CoLab for e-Inclusion and Social Innovation

Digital engagement in South Africa:

Current landscape and readiness outlook in four provinces

vlir uos

UNIVERSITY of the WESTERN CAPE

imec-mict-ugent COMMUNICATIEWETENSCHAPPEN

VUB SMIT STUDIES IN MEDIA, INNOVATION & TECHNOLOGY RESEARCH GROUP

This is a collaborative initiative between the University of the Western Cape, Ghent University, and Vrije Universiteit Brussel supported by funding from the Flemish Interuniversity Council–University Development Cooperation (VLIR-UOS).

Published by

CoLab for e-Inclusion and Social Innovation, University of the Western Cape, August 2025.
Email: colab@uwc.ac.za
https://www.wcapecolab.org/

Authors

Leona Craffert[1], Carlynn Keating[1], Natasha Katunga[1], Rénette Blignaut[2], Fallo Khanye[2, 5], Anita Padmanabhanunni[3], Koen Ponnet[5], Lieven De Marez[5], Julia Keddie[2], Leo Van Audenhove[1, 4], Wouter Grove[1] and Sive Mange[1, 4]

Recognition is given to Walter Claassen[1] and Ilse Marien[4] for their contributions.

[1] CoLab for eInclusion and Social Innovation, University of the Western Cape
[2] Department of Statistics and Population studies, University of the Western Cape
[3] Department of Psychology, University of the Western Cape
[4] imec-SMIT-Vrije Universiteit Brussel
[5] imec-MICT-Ghent University

We extend our appreciation to MarkData (Pty) Ltd and its team for their expert support in planning, managing, and executing the survey.

Licence

Attribution

Craffert, L., Keating, C., Katunga, N., Blignaut, R., Khanye, F., Padmanabhanunni, A., Ponnet, K., De Marez, L., Keddie, J., Van Audenhove, L.,Grove, W., & Mange, S. (2025). *Digital engagement in South Africa: Current landscape and readiness outlook in four provinces.* [CC BY 4.0]

Executive summary

South Africa represents a compelling yet complex case in the global digital landscape. It is one of Africa's most connected countries, with high internet penetration and near-universal smartphone ownership. However, these affordances remain unequally distributed and do not automatically translate into active digital engagement. This paradox points to deeper nuances of digital (in)equality that extend beyond digital access alone. Contemporary discourse distinguishes between various forms or levels of digital divides (or inequality), which can shape citizens' participation in the digital economy, thereby influencing their social and economic capital. This underscores the need for a more comprehensive and nuanced understanding of digital engagement in the South African context.

This report presents findings from the Digital Engagement in South Africa (DESA) study, a collaborative effort between the University of the Western Cape (UWC), imec-MICT-Ghent University (UGent), and imec-SMIT-Vrije Universiteit Brussel (VUB), supported by the Flemish Interuniversity Council – University Development Cooperation (VLIR-UOS).

The study contributes to discourse on digital engagement beyond the traditional dimensions of the digital divide namely, access, digital skills, and outcomes, to also incorporate psychosocial and attitudinal dimensions. This broader lens is operationalised through the DESA survey instrument, a people-centred tool designed to assess digital engagement and (in)equality at the individual level. The instrument draws on methodological innovations from both local and international instruments, notably the Digimeter approach developed in Flanders.

Given the availability of national statistics on access, the DESA study focused primarily on device ownership patterns, digital skills proficiency, modes of learning, and support systems. Digital skills proficiency was assessed against a locally developed and internationally aligned digital competence framework. Additionally, the study further explored constructs such as digital wellbeing and digital resilience, emphasising that active engagement also depends on individuals' trust, attitudes and psychological capacity to thrive in a digital society.

The sample included 534 South African citizens aged 18 and older from four provinces: Gauteng, Limpopo, KwaZulu-Natal, and the Western Cape, which were selected to reflect geographic and socio-economic diversity. The findings in this report are based on self-reported data from in-person interviews with a sample representative of the population in the selected provinces, allowing the results to be generalised to those four areas.

