur at night. South Africa's high rates of gender-based violence render nighttime driving a significant safety risk for women. Even during daylight hours, the burden of unpaid care work, such as school drop-offs, pickups, and caring for elderly or ill family members, creates persistent hurdles that fragment their working day and limit their earning potential compared to their male peers, who often do not have these family responsibilities. Beyond physical labour, the surge in remote work and digital freelancing platforms has changed the nature of work. Platforms like Upwork, initially framed as equalising forces, often entrench these gendered hierarchies in the virtual sphere. In the Global South, women face a dual crisis: direct client discrimination in high-value technical sectors and a flexibility paradox regarding their time (Ryan et al., 2025).

Burdened by domestic and childcare responsibilities, women often gravitate towards roles with negotiable hours, such as transcription or social media management. However, these flexible tasks pay significantly less than rigid, high-tech roles like software development. To achieve a liveable income,



women undergo a drastic intensification of labour. This often means working over 80 hours a week to balance their triple burden of domestic duties, low-wage microtasks, and the need to align with Western time zones. As noted by Anwar and Graham (2021), the strict, time-bound nature of these contracts means that any domestic interruption risks unpaid labour or platform deactivation, forcing many women to work late into the night when children are asleep (Berg et al., 2018).

Ultimately, the immediate challenges of the gig economy are compounded by the long-term systemic threat of automation, which risks hollowing out the very sectors where South African women are most visible. By 2030, it is estimated that approximately 2 million South African women, accounting for roughly 20% of the workforce, will need to transition between occupations or undergo significant upskilling to remain employed in an automation-reliant future (Van Osch et al., 2022). As women are disproportionately concentrated in administrative, clerical, and service-oriented roles, sectors highly susceptible to technological displacement, they face a unique risk of being automated out of the labour market.

While technology adoption will undoubtedly create new roles, the current gender gap in STEM and ICT leadership means men are better positioned to capture these emerging opportunities. Without targeted interventions to address women's limited access to advanced digital skills and professional networks, they remain restricted from high-value segments of the digital economy, such as data analytics and AI development. Instead of fostering empowerment, the current trajectory of digital transformation risks digitising existing inequalities, leaving women caught between the immediate precarity of the gig economy and a future of algorithmic displacement, where they stand to lose not only their current livelihoods but also their future prospects for work.

3.4 Care work, time poverty and women's digital participation

A crucial yet underexamined barrier to South Africa's digital transformation lies in the unequal distribution of unpaid care and domestic labour. While digital policies often treat access as a matter of infrastructure and affordability, the digital policies frequently overlook the time poverty that constrains women's ability to utilise these tools (Dixit & Banday, 2022).

In South Africa, women bear a disproportionate share of responsibilities related to childcare, elder care, food preparation, and household management. Women and girls spend, on average, three times as many hours on these tasks as men (Selala, 2025). These responsibilities create fundamental friction with the always-on nature of the digital economy, which prizes flexible schedules and rapid responsiveness. For women in female-headed households or informal employment, these digital demands collide with the non-negotiable timelines of caregiving, making sustained participation in digital work or technical upskilling nearly impossible (CSVR, 2024).

The failure to integrate care work into digital transformation strategies stems from a lack of intersectionality in policy oversight. Most national digital agendas, such as South Africa's National Development Plan (NDP) 2030 and various Fourth Industrial Revolution (4IR) roadmaps, remain gender- and care-blind, assuming a user unencumbered by domestic duties. This lack of intersectional design risks excluding women from the benefits of digitalisation and further entrenching the triple burden, where technology simply adds another layer of labour to an already exhausted schedule (Rani et al., 2022). In simple terms, technology on its own cannot alleviate existing burdens; rather, it adds to a long day that is packed with other forms of work.



3.5 Online safety, surveillance, and gender-based violence

The digital transformation in South Africa is unfolding against the backdrop of a dual pandemic: the world's highest rates of physical gender-based violence (GBV) and a surging wave of technology-facilitated GBV (TFGBV).

Online spaces have become a new frontier for old harms. South African women, particularly those in the public eye, such as journalists and politicians, face coordinated pile-ons, doxxing and non-consensual sharing of intimate images (Mohammed, 2025). The Cybercrimes Act of 2020 was a landmark step in criminalising harmful data messages, but enforcement remains a hurdle. Research by UN Women (2022) indicates that women often engage in digital withdrawal or self-censorship, whereby they tone down their opinions or leave platforms entirely. This is to mitigate the risk of targeted abuse, engendering a “chilling effect” on women’s freedom of expression. This violence is not just a social issue; it is a barrier to economic and political agency. When the digital realm is perceived as hostile, women are less likely to utilise it for networking, job seeking or digital entrepreneurship. The manosphere, an ecosystem of misogynistic content, often spills from digital platforms into offline physical threats.

Fundamentally, the democratic promise of an inclusive information society, as envisioned in the NDP 2030, is undermined.

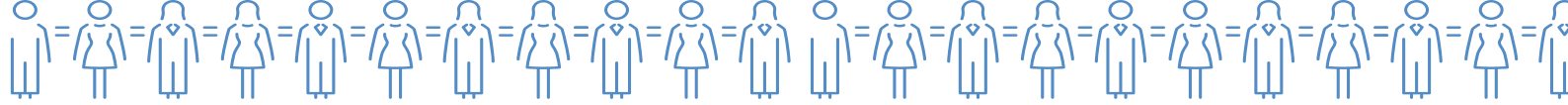
3.6 Policy gaps and gender-blind digital strategies

Despite progressive rhetoric, South Africa’s digital strategies often suffer from gender blindness, treating technology as a neutral tool rather than one that mirrors existing societal power dynamics.

Current initiatives and programmes, such as SA Connect and the Presidential Commission on the 4IR, focus heavily on hard infrastructure: fibre optics, 5G and data centres. Gendered barriers to meaningful use of digital technologies are often overlooked. Policy interventions in their current form can be described as isolated, employing a “build it and they will come” philosophy (Nirmani, 2025). While internet penetration in South Africa reached nearly 79% in 2025, a use gap remains (HelloYes, 2025). Men are significantly more likely to use the internet for economically productive purposes, while women’s use is often limited by lower digital literacy and the double burden of productive and reproductive work (Gillwald, 2024).

A major roadblock to effective policy is the data gap. Most national ICT statistics in South Africa rely on supply-side data (number of SIM cards sold) rather than demand-side data (who is using SIM cards and for what). Without gender-disaggregated data, policymakers cannot see where women are being left behind in the digital economy. As Montse Domínguez-Munlloch (2023) argues, aggregated data often masks the reality that women in rural provinces, such as Limpopo, face vastly different digital hurdles from those in urban Gauteng.

South African policy rarely accounts for intersectionality, how race, class and geography intersect with gender. A Black woman in a deep rural area faces a triple divide of connectivity, affordability and patriarchal social norms that may limit her phone ownership and digital access. Current strategies often fail to integrate with other social protections, such as linking digital IDs to the Social Relief of Distress (SRD) grants, which could empower women, but instead face digital hurdles that exclude the most vulnerable.



3.7 Digital inclusion for SMMEs

Globally, SMMEs are widely recognised as key drivers of economic growth and employment. Reflecting this global trend, South Africa's National Development Plan (NDP) 2030 envisions SMMEs contributing between 60% and 80% to the country's gross domestic product (GDP) and accounting for 90% of employment by 2030.

Digital transformation is a crucial driver of economic growth and competitiveness for SMMEs in South Africa. However, persistent digital divides, rooted in infrastructure, affordability, skills, and gendered barriers, limit SMMEs, especially those led by women and youth, from fully participating in and benefiting from the digital economy. When harnessed effectively, technology allows SMMEs to expand market reach, improve customer service, enhance product offerings, strengthen brand reputation, and make informed, data-driven decisions (Ndwane, 2025). Thus, addressing these divides is essential for inclusive development and for unlocking the potential of SMMEs as engines of job creation and innovation.

Despite the expansion of South Africa's digital economy, a significant number of SMMEs remain excluded from digital participation due to multiple barriers. These include limited access to affordable internet and devices, low levels of digital literacy, insufficient tailored training, the high cost of digital tools and platforms, and a perception that digital solutions are not relevant to informal business models. Additionally, gender and geographic disparities further restrict digital access.

A study of informal traders in a rural town found that poor connectivity, low ICT skills, mistrust of digital tools and fears of fraud were barriers. The study concluded that without targeted government-led digital literacy and infrastructure support, informal traders remain excluded from the digital economy (Matsieli & Mutola, 2025).

Another study (Willie & Mbongwe, cited in Matsieli & Mutola, 2025) found that small and medium-sized enterprises (SMEs) in the manufacturing sector viewed government support as insufficient. They recommended comprehensive training, strategic partnerships, awareness campaigns, and innovative incentives to strengthen engagement in digitalisation. However, only government-facilitated training interventions significantly contributed to the growth of African foreign-owned SMMEs in Pietermaritzburg, KwaZulu-Natal, emphasising skills development as a crucial driver of digital readiness (Moise et al., as cited in Matsieli & Mutola, 2025).

The Policy Brief and Implementation Roadmap for advancing digital inclusion among SMMEs in South Africa is designed to support evidence-based policymaking, align with national frameworks (NDP 2030, SA Connect, Digitech), and promote inclusive economic growth, especially for women-led and youth-led enterprises. While national strategies reflect a commitment to digital inclusion, implementation remains uneven due to fragmented coordination, regulatory complexity, structural exclusion, and weak monitoring systems (Matsieli & Mutola, 2025). These challenges limit SMMEs' capacity to adopt digital technologies for innovation and competitiveness.



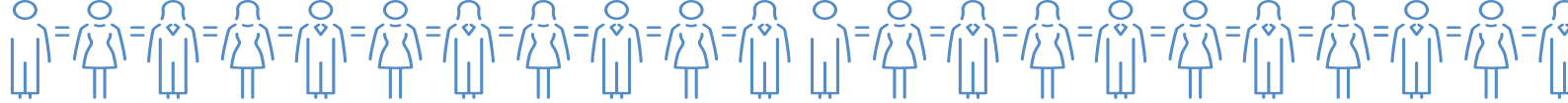
3.8 Literature conclusion

Digital transformation in South Africa holds significant potential to advance development, expand access to services, and create new economic opportunities; however, this potential remains unevenly realised due to persistent and intersecting forms of inequality.

As this paper shows, the gender gap in digital transformation is shaped by multiple, reinforcing barriers across the four levels of the digital divide: 1. unequal access to infrastructure, 2. affordability constraints, 3. disparities in digital skills and confidence, and 4. unequal outcomes in labour markets and public life. These challenges are further intensified by structural factors such as racialised poverty, rural marginalisation, unpaid care responsibilities, and gendered labour segmentation, which collectively limit women's ability to convert digital participation into meaningful social and economic gains. Rather than functioning as a neutral or equalising force, digital transformation risks reproducing existing gender and development inequalities unless these underlying structural constraints are explicitly addressed.

Addressing the gender gap in digital transformation requires a holistic and intersectional approach that extends beyond infrastructure provision and skills training alone. In the education system, early interventions are needed to challenge gender norms and stereotypes that discourage girls from engaging with STEM subjects, alongside investments in digital literacy, confidence-building, and equitable access to ICT resources across schools. Beyond formal education, inclusive digital training and upskilling programmes must be designed to accommodate women's diverse life circumstances, including time poverty and caregiving responsibilities. The same accommodations must be available to women working in digital technology fields.

At the policy level, digital transformation strategies must intentionally integrate gender and intersectional analysis, ensuring that the needs of vulnerable groups, such as rural women, women in informal employment, and female-headed households, are prioritised rather than treated as secondary considerations. This includes addressing affordability through subsidised data and devices, strengthening labour protections in the digital economy, recognising and redistributing unpaid care work, and safeguarding women's safety and participation in online spaces. Ultimately, a gender-responsive digital transformation agenda, grounded in social justice and inclusive development, is essential to ensuring that digitalisation contributes to equitable and sustainable outcomes for all.



4. EXPERIENCES OF WOMEN IN THE COMMUNITY

This section synthesises findings from four focus group discussions with women (and one mixed-gender group in Siyabuswa) conducted in Hammanskraal (Gauteng), Tubatse (Limpopo), Siyabuswa/Tweefontein (Mpumalanga), and Sisulu, Parys (Free State) during December 2025.

4.1 Background and purpose

Mashaka Consulting facilitated focus group discussions on behalf of the CGE to explore women’s experiences, challenges, and opportunities in the digital world, with emphasis on digital transformation and inclusion in the digital economy. Discussions covered access to devices and connectivity, digital skills and training pathways, everyday uses of digital tools (including social media, online platforms, and emerging AI tools), online risks (scams, fraud and harassment) and perceptions of gender and technology. This synthesis report consolidates the four groups into a single set of cross-cutting findings and recommendations while retaining key site-specific nuances and verbatim participant perspectives.

4.2 Methodology

Four in-person focus group discussions were conducted in December 2025. Participation was voluntary, and sessions emphasised confidentiality. Participants provided consent prior to the start of the group and gave permission to audio record the session. Quotes in the report are anonymised with no direct reference to a particular participant.

The results are based on small groups providing self-reported experiences. The findings of the focus group discussions are qualitative and not statistically generalisable.

4.3 Profile of focus group participants

The groups were made up as follows:

- Hammanskraal (10 community health workers; approximately 32–57 years)
- Tubatse (unemployed women; approximately 28–55 years, some with prior formal employment)
- Siyabuswa/Tweefontein (nine women with young children and one man; approximately 23–38 years, generally low educational attainment) and
- Sisulu, Parys (12 women; approximately 16–52 years; a mix of students, unemployed, part-time employed and self-employed participants).

Table 5: Profile of women’s focus group participants

Cohort	Sites and participants	Defining context
Women in the community (Dec 2025)	• Hammanskraal (CHWs, 32–57yrs), • Tubatse (unemployed, 28–55yrs), • Siyabuswa/ Tweefontein (young mothers, 23–38yrs), • Sisulu/Parys (mixed, 16–52yrs)	Smartphone-only access; severe connectivity and affordability constraints; high exposure to scams; age-excluded from training; strong entrepreneurial intent.



4.4 Findings

Key themes and illustrative verbatim quotes were captured from the various discussions. The analysis highlights similarities and differences across locations.

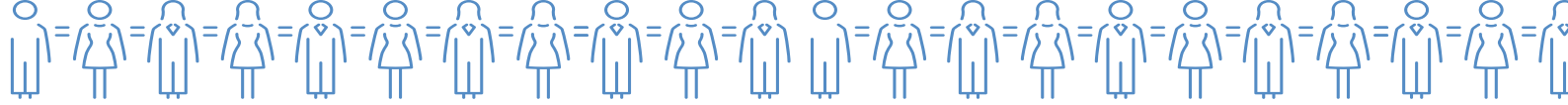
Across all sites, women relied primarily on smartphones for communication, work tasks, job searching, learning and small-business activities. However, meaningful participation in the digital economy was constrained by (1) the high cost of data and devices, (2) weak and unreliable network connectivity often linked to electricity instability, (3) uneven digital skills and limited opportunities for hands-on training, especially for older women, and (4) high exposure to scams, fraud and other online harms.

Women described using digital tools for essential everyday problem-solving and *learning* (e.g., “I had to learn how to use my phone and computer because everything is online now. If you don’t know, you get left behind”), while also facing repeated failures when completing online forms (“When I’m supposed to submit my application, the form does not go through”). AI tools (e.g., ChatGPT) were emerging as practical supports for homework and composing messages (“I ask AI to structure the message nicely”).

The analysis below is organised around the key themes summarised in the table below.

Table 6: Key themes across focus groups

Theme area	What it includes
Access to devices	Smartphones vs. laptops/tablets; device sharing and control in households; replacement after loss/damage
Connectivity and affordability	Network reliability; electricity-related disruptions; cost of data/airtime; effects on accessing services and completing online forms
Digital skills and training needs	Self-assessed skill levels; access to training; preference for hands-on learning; age barriers; confidence and troubleshooting
Uses of digital tools and platforms	Communication/social media; job searching & applications; banking/payments; online shopping; micro-business marketing and services
AI use and awareness	Use of tools such as ChatGPT for homework support, information seeking and composing/structuring messages
Online risks and safety	Scams and fraud (phishing, SIM-swap, impersonation, fake jobs, online shopping scams); harassment/cyberbullying; reporting and support gaps
Online betting and gambling	Participation patterns, motivations, financial losses and concerns about addiction and harm
Gender and technology norms	Perceptions of tech as male; differential encouragement of girls vs. boys; intergenerational dependence; household power dynamics shaping access
Opportunities and aspirations	Employment pathways, education and learning, remote work potential, entrepreneurship, need for role models and inclusive programmes



4.4.1 Access to devices: Smartphone use dominates and laptop use remains limited

Across all four groups, smartphones were the main gateway to digital participation. Women used phones for communication, job searching and applications, banking and payments, schoolwork support and, in some contexts, work-related data capture.

More advanced devices (laptops/tablets) were uncommon, inconsistently available, or shared within households. In Hammanskraal, some women reported that even when a laptop was in the home, it was effectively reserved for children and access could be refused (*"No, he is older [...] he refuses [to share the laptop]"* and *"Yes, he owns it to a point of having password codes that you can't even open it"*).

In Tubatse, affordability and dependence on family were prominent (*"They are expensive, we compromise"* alongside *"We get them as gifts"* and *"Our children bought for us"*).

In Siyabuswa and Parys, participants described loss, damage, and replacement with basic phones (*"I don't have a phone, it broke. It was not a smartphone, just a burner phone"*), reinforcing how fragile access can be. Overall, the device landscape was characterised by reliance on smartphones, constrained household access to computers, and limited opportunities to practise computer-based skills.

4.4.2 Connectivity, electricity, and the cost of data

Connectivity and affordability emerged as foundational constraints on women's digital inclusion. Participants described expensive data (*"At the same time data is expensive"*) and unstable networks that interrupt work, learning and access to services.

In Tubatse, women explicitly linked network quality to electricity availability (*"Most of the time our network goes hand in hand with Eskom"* and *"It becomes worse, very poor when there is no electricity"*). Hammanskraal participants described geographic dead zones (*"There's nothing in Mashemong"*) and pervasive network unreliability (*"The network is bad, when you go there you must know you will not be able to even speak on the phone"*).

At multiple sites, poor connectivity resulted in repeated failures to complete online applications and submissions (often at the final step), leading to wasted time and data. Examples included: *"When I'm supposed to submit my application, the form does not go through"* (Tubatse) and *"My online submission didn't go through, the page kept glitching and taking me back"* (Siyabuswa). Email-based applications were also affected (*"My sent out emails would remain in the outbox for three days or more but never goes through"*). These accounts show that digital services designed without low-bandwidth realities in mind can exclude users, even when they have motivation and basic access.