The survey reveals a complex picture of digital engagement in South Africa, where significant gains in connectivity coexist with persistent inequalities. The majority of respondents reported ownership of at least one internet-enabled device, whether a smartphone, computer or tablet. However, it was smartphone ownership that was nearly universal (91%) and daily use widespread. A noticeable 8% of respondents reported not owning an internet-enabled

device, and 5% had never used the internet. Computer ownership was much lower at 47%. The disparity between smartphone and computer ownership levels signals that, for a large proportion of the South African population (as in other low- and middle-income countries), mobile is, and will likely remain the primary gateway to the internet, work, learning and public services. This emphasises the importance of digital (mobile) inclusion by design, to ensure that service providers are designing digital platforms and services that are mobile-accessible, inclusive, and supportive of equitable digital participation.

The average digital skills proficiency among respondents was 66%, while disparities across socio-economic and geographic lines persisted. Proficiency across the six competence areas (handling information and data, communication and collaboration, digital content creation, safety and security, problem-solving, and transacting) showed clear variation: confidence was highest for *transacting* and much lower for *online safety and security*. A disconnect between perceived competence and actual use was evident, for example, 71% rated themselves as advanced at information-seeking, yet only 42% regularly assessed the trustworthiness of that information. Proficiency was consistently lower across all competence areas for vulnerable groups.

In terms of digital skills development, self-directed and informal methods are dominant, yet there is a clear demand for more structured training. However, a persistent 14% of respondents remain disengaged from all forms of digital learning, and another 14% have little to no access to support networks for help with digital tasks.

Reported outcomes of digital engagement included social benefits, with staying in touch with family and friends emerging as the key benefit for respondents. Informational gains were also notable, with 70% of respondents reporting that technology helped them grow and stay informed. However, economic benefits were more divided: 39% were undecided or had not experienced such benefits.

The study highlights that digital engagement extends beyond technical skills to include psychosocial factors. Most participants reported a positive appraisal of the role of digital technologies in their own lives, reflected in average positive wellbeing and digital resilience scores of 83% and 79%, respectively. These findings suggest an encouraging level of psychological readiness and adaptability among respondents, offering a foundation for interventions that support and enable their expanded digital participation.

The report also notes that while AI is dominating public discourse, familiarity remains uneven; 69% of respondents had at least some awareness of AI, while 28% had none. Respondents' sentiment leans towards a cautious stance, with nearly one-third expressing more concern than excitement about AI's increasing presence (while 50% remained uncertain or ambivalent). Younger respondents (18–34 years old) exhibited lower awareness, limited generative AI use, and significant anxiety around AI, challenging assumptions about digital natives' readiness for emerging technologies.

Take-forwards for advancing digital engagement

The first DESA survey provides a critical baseline for understanding the lived realities of citizens' digital engagement across diverse communities in the four provinces. The following reflects strategic priorities for advancing digital participation in South Africa.

Design for a mobile-first society:

With smartphones as the main access point for most, services and platforms must be optimised for mobile use. Digital inclusion by design is a necessity to ensure reach and accessibility, especially for vulnerable groups.

Position mobile literacy as equally essential:

Recognise mobile literacy as equal in importance to computer literacy. Invest in targeted training towards resilient participation online via mobile (handset) devices, especially for those citizens (such as older adults) that will solely rely on mobile devices for participation in the digital economy.

Advance digital skills beyond the basics:

Digital skills development initiatives for both mobile and computer platforms should move beyond basic (foundational) skills. Competences in areas such as online safety, security, and information and media literacy are critical and must be prioritised for meaningful engagement in life and work.

Digital skills assessment against a standard defined in a competency framework:

Assessing digital skills against a structured framework (e.g., DSFOne) is essential to the country's digital skills agenda. It pinpoints gaps and vulnerable groups, directs targeted learning, optimises resources, and enables progress monitoring.

Enhance digital fluidity:

Seamless navigation across digital tools, platforms, and contexts, and the ability to adopt new technologies relies on advanced digital skills and the capacity to transfer them across evolving settings. This adaptability is more common among digitally resilient individuals supported by structured, peer-based learning environments.