4.4.3 Digital skills: Uneven confidence; strong demand for hands-on learning

Women's self-assessed digital skills ranged from *"none"* to *"basic"* and *"medium"*, and were shaped by access to devices, opportunities for practice, and the relevance of prior training. In Hammanskraal, some participants described moderate confidence with phones but limited confidence with computers because of lack of access and fear of damaging shared devices:

"When you have a computer, especially if it's not yours, you will find yourself even scared to press anything to avoid breaking somebody else's stuff:" -



Others dismissed prior training as ineffective:

“I did computer training, it was just a joke. [...] So I cannot really say I know how to operate a computer”.

In Tubatse, women pointed to outdated training and lingering uncertainty (*“As much as I have done some training, I still rate myself as basic. That was long ago”* and *“Well, I can say I’m medium, even though I’m not really sure where I belong”*).

A major barrier was age-targeted programmes (*“They want the 2K generation; they don’t want us”*). Across sites, participants consistently preferred in-person, practical learning with sustained time-on-task (*“Computer literacy. Behind the desk and every day. Time frame may be 3–6 months, whatever the case may be”*). These needs suggest that short, one-off workshops are insufficient; women want structured, ongoing learning with access to devices to practise.

4.4.4 Uses of digital tools: Livelihoods, learning, convenience, and emerging AI

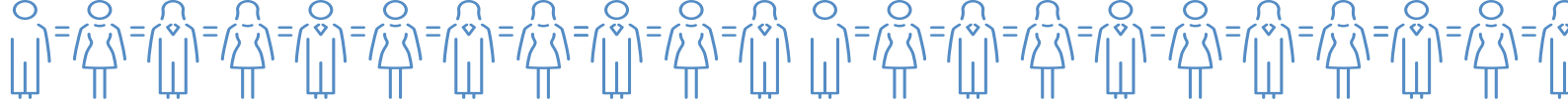
Women used digital tools pragmatically to manage daily life, pursue livelihoods, and support learning. WhatsApp and Facebook were widely used for communication, information, and networking; in Tubatse, participants described browsing rather than posting (*“You check on what other people are doing and saying”*). In Siyabuswa, women emphasised the convenience of e-commerce (*“We do shopping whilst sitting at our homes”* and *“Like buying clothes and stuff online, at shops like Shein, etc.”*). Phones were also central to job searching, often through Facebook groups (*“Usually, there are groups for job opportunities [...] This is where I normally go to check for jobs and apply”*).

Digital financial services were common where accessible, with one Tubatse participant noting, *“I don’t even have a card; everything is online”*. In Parys, some women leveraged social media for micro-business marketing (*“I mainly use social media [...] so I would post on Facebook informing potential customers on how to get hold of me [...] Mostly it would be via WhatsApp and calls”*). Emerging AI tools were beginning to feature as everyday supports. Participants used ChatGPT to assist with children’s homework (*“You shoot (take a picture) and put it on ChatGPT, then it’s able to give you answers”*) and for communication tasks (*“I ask AI to structure the message nicely”*). These patterns show that women are already engaging in digital economic activities (job-seeking, online selling, digital payments) but need better connectivity, skills, and safety support to deepen their participation.

4.4.5 Online risks: Scams, fraud, and harassment are widespread and costly

Across sites, women described frequent exposure to fraud, social engineering, and platform-based scams, with severe emotional and financial consequences. In Hammanskraal, one participant reported being defrauded when attempting to buy a car online, paying over R80,000 and later finding her accounts emptied, leaving a balance of “zero zero”. Others experienced e-commerce fraud (*“I was scammed on Facebook. I ordered shoes and paid, but I never received them”*). In Tubatse, participants described fake prizes and phishing tactics (*“Somebody called saying I won a Boxer voucher [...] thereafter they wanted my ID numbers”*), SIM-related fraud (*“My experience was a SIM card fraud [...] I discovered that there’s an amount of money from my bank account missing”*), and impersonation scams that targeted their contacts (*“They will send everyone in your contact list [...] pretending to be you”*).

Parys participants described escalation tactics tied to online orders (*“My daughter ordered stuff from Shein; her parcel never got delivered [...] she kept getting calls to pay [...] until she finally decided to close down her bank account”* and offline scams framed as opportunities (*“I was buying a job opportunity, so I was scammed live”*). Women also reported harassment and rude behaviour on social platforms.



Collectively, these accounts indicate high vulnerability and a need for practical, locally accessible digital safety education, safer reporting channels, and better support when fraud occurs.

4.4.6 Online betting and gambling: Common in some sites, driven by economic stress

Online betting and gambling appeared as a coping strategy in contexts of unemployment and financial pressure, though experiences varied by site. In the Hammanskraal group, gambling was openly discussed as common, with Hollywood Bet and Betway frequently mentioned (*"We do try. Hollywood. Betway will beat you"*). Participants reported small recurring spends (*"I would buy a R10 voucher [...] every month"*) and significant losses (*"I lost R900. It was bad. I felt like I would pee on myself"*), while others emphasised cautious play (*"Normally, I spent R20 a bet [...] when I win [...] I transfer it into my account"*). In Siyabuswa, gambling was present alongside other uses (*"Also, use smartphones for gambling [...] You know yesterday I lost R300 (laughing)"*). In Parys, gambling surfaced more as an aspiration linked to hardship (*"Job applications, but now I want to start using it for gambling. Life is tough"*) and was met with peer caution (*"Don't take gambling too seriously [...] It's a win, then lose-lose-lose"* and *"All I'm saying with gambling, you end up getting addicted to it"*). These narratives suggest the need to include financial literacy and harm-reduction messaging within broader digital inclusion efforts.

4.4.7 Gender norms and intergenerational dynamics shape technology access and aspirations

Gendered expectations influence both who is seen as *"good with technology"* and who controls access to devices. In Hammanskraal, women perceived boys as more digitally confident (*"Boys are better with technology, unlike girls. I see it in my child. The girl is not interested in technology"* and *"I support the fact that boys are more into technology. My son is an internet thief [...] His phone can connect to five Wi-Fis, and he even has the PIN codes"*). In Tubatse, women highlighted differential treatment that discourages girls' engagement (*"You will find a boy child busy with gadgets, but when it's a girl, she will be shouted at [...] while the boy is busy with gaming [...] it's okay"*). In Parys, norms positioning technology as work for men were explicit (*"I think with us, perceptions are that people in technology should be men, and women's roles are domestic work"*). Intergenerational dynamics also mattered: children were often described as more skilled, and parents sometimes depended on them for access and support. The combined evidence points to the importance of early, gender-responsive digital education and visible women role models in digital careers.

4.4.8 Opportunities: Women identify clear pathways to jobs, education and micro-enterprises

Despite constraints, participants clearly articulated how digital access could expand opportunity. Women linked digital tools to improved job search efficiency (*"The one who has access ends up applying to a lot of places in a short space of time. This puts him in a position to have more chances of landing a job"*). They also highlighted learning benefits for children (*"Technology also benefits students [...] doing school assignments and homework online just by using their phones at home"*).

In Parys and Tubatse, women asked for free and accessible skills pathways (*"If they could offer free courses like HR. Like IT courses [...] this could help a great deal"* and *"If we could ask for learnerships with no age limit. In our 50s, we are still able to learn"*). Role models, where visible, were motivating (*"I know someone, Tshagofatso [...] She's a Software Developer. She's only 23 [...] I told her I'm inspired"*). Women also reflected on missed opportunities from limited early exposure to computers (*"I think if computer training was available from primary school [...] I would not be where I am today"* and *"Very far because I would be able to apply for myself and pursue what I wanted. I would be with the likes of David Tlale"*). These aspirations reinforce the case for inclusive training linked to real employment and enterprise pathways.



4.4.9 Site-specific nuances

- **Hammanskraal:** Work-issued smartphones used for community health tasks; peer support for app troubleshooting (*"Most of the time when we encounter problems with the work app, we are told to go to [Participant 4]"*). Strong evidence of household power dynamics restricting women's access to laptops; extensive discussion of gambling platforms and lived experiences of major financial loss through online fraud.
- **Tubatse:** Digital engagement strongly tied to unemployment and job seeking; connectivity explicitly linked to electricity instability; strong demand for long, hands-on computer training and frustration with age-restricted programmes. Broader discussion of mining-related social disruption affecting education and youth pathways.
- **Siyabuswa/Tweefontein:** Low education levels and reliance on smartphones; common use of online shopping and Facebook job groups; repeated mentions of technical glitches during online submissions and email delays; gambling present but less central than in Hammanskraal.
- **Sisulu, Parys:** Mixed livelihood profile (students, self-employed, and unemployed); active use of social media for micro-business marketing; reports of discrimination in access to public computers (*"In our libraries, we are not allowed to use computers"*); gambling framed mainly as a contemplated income strategy with strong peer caution about addiction risks.

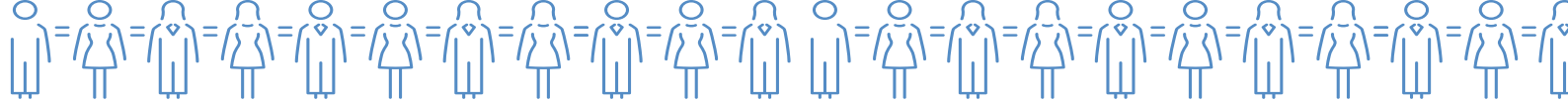


Table 7: Site-specific nuances

Hammanskraal	Tubatse	Siyabuswa/Tweefontein	Sisulu, Parys
- Community health workers; - Digital access and use are strongly tied to employment (work-issued smartphones; app-based service delivery) - Support dynamic: Clear peer “local expert” pattern for troubleshooting (“told to go to [Participant 4]”) - Household access constraint: Stronger accounts of restricted access to laptops at home, controlled by children/ passwords (“refuses [to share the laptop]”; “password codes that you can’t even open it”) - Gambling: Most extensive and detailed discussion (Hollywood Bet/Betway; losses and strategies)	- Unemployed; older/varied work history; training exclusion salient - Distinctive feature: digital is framed as a route to employment and administration, with frustration at online systems (“the form does not go through”; “You never get feedback”) - Infrastructure explanation: Connectivity is explicitly linked to electricity (“network goes hand in hand with Eskom”) - Training narrative: Strongest emphasis on being excluded by age and on wanting structured, long training, “Behind the desk every day [...] 3–6 months”) - Broader context: This group spends substantial time on mining-area social impacts (education drop-out, social ills), which shapes how they view opportunity	- Younger mothers - Lower formal education and a more “phone-only” digital life; limited institutional support - Use profile: Strong visibility of online shopping and social platforms; job search via Facebook groups - Technical barriers: Most explicit about email delays/ outbox and “glitching” submissions (“outbox for three days”; “page kept glitching and taking me back”) - Mixed-gender: Includes one male participant (with iPad/ laptop), which is a slight structural difference from the other groups	- Most diverse mix: students + self-employed + unemployed) - Clearer examples of micro-enterprise use (marketing/ products/ services) (“I mainly use social media [...] to place their orders”) - Institutional exclusion: Only site with strong claims of discrimination in public access to computers (“in our libraries, we are not allowed to use computers”) - Gambling: More aspirational/ experimental than practised, with strong peer warnings about addiction (“Life is tough”; “You end up getting addicted to it”) - Gender norms: Most explicit framing of tech as a male domain (“technology should be men”), plus parenting example contrasting boy vs girl use (Cocomelon example)



4.5 Interventions and resource support for marginalised communities

This section offers recommendations informed by a consolidated view of the key challenges experienced. Addressing the digital divide faced by women in Hammanskraal, Tubatse, Siyabuswa, and Parys requires coordinated measures and targeted resource support. The focus group findings highlight persistent structural barriers (ranging from weak network infrastructure and unaffordable data to age-exclusive training programmes and widespread online scams) that must be prioritised through policy reform and investment. The role of social media and influencers should not be underestimated, as young people look to these figures for guidance on various matters, including career choices.

This report recommends strengthening infrastructure and affordable connectivity, expanding inclusive, in-person digital skills training linked to livelihood pathways, establishing community-based digital support hubs, and scaling digital safety education and communicating pathways in local languages. There is a need to advocate for policy changes and interventions to support marginalised communities and ensure that training and resources are accessible and relevant.

The following recommendations for interventions and resource support provide a framework for strengthening digital inclusion in marginalised communities.

4.5.1 Strengthen digital infrastructure

Participants across all focus group sites reported poor connectivity, network outages, and limitations linked to inconsistent electricity supply. Therefore, there is a need to invest in reliable digital infrastructure (network, electricity) to improve connectivity. These improvements are fundamental to ensuring continuous access and ultimately narrowing the digital gap.

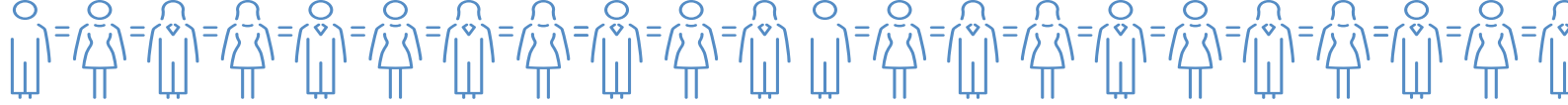
Interventions should prioritise:

- Expansion of mobile network coverage in rural and peri-urban communities
- Upgrading bandwidth capacity to reduce congestion during peak hours
- Establishing free or low-cost public Wi-Fi zones in schools, libraries, community halls, and municipal service points
- Coordinating with electricity providers to stabilise power supply, recognising its direct impact on connectivity.

4.5.2 Reduce the cost of data and digital devices

Affordability remains a major barrier for women seeking to participate in the digital world. Proposed support includes:

- Subsidised data packages for job seekers, learners, and low-income households
- Zero-rated access to essential government services, job portals, and educational platforms
- Partnerships with telecom operators and device manufacturers to provide affordable smartphones, tablets, and laptops
- Subsidising digital devices (smartphones, tablets, laptops) for women in rural communities through government or NGO programmes
- Government- or NGO-supported device-loan schemes for women, learners, and job seekers.



4.5.3 Expand equitable access to devices

Many participants rely on smartphones, but some lack access due to loss, damage, or affordability issues, and prohibitive data costs. To enable meaningful digital participation, women must have access to functional, secure digital tools. This can be achieved by:

- Supporting device refurbishment programmes that channel repaired laptops and tablets back into communities
- Incentivising donors and private companies to contribute equipment as part of corporate social investment initiatives
- Establishing community device banks or lending facilities through schools, libraries, women's centres, and NGOs. Key here is to ensure that devices loaned out are returned. The devices can also be loaned for a fee, with a portion refunded upon return. Devices can also be loaned to a group of women, with each vouching that their co-member will return the device as per the device loan agreement.

4.5.4 Inclusive and accessible digital skills training

Education levels are, in some cases, very low and, in many cases, below matric. Hence, women in Tubatse suggest that Adult Basic Education and Training (ABET) programmes should include awareness and training in digital skills. Otherwise, the older generation risks being left behind as technology advances. Thus, training programmes must be designed to include women of all ages and educational backgrounds, not only the youth. Furthermore, digital literacy workshops should be tailored to women's needs, focusing on practical digital skills, such as online job applications, navigating online banking and payments, email use, internet use, and basic troubleshooting. It is also important to address the safe use of social media and messaging applications. As a participant put it:

"I had to learn how to use my phone and computer because everything is online now. If you don't know, you get left behind".

Therefore, interventions should:

- Be community-based, in-person digital literacy training accessible to women over 35 and those with limited schooling
- Integrate digital skills modules into ABET/adult education programmes
- Provide support for women-led training organisations to deliver locally relevant programmes that include basic modules such as internet use, typing, and email. Where possible, link training to job or internship programmes to ensure that skills gained are practised and linked to livelihoods.
- Strengthen support for online job searching and applications: Provide local help desks and community facilitators to assist with CV uploads, email use, and online forms; advocate for mobile-friendly, low-data application portals to reduce "glitching and taking me back" failures
- Create supportive learning environments that reflect the starting point of adult learners: As indicated earlier, women expressed a desire for patient, supportive trainers who understand their starting point and encourage questions. Peer support and group learning were also seen as valuable.



4.5.5 Digital safety, cybersecurity, and anti-scam awareness

Given the prevalence of scams and fraud, digital literacy programmes should include modules on online safety, privacy, and recognising suspicious activity. All four focus groups highlighted worrying levels of vulnerability to online scams and fraud. Initiatives should prioritise:

- Scaling digital safety and fraud-prevention education to deliver practical anti-scam training in local languages (phishing, SIM-swap, impersonation, fake job offers, online shopping scams) and publishing clear reporting pathways, recognising the severe harm described (e.g., “zero zero” account balances)
- Running national and local anti-scam awareness campaigns in multiple languages and community-based training on safe online behaviour, identifying fraudulent calls, links, and job adverts
- Distributing easy-to-understand guides on digital safety via clinics, schools, and community centres
- Including harm-reduction messaging on online betting to integrate financial literacy and addiction-awareness into community programmes, reflecting women’s mixed experiences and cautions (“It’s a win, then lose-lose-lose”)
- Encouraging the reporting of scams and providing clear channels for support when fraud or cyber breaches occur.

4.5.6 Community digital support systems

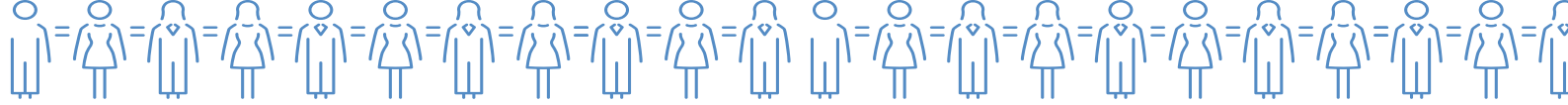
Participants mostly rely on internet cafés for services such as photocopying and printing, but access can be limited by distance and cost. There is a need to develop community-based peer support networks where women can help each other learn and solve digital challenges. Libraries could offer such facilities without discrimination. Women repeatedly expressed the need for local, accessible digital support, not just one-off workshops. Measures introduced should include:

- Establishing community digital hubs equipped with devices, printers, Wi-Fi, and basic technical assistance
- Partnering with municipal libraries and local internet cafés to provide subsidised access and training
- Encouraging peer-learning models where digitally skilled women mentor others in their community.

4.5.7 Improving the accessibility of online public and job services

Women frequently encountered technical difficulties with online job applications and accessing some portals. Proposed support includes:

- Developing simplified, low-data, mobile-friendly online application systems
- Troubleshooting guides and step-by-step manuals for common job portals and government websites
- Dedicated helpdesks or community facilitators for job seekers needing digital assistance
- Regular auditing and evaluation of online systems to ensure they do not discriminate against users with low literacy or limited bandwidth.