Address the psychosocial dimensions of digital engagement:

The focus must go beyond traditional skills to address psychosocial dimensions like digital wellbeing and resilience. Interventions should foster confidence, reduce anxiety, and promote a sense of control, particularly among vulnerable groups. This can be achieved through peer support, hands-on learning, and intergenerational mentoring, which enhance both skills and wellbeing.

Expand inclusive learning opportunities:

While self-learning is common, demand for structured training is rising. Both formal and informal learning avenues should be scaled, especially for those outside of traditional work

or educational environments. Interventions must also recognise the importance of support networks, as education is a social process, and that sustained engagement depends on accessible, ongoing assistance.

Recognise the digital vulnerability of youth:

The assumption that young people are naturally 'digital natives' is misleading. Limited awareness and use of emerging technologies, such as AI, highlight gaps in their digital readiness. Targeted interventions are needed to build future-oriented, job-relevant digital skills, particularly among vulnerable youth from rural and low-income backgrounds, to support their participation in the digital economy.

Apply a typology-based methodology to interpret layered digital engagement:

A typology-based methodology offers a structured lens to interpret underlying dimensions of digital engagement. Using this methodology, the study identified four profiles positioned along the digital engagement continuum: (i) digitally peripheral or disconnected participants (39% of participants), (ii) cautious or insecure connectors (9% of participants), (iii) strategic or confident users (19% of participants), and (iv) digitally immersed or deeply engaged users (33% of participants).

The DESA survey instrument provides a valuable tool for capturing the multidimensional nature of digital engagement. By assessing digital access alongside psychosocial dimensions such as confidence, resilience, and wellbeing, it offers a nuanced lens on digital participation and digital (in)equality. The instrument enables ongoing monitoring and supports evidence-informed strategies aimed at inclusive digital engagement. Expanding its implementation to additional provinces would enhance national representativity and deepen understanding of emerging patterns across contexts.

Table of Contents

List of figures

SECTION 1

Introduction

Digital technological developments have profoundly reshaped the global economy, giving rise to the digital economy, where new value creation is underpinned by technologies such as the internet, IoT and cloud computing. In this evolving digital landscape, artificial intelligence (AI), and more recently generative AI (GenAI), are introducing unprecedented and exponential changes to almost every aspect of life, including education, the world of work, healthcare delivery, financial services, and innovation.[1]

While digital transformation promises substantial benefits and opportunities for development, these opportunities are not equally accessible to all individuals, leading to or exacerbating social inequalities.[2]

The concept of the digital divide emerged during the late 1990s as a significant research and policy concern.[3] Traditionally defined as the disparity between those with and without access to computers and the internet, the concept has evolved considerably. It is now understood as a dynamic and multidimensional phenomenon influenced by numerous factors, such as socioeconomic status, age, education level and geographic location, and personal factors such as motivation, attitudes, etc.[4] The contemporary discourse distinguishes among various forms or levels of digital inequality (divides), which can either enable or restrict citizens' participation in the digital economy, thereby influencing their social and economic capital.[5]

Historically, the most recognised aspect, and initially the sole focus, of the digital divide discourse, often referred to as 'the first-level digital divide', concerned the inequitable access to digital technologies and the internet. Over the years, the concept of access has been reframed as a multidimensional construct extending beyond mere physical or infrastructural availability. It encompasses the quality, affordability, ubiquity, autonomy and reliability of digital connections.[6] In this expanded view, the type and quality of devices, including, for example, screen size, input functionality, processing power and software capability, have emerged as critical determinants of how meaningfully individuals are able to participate in digital environments.

While equitable access is a necessary foundation, it is not sufficient for meaningful digital participation.[7] Present-day citizens must also possess the digital competencies required to engage effectively with technology. This second-level digital divide reflects disparities in digital skills and usage. The required digital competencies include a combination of basic technical skills, as well as emotional, cognitive and social abilities such as problem-solving, critical thinking and self-regulation.[8,9] Digital engagement is further shaped by psychological and contextual factors, including self-efficacy, technology anxiety, and motivation.[10] As digital technologies evolve, the scope of what constitutes digital competence continues to expand, now encompassing platform-specific literacies such as online safety, algorithmic awareness, and content creation.