4.5.8 Promote gender-responsive digital inclusion

Promoting gender-responsive pathways and role models is crucial, as few participants know women in technology-related jobs, and there is limited awareness of career opportunities in the digital sector. Participants noted the importance of seeing women succeed in digital and technical fields. Given ongoing gender norms that often position technology as a male domain, policy support must intentionally promote women's participation by:

- Eliminating age or gender restrictions in training, learnerships, or digital skills programmes
- Increasing role model visibility by showcasing women role models in digital careers through community events, media, and school programmes
- Organising career talks and mentorship programmes featuring women working in technology and digital industries
- Integrating early digital education to counter the perception that “technology should be [for] men”. This also involves encouraging parents to support girls actively learning with devices, not solely for entertainment
- Supporting early exposure to STEM fields for girls in primary and secondary school
- Highlighting diverse career paths beyond traditional roles, emphasising remote work and online opportunities.

4.5.9 Public-private partnerships for sustainable impact

Sustained digital inclusion requires collaboration between government, non-governmental organisations (NGOs), the private sector, and communities. These partnerships should be actively encouraged.

- Telecom partnerships for affordable data, free Wi-Fi zones, and network upgrades
- NGO-led community programmes providing digital literacy and entrepreneurship training
- Private-sector involvement in supporting digital micro-businesses run by women.

4.5.10 Monitoring, evaluation, and community participation

To ensure that interventions remain relevant and effective, initiatives should include:

- Community involvement in planning, monitoring, and evaluating digital inclusion initiatives
- Clear metrics for tracking training access, gender inclusivity, infrastructure improvements, and affordability
- Annual reporting to identify progress, gaps, and new emerging needs.

4.6 Focus group conclusion

The four focus groups show that women are already active digital users, primarily through smartphones, and are using digital tools to pursue employment, manage finances, support learning, and run small businesses. However, participation remains fragile and uneven due to high costs, unreliable infrastructure, limited access to computers, and gaps in practical training, as well as substantial exposure to scams and fraud.

Women's verbatim accounts demonstrate both readiness to engage (*“everything is online now”*) and repeated systemic barriers (*“the form does not go through”*). Addressing these constraints through gender-responsive infrastructure investment, inclusive skills development, local digital support systems, and stronger digital safety measures will help expand women's meaningful inclusion in the digital economy.



5, EXPERIENCES OF WOMEN IN THE ICT SECTOR

This part of the report presents the findings of eight qualitative interviews conducted with women working across career stages in the South African digital and technology sector, from a first-year cybersecurity intern to a chief information officer. The interviews were conducted as part of the CGE's broader research programme on gender inclusion in the digital economy. The interviews were conducted between April and May 2026.

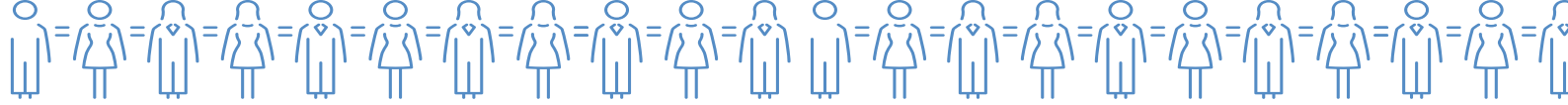
5.1 Context, purpose, and methodology

South Africa's technology sector faces a fundamental contradiction: ICT is one of the fastest-growing contributors to economic output, yet it systematically fails to retain the women it recruits. This is not attributable to a talent deficit. The women interviewed for this research are capable, credentialed, and committed – many are exceptional. What they share is an experience of navigating a sector that was not designed for them, within workplaces that frequently celebrate diversity at the point of hiring while reproducing exclusion in day-to-day operations.

The research identifies six cross-cutting themes, each substantiated by evidence from multiple interviews and grounded in direct, verbatim testimony from participants. It also surfaces a set of insights not widely captured in mainstream SMME or digital economy policy discourse, including the intersection of race and gender in task allocation, the specific and severe consequences of the maternity leave 'confidence gap', and the documented clustering of women's exit from the sector between the ages of 35 and 45.

Table 8: Themes of the research

1	Pathways into the technology sector are diverse, non-linear, and frequently accidental Women enter technology through multiple routes – and often by chance, or through a single enabling intervention (e.g., a mentor, a lecturer, a volunteer placement). The assumption of a single STEM pipeline excludes a large proportion of women who could thrive in the sector.
2	Enablers are specific and practical – not inspirational What enables women to enter, stay, and grow is not motivation or resilience alone. It is access to a manager with whom one can communicate openly, a mentor who includes one in meetings, a budget for professional certification, and a workplace that does not expect one at their desk at 4 a.m.
3	Barriers are accumulated, interactional, and often invisible Women's experience of exclusion is rarely a single dramatic incident. Instead, it is an accumulation of small moments: being discussed in the third person in a meeting where one is present; an after-hours WhatsApp message at 4 a.m.; a promotion awarded to a male colleague who was present while one was on maternity leave.
4	The pipeline leaks at predictable, preventable points Women exit the sector at six identifiable transition points – from school subject choice through to the senior leadership threshold. These drop-offs are not explained by a lack of ability. Rather, they are explained by cumulative barriers and the rational decisions women make when the environment becomes unsustainable.
5	The maternity penalty is a hidden career crisis Post-maternity return is one of the most damaging – and least addressed – pipeline failures. Returning women are often placed 'on the back burner', lose training continuity, and experience a confidence erosion that is frequently permanent without active intervention.
6	Race and gender intersect in ways that compound disadvantage Several participants identified racial dynamics in task allocation, recognition, and remuneration that layer on top of gender bias. Black women in technology thus face a compounded disadvantage that generic women-in-tech frameworks do not adequately address.



KEY FINDING: Women’s exit from the technology pipeline is overwhelmingly a rational response to unsustainable and inequitable conditions – not a failure of ambition, capability, or commitment. Retention strategies that focus on ‘fixing’ women while leaving the conditions unchanged will not be effective. The evidence demands structural and cultural change within organisations, supported by policy accountability.

5.1.1 Background

The CGE’s research programme on the digital economy and gender equity identified a significant evidence gap regarding the experiences of women already in the technology sector, as distinct from the better-documented challenges of access and entry. While ‘women in STEM’ initiatives proliferate at school and university levels, far less is understood about what happens to women once they are inside organisations: how they experience day-to-day professional life, where they lose ground, and what would need to change for them to stay and lead.

This part of the research deliberately focuses on the lived, first-person experiences of women at different stages of technology careers. This is because the evidence most useful for policy and practice is not survey data about representation rates, but rather the accounts of women describing what it actually felt like to be ignored in a meeting, to receive a 4 a.m. WhatsApp message from a manager, to return from maternity leave and find that her team had moved on without her, or to watch a male colleague receive credit for her idea.

This report examines the structural barriers faced by women working in the technology sector. It tells the story of a South African digital economy that is expanding rapidly, but its benefits are not being shared equitably.

5.1.2 Methodology

Eight qualitative, semi-structured interviews were conducted with women across a range of career stages, roles, and institutional contexts within the digital and technology sector. The sample was designed to capture perspectives from across the career pipeline, from intern to Chief Information Officer (CIO), and to include both public- and private-sector contexts. Interviews were conducted between April and May 2026.

Verbatim quotes are used throughout this report as primary evidence. Where participants spoke in a mixture of languages or informally, their words are preserved as spoken, as the texture of language frequently reflects the emotional or situational intensity of the account given.

5.1.3 Participant profile

Table 9: Profiles of the ICT sector women interviewees

Interview date	Role/designation	Organisation type
12 April	Acting government IT officer (acting CIO)	Government department
15 April	Junior project manager	Private IT consulting company
16 April	Executive	Telecoms/corporate
20 April	Executive/company director	Private company
24 April	Cybersecurity intern	University-based
7 May	Chairperson	IT organisation for women
8 May	Chief information officer (CIO)	Government department
8 May	Data engineer	Private company



5.2 Theme 1: Entry pathways, diverse, non-linear, and often accidental

5.2.1 Dismantling the single-pipeline myth

One of the most consistent and important findings of this research is that women do not enter the technology sector through a single, predictable pathway. The assumption, embedded in much STEM policy, that girls must choose STEM subjects at school, proceed to a computer science degree, and enter tech employment in their early 20s is not borne out by the evidence. Women in this research entered through diplomas, degrees, lateral career transitions, internships, volunteer programmes, and, in some cases, by accident. A senior government CIO described her entry in terms that would be unrecognisable in most pipeline narratives:

“The lonely queue was IT. That queue looks small. Why don’t I try this one? That’s how I got into IT.” – Government CIO

A company director described entering at significant personal risk, and being saved by a single human intervention:

“I was one of those that were at huge risk of dropout. All it took was one of the lecturers reaching out to me. And his advice defined my career.” – Company director

A data engineer reported that the field itself was invisible to her until she was already in tertiary education:

“I didn’t know about tech careers until I was in university.” – Data engineer

And a senior consultant described her early exposure to technology in even starker terms, not a pipeline, but an absence:

“There was no tech.” – Senior consultant

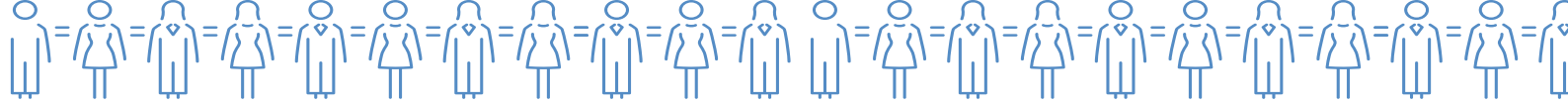
5.2.2 Role of exposure, encouragement, and enabling moments

What these diverse entry accounts have in common is the central role of exposure and encouragement, often delivered by a single person at a crucial moment. A lecturer, a mentor, a workplace manager who said, *“Come with me to this meeting”*, or a family network that opened a door. These are not systemic interventions. They are individual acts of human investment, and their outsized impact reveals exactly where the system is failing. If a woman’s entire career trajectory can be determined by whether or not a lecturer noticed she was struggling in her first year, the system is not producing equitable outcomes; it is producing ‘lucky ones’.

NEW INSIGHT: The ‘accidental entry’ pattern is more than an anecdote. It reveals a structural gap in career visibility and guidance; girls are not failing to choose tech; they are not being shown that tech is something they could choose. This has direct implications for career guidance policy: the need is not just for more STEM content in schools, but for deliberate, specific, and early visibility of what technology careers look like, what they pay, and who performs them.

5.2.3 Self-directed learning as a structural necessity

Across career stages, participants described continuous self-directed learning, often using online resources, at their own expense, in their own time, as a non-negotiable survival tool. This was not framed as enthusiasm; it was framed as a requirement to remain relevant in a sector that changes faster than formal training systems can keep up with. The implication is that women who lack the time, financial resources, or connectivity to invest in self-directed learning are effectively disadvantaged by a structure that has externalised the cost of keeping the workforce current.



5.3 Theme 2: What actually enables women to stay and grow

5.3.1 Importance of practical over inspirational approaches

When participants described what had most enabled their career, they did not cite motivational campaigns, awareness weeks, or diversity targets. They cited specific, concrete, relational acts of support: a manager who was accessible; a mentor who brought them into rooms they would not otherwise have entered, an employer who funded a certification, or a colleague who credited their contribution in front of senior leadership. The enabling conditions that work are practical, not symbolic.

5.3.2 Mentorship: The gateway to belonging and competence

“Mentorship is so, so, so important.” – Data engineer

“Come with me to the meeting. Sit and observe.” – Government CIO

Mentorship was described across the interviews not simply as professional advice, but as an active mechanism for transferring tacit knowledge, building confidence, and legitimising a woman’s presence in spaces that might otherwise feel inaccessible. The ‘sit and observe’ model described by the government CIO is particularly instructive: it is not a formal programme, a structured curriculum, or an institutional initiative. It is one person deciding to include another. Its power lies precisely in its informality, and that informality is also its vulnerability, because it depends entirely on the discretion of individuals rather than the design of systems.

“Women don’t only need entry opportunities. We need influence. We need sponsorship. We need visibility. We need equity.” – Chairperson, IT organisation for women

The crucial distinction between mentorship and sponsorship for women was raised by the chairperson of the IT organisation: mentorship builds capability and confidence; sponsorship allocates access to high-impact work, visibility, and leadership opportunities. Without the latter, women can be perpetually mentored yet never advance. The research identifies this as a crucial gap in current institutional support frameworks.

5.3.3 Psychological safety and the quality of management

The quality of an immediate line manager was repeatedly described as the single most decisive factor in whether a woman’s experience in the workplace is developmental or damaging. The cybersecurity intern, the most junior participant in the research, described the value of an accessible manager with disarming clarity:

“My boss is someone you can talk to at any moment. He’s just an easy person to talk with.” – IT intern

This apparently simple observation carries significant weight. In a sector characterised by high-pressure environments, complex technical hierarchies, and significant imposter syndrome, the ability to ask questions without fear is not a soft benefit; it is a primary driver of skill development, retention, and well-being.



NEW INSIGHT: Management quality is not a ‘nice to have’, it is the primary organisational lever for retaining women in tech. The interviews consistently show that where management is accessible, developmental, and fair, women grow and stay. Where management is inaccessible, exploitative, or boundary-blurring, women exit, regardless of how compelling the job itself is. This has clear implications for how organisations select, train, and evaluate line managers in technical environments.

5.3.4 Flexibility and the caregiving reality

Hybrid work and scheduling flexibility emerged as decisive retention enablers, particularly from mid-career onward, when caregiving responsibilities intensify. Crucially, participants framed flexibility not as a personal accommodation but as a structural condition for equitable participation. Without it, the expectation of constant availability effectively renders the sector incompatible with caregiving, and since caregiving remains disproportionately a responsibility assigned to women, the effect is to systematically disadvantage women.

One participant noted, however, that the flexibility to ‘step out and re-enter’ the labour market is not equally available to all women. Specifically, Black women may carry greater financial dependence on continuous employment, making the consequences of leaving a toxic environment more severe and the option to leave less accessible.

NEW INSIGHT: Flexibility is not equally accessible. For Black women who cannot afford to leave employment, even exploitative employment, ‘just leaving’ is not a viable strategy. This means that the retention burden falls more heavily on organisations and that sector-wide minimum standards (rather than voluntary employer commitments) are necessary to protect the most economically vulnerable women in the pipeline.

5.4 Theme 3: Barriers, accumulated, interactional, and often invisible

5.4.1 Architecture of accumulation

A defining feature of the barrier-to-inclusion accounts in this research is that the barriers are rarely about a single, dramatic act of discrimination. Instead, the barriers accumulate: small interactions that, taken individually, might be problematically dismissed as ‘just how things are’ or ‘office politics’, but that collectively contribute to an experience of chronic devaluation. The IT intern, despite being relatively early in her career, had already assembled a library of these moments:

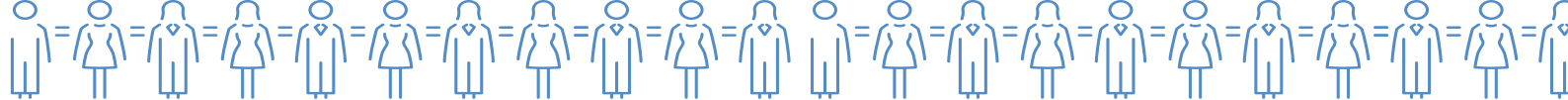
“I could write a book about all the negatives.” – IT intern

The mundane texture of this accumulation, its invisibility to those not experiencing it and its exhausting visibility to those who are, helps explain why women who appear from the outside to be thriving, employed, and advancing, are simultaneously contemplating exit. The cost is being paid in places that do not appear in diversity dashboards.

5.4.2 Workload norms and the 4 a.m. WhatsApp message

The normalisation of after-hours availability and the use of personal communication channels to enforce it were described as among the most damaging and pervasive features of the technology sector. The IT executive’s account of a manager who sent WhatsApp messages at 4 a.m. is not an outlier; it exemplifies a widespread pattern:

“We were only supposed to work from 8 to 5. But why am I working after hours?” – IT intern



The harm here is not simply the inconvenience of late-night messages. Rather, it is the implicit message that work has no boundaries, that employees have no right to personal time, and that raising concerns about this expectation poses a professional risk. For women with caregiving responsibilities, and for women who require adequate sleep, like every other human being, this norm is not merely uncomfortable; it is unsustainable.

INSIGHT: After-hours work expectations in the tech sector function as a structural barrier to women's participation. This is not because women are incapable of working diligently, but because the expectation of constant availability is incompatible with the domestic responsibilities women disproportionately carry. Organisations that normalise this behaviour are not 'just demanding high performance'; they are systematically selecting against women.

5.4.3 Meeting room as a site of exclusion

Multiple participants described the meeting room, the space in which decisions are made, ideas are credited, and influence is exercised, as a site where gender bias is most visibly enacted. The company director's account is particularly vivid:

"You'd find when you are in a meeting, you put a point across, and then you get spoken about in third person as if you're not in the room. I'm sort of invisible here." – Company director

"When a man talks, their ears open. When it's a woman, they listen just to hear what you have to say. The reaction is not the same" – Acting CIO

These accounts describe not aggressive discrimination but something arguably more insidious: a structural invisibility that renders women's contributions less legible, their ideas less memorable, and their presence less authoritative. In an industry where advancement depends heavily on visibility, reputation, and perceived credibility, this form of bias has direct career consequences.

The government CIO offered a striking counter-strategy, an act of persistent self-assertion that, whilst regrettable, is often necessary:

"You will raise your hand in the meeting and somebody ignores you. Keep your hand up." – Government CIO

5.4.4 Recruitment and progression frictions

Entry-level participants identified 'ghosting', employers who fail to respond to job applications or interviews, as a demoralising and exclusionary practice. While ghosting affects all job seekers, its impact is more severe for women entering fields where they already have fewer informal networks and contacts to rely on, and where the absence of feedback deprives them of the guidance needed to improve their applications:

"This thing of ghosting and not getting responses – applying and applying and not hearing anything." – IT intern

5.4.5 Intersectional disadvantage: race and gender

Several accounts explicitly raised race as a compounding variable in the experience of gender bias. Task allocation, recognition, remuneration, and social dynamics within the workplace were described as operating differently for Black women than for women more broadly, and differently again for Black women relative to Black men and White women. This intersectional dimension of the data warrants far



more analytical attention than it currently receives in women-in-tech frameworks, most of which treat gender as a unitary category.