However, even with access and skills, disparities often remain in the outcomes of digital engagement. A third-level digital divide focuses on how unequal digital opportunities, such as access, skills and usage, lead to unequal benefits.[11] These benefits span social, economic, political and cultural domains.[12] Individuals with greater digital capital, advanced digital skills, frequent use and better resources are more likely to realise benefits, such as employment, education, social capital and civic participation. Digital outcomes are also dependent on personal dispositions (e.g., motivation, attitudes, values) and contextual factors, like socioeconomic status, education and support networks, all of which influence how individuals engage with and benefit from technology.

Attitudes towards and perceptions of digital technologies go beyond assessments of personal competence and play a pivotal role in shaping patterns of digital engagement. While such technologies are widely associated with convenience, connectivity and enhanced opportunity, concerns around data privacy, algorithmic bias and digital overdependence are prevalent.[13] Trust, confidence and apprehension regarding online safety and misinformation significantly influence whether and how individuals engage.[14, 15] As digital technologies, including AI, become part of everyday life, people's motivations, concerns and beliefs play a crucial role in shaping whether digital participation leads to empowerment or reinforces existing forms of marginalisation.

In this context, digital wellbeing and digital resilience have emerged as critical constructs for understanding how individuals navigate the psychological and emotional dimensions of digital life. Digital wellbeing is conceptualised as a subjective experiential state that reflects an individual's perceived balance between the advantages and disadvantages of digital connectivity. It encompasses both affective and cognitive appraisals of how such connectivity is integrated into daily life in a manner that supports, rather than detracts from, overall mental health, interpersonal and occupational functioning, and life satisfaction.[16] As digital technologies increasingly permeate daily life, maintaining a healthy balance between the online and offline domains, managing digital overload and protecting one's emotional wellbeing have become central challenges.

Digital resilience refers to the capacity to adapt to, manage and recover from challenges encountered in digital spaces, ranging from cyber threats and misinformation to the psychological strain of constant connectivity. Together, these concepts underscore that meaningful digital engagement depends not only on access and competence, but also on individuals' emotional regulation, critical self-reflection and ability to maintain wellbeing under conditions of rapid technological change.

Looking ahead, it is increasingly important to gauge people's understanding of the need for continual adaptation and lifelong learning in response to ongoing technological developments. As digital systems evolve rapidly, maintaining digital engagement requires more than one-time skill acquisition. Instead, it necessitates a mindset of flexibility, openness to change, and proactive learning. The concept of digital resilience captures this adaptive capacity. It reflects not only the ability to recover from digital challenges, but also the preparedness to anticipate, respond to, and grow through ongoing digital transformation.

The importance of the digital divide discourse is underscored by the United Nations' recognition that information and communication technologies (ICTs), along with their effective and equitable use, represent essential tools for achieving the Sustainable Development Goals (SDGs).[17] Responding to the multidimensional nature of the digital divide, especially from a holistic people-perspective, remains crucial.

South Africa represents a compelling yet complex case within the global digital (inequality and) inclusion landscape. Often viewed as both a leader and a paradox in Africa's digital ecosystem, the country boasts some of the highest internet connectivity rates on the continent. However, these advancements coexist with persistent structural and social inequalities. As efforts continue in terms of 'leaving no one behind', the rapid integration of emerging technologies, particularly AI (and GenAI), has heightened the risk of deepening the existing digital divides. This underscores the need for appropriate responses to remain aligned with global developments.

Against this backdrop, the Digital engagement in South Africa (DESA) survey instrument was designed as a people-centred tool to assess the state of citizens' digital (in)equality at the individual level. It draws on methodological innovations from digital engagement-related instruments applied both locally and internationally, with particular reference to the approach followed in the Digimeter (developed and applied in Flanders).[18] The DESA study offers unique baseline information and insights from an expanded perspective on the digital divide discourse, while also providing a methodology that enables consistent follow-up or continual assessment to monitor progress in these areas.