NEW INSIGHT: The intersection of race and gender within the technology sector creates a compounded disadvantage that generic women-in-tech frameworks often fail to address. Black women, for instance, do not simply experience gender bias in addition to racial bias; instead, they navigate a distinct social position that fundamentally shapes how they are perceived, the tasks they are allocated, whether their ideas are credited, and the latitude they are afforded to make mistakes and recover. Policy and programme design must, therefore, reflect this specificity.

5.5 Theme 4: Leaking pipeline – Where women exit and why

5.5.1 Overview of drop-off points

The metaphor of a leaking pipeline is frequently invoked to describe women’s underrepresentation in technology. This research provides specificity to that metaphor by identifying six distinct transition points at which women are most likely to exit. For each point, the primary mechanism driving exit is identified. Critically, none of these drop-offs is explained by a lack of ability. Instead, all are explained by cumulative barriers, the absence of enabling conditions, and, increasingly, the rational calculation that the cost of staying is too high.

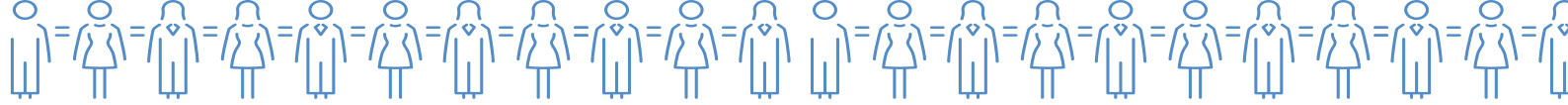
Table 10: Risk factors in the leaking pipeline where women exit ICT

Pipeline stage	Primary risk factor	Reported impact
School (before entry)	Stereotypes, limited STEM exposure, and no role models	Girls self-exclude from mathematics, science, and technology subjects
Early tertiary (year 1)	Lack of belonging, no proactive guidance, and financial gaps	High dropout risk – “huge risk of dropout” before consolidating the foundation
Early career (first placement)	Toxic culture, exploitation of interns, and no mentorship	Loss of confidence; women exit before skills are consolidated
Mid-career (ages 35–45)	Burnout, caregiving burden, lack of sponsorship, maternity penalty	Most common exit point – “it’s normally at mid-level”
Post-maternity return	Loss of training continuity, “put on the back burner”, and confidence erosion	Reduced capability visibility; confidence “beaten”; career regression
Senior/ leadership threshold	No sponsorship, “invisible ceiling”, unrealistic availability expectations	Women downshift or exit rather than risk “sacrifices not worth it”

5.5.2 School-level entry barrier

Girls’ underrepresentation in mathematics and physical science, which are conventional prerequisites for STEM careers, is not primarily a product of inability or disinterest. Rather, it stems from stereotypes, limited early exposure to the realities of technology careers, and uneven encouragement. Participants consistently argued that introducing digital concepts and careers earlier and more deliberately could shift this trend:

“If IT could be introduced at a lower level – whether it’s robotics or coding – just to introduce the subject matter earlier.” – Senior consultant



“If we expose children to concepts when their brains are still pliable, all we need to do is expose them and give them the necessary resources.” – Company director

5.5.3 First-year tertiary crisis

The first year of tertiary study, whether at university or TVET, was described as a high-risk period for dropout among women in technology pathways. Without proactive guidance, a sense of belonging, and practical financial continuity, many students leave before consolidating the skills that would make them competitive in the labour market. The company director’s account of her own near-dropout illustrates how thin the margin between exit and persistence can be, and how transformative a single human intervention can be when it arrives at the right moment.

5.5.4 Early career: When the first workplace teaches the wrong lessons

Poor-quality first placements, environments characterised by exploitation, disrespect, excessive hours, and the absence of mentorship, can push women out of the sector before they have developed the confidence and credibility to survive a bad employer and move on to a better one. The damage caused by a poor first workplace experience extends beyond the individual: women who exit at this stage take their potential with them, and the sector loses the diversity of perspectives and experiences it claims to want.

5.5.5 Mid-career exit cluster (ages 35 to 45)

The most significant and consistent finding on pipeline attrition is the clustering of women’s exit at mid-career, between approximately 35 and 45 years of age. This drop-off was identified independently by multiple participants, including the government CIO, the data engineer, and a senior leader who provided the most analytically detailed account:

“I’ve seen a lot of the ladies I went to school with or started in the industry who dropped out. It’s normally at mid-level” – Government CIO

The mid-career exit is driven by a convergence of pressures: intensifying caregiving responsibilities (often coinciding with peak workload expectations), the absence of sponsorship to navigate the threshold into senior leadership, accumulated exhaustion from years of managing bias and boundary violations and, crucially, a rational reassessment of whether the sacrifices required to advance are commensurate with the rewards on offer. When senior leadership roles are seen as requiring perpetual availability, the subordination of personal well-being, and continued navigation of hostile dynamics, many women make the entirely rational decision not to pursue them.

“I need one person to teach me work-life balance. Because I don’t know what it looks like. One thing will suffer.” – Government CIO

5.5.6 Maternity leave confidence gap: A hidden crisis

Post-maternity return emerged in this research as one of the most damaging and least addressed failure points in the technology pipeline. The acting CIO’s account of the dynamics that play out during and after maternity leave is quoted at length:

“Maybe you have a man or husband, get pregnant, you are gone for 6 months, you come back, and you have lost so much. They feel sorry for you and put you on the back burner, with the man doing everything. The man allocates to the man. The confidence is beaten. We don’t do it intentionally. The men are there when you are gone, they are continuing. Wena, you



don't get training to bring to speed. Your confidence takes a knock. Not many will say I need help.” – Acting government CIO

This account describes a multi-layered failure: the loss of six months of continuous professional development; the reallocation of meaningful work to colleagues who remained present, the social mechanism of ‘feeling sorry’ that positions the returning mother as diminished rather than continuous, the absence of any structured reintegration that would restore her training and project access, and the resulting confidence erosion that is compounded by the social norm against asking for help. None of this is intentional; it is structural neglect: a system that was not designed with women’s careers in mind and reproduces disadvantage through how it operates.

NEW INSIGHT: The maternity leave ‘confidence gap’ represents a significant and least addressed pipeline failure within industry. It is not merely a personal experience of individual women; rather, it constitutes a systemic failure of workplace reintegration that manifests across many organisations; public and private. Without deliberate intervention (including structured training catch-up, explicit reallocation of meaningful projects, and social norms that treat returning mothers as continuous professionals rather than objects of sympathy) this damage compounds, leading to career regression and eventual exit. This finding necessitates a dedicated organisational protocol for post-maternity return in technology roles.

5.6 Theme 5: Organisational culture – Where policies go silent

5.6.1 Policy-practice chasm

One of the recurring themes in the research is the disparity between espoused commitments of organisations regarding gender equity and the day-to-day experiences of women. The acting CIO’s framing elucidates the mechanism by which this gap is sustained:

“At work there are policies – but these policies are silent. They are not enforced. No one is monitoring. Women are letting go of their passion.” – Acting government CIO

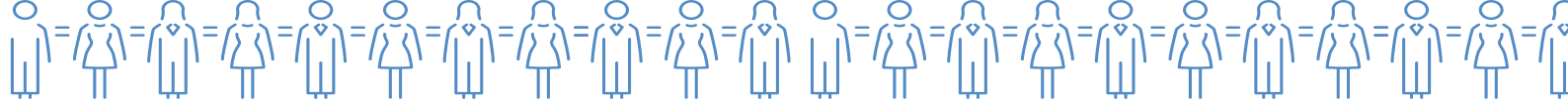
The consequence of ‘silent policies’ is not a neutral gap between aspiration and practice; instead, it constitutes active harm. Women who commence employment believing that stated equity commitments apply to them invest in the role on that basis, only to find themselves navigating an environment that bears no relationship to the policy framework they were initially presented with. A data engineer described this phenomenon as follows:

“The culture of the company isn’t inclusive. Yes, they get hired – but that’s not an environment in which they can grow, or learn, or develop their careers.” –Data engineer

Hiring individuals into a hostile environment does not equate to inclusion. Rather, it represents the deployment of diverse labour into conditions designed to exhaust and eject it. Furthermore, when women depart from such environments, they are frequently described as having ‘chosen’ to exit.

5.6.2 Toxic entry-level conditions and their long-term consequences

The research reveals a pattern of particular concern at the entry level, where interns and junior staff in technology environments are often overworked, underprepared, and without the supervision needed for learning and confidence-building. The experience of an IT intern, working hours beyond her contracted scope yet unable to fully comprehend why, is illustrative of a broader sector culture in which the exploitation of junior labour is normalised under the guise of ‘learning the ropes’ or ‘what it takes to succeed’.



The long-term consequence of this pattern is that the sector socialises its most junior members (the future generation of leaders) into a culture of boundary violation and excessive demands. This process produces leaders who subsequently reproduce those norms, thereby creating a self-perpetuating sector-wide culture.

5.7 Theme 6: intersectionality – Race, gender, and the compounded gap

5.7.1 Beyond the unitary category

Gender equity frameworks within the technology sector frequently treat ‘women’ as a homogeneous group, implying that the experiences of a White woman in a senior consulting role and a Black woman in her first internship are equivalent in terms of their barriers and solutions. The evidence from this research challenges that assumption.

Several participants identified racial dynamics that operate in parallel with and compound gender dynamics. These include differing task allocations, varied credit attributions, unequal remuneration, and disparate social access to the informal networks through which opportunity is distributed. The compounded effect results in a position of disadvantage that is not simply ‘gender bias plus racial bias’, but a distinct experience of professional life.

5.7.2 Labour market trap for Black women

The research highlights a particular dimension of this compounded disadvantage: the limited ability of Black women to exit toxic employment, relative to their White counterparts. Where financial dependence on continuous employment is greater, the capacity to take the economic risk of leaving a damaging workplace diminishes. This means that sector-wide voluntary commitments to ‘healthy culture’ and ‘flexible working’, while valuable, provide less protection to the women who most need it.

NEW INSIGHT: The ‘just leave’ option that underpins many employer-level solutions (such as exit surveys and culture scores) assumes a labour market mobility that does not exist equally for all women. Black women, often with fewer financial reserves, narrower professional networks, and greater dependence on benefits continuity, cannot ‘just leave’ a toxic employer in the same way that higher-resourced women can. This therefore demands a regulatory response, such as minimum standards for workplace conduct, rather than relying solely on market-based solutions.

5.8 Cross-cutting synthesis: Where the two reports converge

5.8.1 The digital economy has two gender problems

Read together, the CGE’s two research reports reveal that South Africa’s digital economy has two distinct yet related gender-equity problems.

1. Documented in the companion SMME report, the first gender equity problem concerns women who are attempting to participate in the digital economy as business owners and entrepreneurs, and who are blocked by structural barriers, including data affordability, late government payments, financial exclusion, and compliance complexity.
2. Documented in this report, the second gender equity problem concerns women who are already within the digital technology sector as employees and professionals, and who are blocked by organisational culture, workload norms, management failure, pipeline attrition, and the compound disadvantage of race and gender.



These are not the same problem; however, they share a root cause: a digital economy that was built without women's participation, by institutions and organisations that continue to default to male-centred norms when no one is actively working against that default.

5.8.2 Shared structural themes

Both reports highlight the following cross-cutting structural themes:

- The gap between policy commitments and operational reality: Both SMME support institutions and technology employers have gender equity frameworks on paper that bear a limited relationship to women's daily experience.
- The multiplier potential of women's participation: Both reports independently document the broader socio-economic returns that flow from genuine women's inclusion, whether as business owners or technology professionals.
- The compounding of race and gender: In both contexts, Black women experience a qualitatively distinct form of disadvantage that generic frameworks do not adequately address.
- The crucial role of individual human investment: In both contexts, a mentor, a manager, or a single enabling intervention can significantly alter a career trajectory, revealing both the power of relational support and the fragility of systems that depend on individual discretion.
- The silence of monitoring and accountability: Both reports identify the absence of independent oversight and outcome-based measurement as a core enabler of ongoing inequity.

CROSS-REPORT INSIGHT: The digital economy's gender equity challenge cannot be solved by working on the pipeline from the outside (e.g., getting more girls into STEM) while simultaneously ignoring what happens on the inside (i.e., whether women in technology organisations can survive, grow, and lead). Both interventions are necessary. The evidence from both CGE reports suggests that neither is currently being implemented with sufficient urgency, specificity, or accountability.

5.9 Recommendations regarding women in technology

The following recommendations are derived from the interview evidence and are aligned with the barriers, enablers, and points identified across the research. They are presented with specific, measurable indicators to enable accountability.

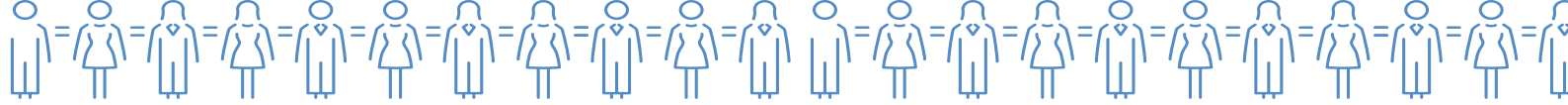


Table 11: Strategic recommendations by stakeholder group

Stakeholder group	Priority action	Measurable indicator
Government and education	Introduce digital literacy and coding from the primary school level, with deliberate encouragement for girls; extend age eligibility in learnerships.	Percentage of girls enrolled in STEM subjects; learnership age cap reform
Government and education	Strengthen career guidance before subject selection, demystify tech pathways across TVET, university and learnerships	Guidance programme coverage; percentage of students aware of tech careers
Government and education	Expand device access, community tech centres and bursary continuity to prevent affordability-linked dropout	Device-to-student ratios in low-income areas; dropout rate by income bracket
Employers (public and private)	Mandate and enforce gender equity policies, move from compliance paperwork to manager-accountable practice	Proportion of firms with monitored gender equity plans; internal audit results
Employers (public and private)	Set norms on after-hours communication and sustainable workload design	Reduction in after-hours contact incidents; employee well-being survey scores
Employers (public and private)	Build structured mentorship and sponsorship programmes, pair women with mentors for skills transfer and sponsors for visibility	Percentage of early-career women in formal mentorship; progression rate of sponsored women
Employers (public and private)	Audit task allocation, training access and remuneration by gender and race to address intersectional bias	Pay gap audits published; training access by gender/race tracked annually
Employers (public & private)	Design post-maternity re-integration protocols that restore training, visibility, and access to meaningful work	Return-to-role outcomes tracked; confidence-indicator surveys post-leave
Professional bodies and networks	Build sector-wide sponsorship pathways to boards, committees, and high-impact roles	Number of women placed in leadership/board positions via sponsorship
Professional bodies and networks	Offer low-cost/sponsored short courses in cloud, cybersecurity, data, and AI governance	Number of women completing certifications annually; pass rates by demographic
Individual strategies	Seek mentors and sponsors early; join professional networks and women-in-tech communities	Self-reported mentorship access rates; network membership data
Individual strategies	Invest in certifications, continuous learning and communication capability, especially technical-to-non-technical translation	Certifications completed; speaking/presentation opportunities taken



5.9.3 Priority recommendations arising from new insights

The following recommendations specifically address insights that are not yet widely reflected in South African women-in-tech policy frameworks.

5.9.3.1 Career guidance reform

- Mandate age-appropriate technology career visibility programmes from primary school, including explicit representation of women and Black women in technology roles across all content
- Require career guidance practitioners to provide information on non-coding tech pathways (data, governance, risk, project delivery, cybersecurity analysis) alongside software development.

5.9.3.2 Post-maternity re-integration protocol

- Develop and mandate a structured post-maternity re-integration protocol for technology sector employers, including training catch-up within the first 30 days of return, explicit reallocation of a meaningful project within 60 days, a check-in meeting at 90 days to assess confidence, workload, and support needs
- Commission CGE to develop minimum standards for post-maternity workplace practice, in consultation with Business Unity South Africa (BUSA), organised labour and women-in-tech professional bodies.

5.9.3.3 After-hours communication standards

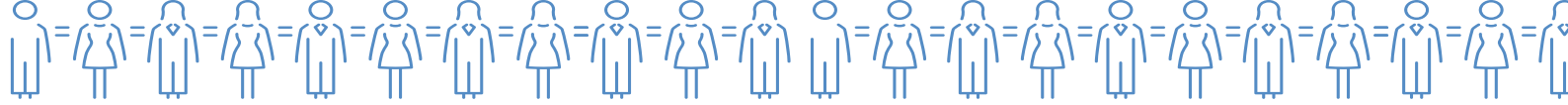
- Develop sector-specific norms on after-hours communication, applicable to both public and private technology employers, taking into cognisance that ICT services need to be provided when needed and sometimes very late into the night.

5.9.3.4 Intersectionality-sensitive programming

- Require all women-in-tech government and private sector initiatives to disaggregate their data by race and report separately on outcomes for Black women, Coloured women, Indian women and White women
- Commission a dedicated study on the compounded experience of Black women in the South African technology sector, to inform targeted policy and programme design.

5.9.3.5 Sponsorship infrastructure

- Distinguish between mentorship (which is widely available and insufficient on its own) and sponsorship (which is rare and high impact).
- Fund and structure sector-wide sponsorship mechanisms through Sector Education and Training Authorities such as MICT SETA, professional bodies and CGE-convened platforms.



5.10 Conclusion

The women in this research are describing, with clarity and precision, the conditions that are making it rational for talented, committed, and capable women to leave a sector that needs tech workers.

The IT intern who could “write a book about all the negatives” and yet is still showing up, still learning, and persisting deserves a sector that invests in her as deliberately as she is investing in it. The government CIO who entered technology because the IT queue ‘looked small’, and went on to run ICT for an entire government department, deserved an early career that did not leave her survival to chance. The acting CIO who watched women disappear from the pipeline after maternity leave and described the mechanism of that disappearance deserves an institutional response commensurate with her analysis.

These are not peripheral or marginal voices. They are the current and future leaders of South Africa’s digital economy. What they are describing is the 4 a.m. WhatsApp message, the meeting where one becomes invisible, and the return from maternity leave to find that one’s career has moved on without them, is not acceptable in an economy that needs their talent, their leadership, and their perspective to function at its full potential.

“Let’s bet on our women and ensure that we deliberately support them in their aspirations.” – Company director



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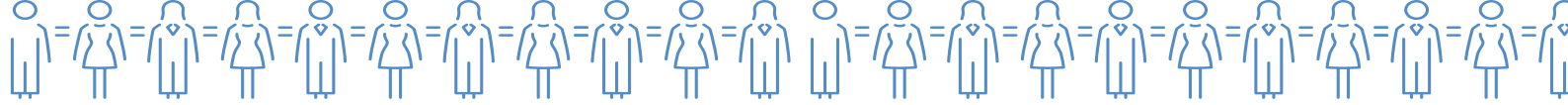
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