The key dimensions addressed in this instrument include digital access, digital skills proficiency and application, outcomes, trust and safety, and support systems. Notably, the instrument introduces the assessment of critical psychosocial constructs, including digital wellbeing and digital resilience, which are essential for understanding the holistic impact of technology on people's lives.

The final section of the report introduces four profiles as a working typology aimed at systematising the dynamic interplay between the multiple dimensions at play in this nuanced digital divide discourse. Each profile reflects a particular positioning on the measured digital engagement constructs, specifying the characteristics, challenges, and positive aspects unique to that profile. Applying a typology lens to this multidimensional construct is useful for guiding evidence-based policy and strategy development, with particular reference to the global objective of 'leaving no one behind'.[19]

This study contributes to a more nuanced discourse on digital inequality and citizens' digital engagement (digital inclusion) across four provinces in South Africa.

The work was made possible through funding from the Flemish Interuniversity Council–University Development Cooperation (VLIR-UOS), and a collaborative initiative between the University of the Western Cape (UWC), imec-MICT-Ghent University (UGent), and imec-SMIT-Vrije Universiteit Brussel (VUB).

SECTION 2

How to read the report

This report presents a descriptive analysis of key findings from the first implementation of the Digital Engagement South Africa (DESA) survey instrument. The contextual and theoretical grounding provided in the preceding introductory section is followed by a description of the approach to DESA implementation and an overview of the sample. The report then presents five main sections, each addressing a specific dimension of digital engagement and inclusion, and offering a layered, people-centred understanding of the topic. Although the sections build upon one another, each can also be read as a stand-alone component. A subsequent 'Profiles' section synthesises these dimensions to create typologies of citizens across the spectrum of digital engagement and inclusion. The report concludes with a 'Take-forwards' section. Certain dimensions – notably those on digital wellbeing and digital resilience – are presented in greater depth, reflecting the relatively underexplored nature of these psychosocial constructs in local digital inclusion discourse, while highlighting their importance for capturing the full spectrum of people's digital experiences and capabilities.

The report is structured as follows:

Introduction

The introduction outlines the rationale for the DESA study, situating it within South Africa's digital ecosystem and linking it to broader digital inclusion and digital divide theories. This section establishes the conceptual foundations for understanding the discussion of the findings.

Approach to DESA implementation and sample demographics

The implementation approach details the methodology and process used in the development of the DESA instrument, including sampling design and survey administration. It provides a demographic breakdown of the respondent sample and sets the foundation for interpreting the subsequent findings.

Digital access, skills and outcomes

These aspects present the findings related to access to digital technologies, digital skills proficiency, and the outcomes of online engagement. This section includes both a summative digital literacy score and a disaggregated analysis of six areas of digital competence.

Digital wellbeing and digital resilience

This section introduces and analyses psychosocial constructs of digital wellbeing and digital resilience. It provides foundational data for understanding how individuals experience and respond to the digital world beyond mere access or usage.

Learning and support

These elements explore the pathways through which individuals build digital skills, and the types of support networks on which they draw.

Attitudes and perceptions: Trust and confidence in digital spaces

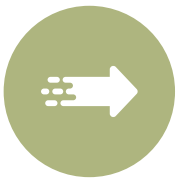
This section examines respondents' sentiment related to digital trust, online privacy, and perceptions of institutional responsibility in promoting online safety. It includes citizen perspectives on the roles of both the public and private sector, and their credibility in safeguarding digital participation.

Artificial intelligence (AI)

This section explores awareness, usage and perceptions of AI, including familiarity with AI concepts, the adoption of GenAI tools, and concerns about its societal impact.

Profiles

This section introduces and discusses four profiles as a working typology for systematising the dynamic interplay between the various dimensions at play in the digital inequality discourse. It presents the typical characteristics of each of the profiles and its situatedness in terms of the dimensions.



Take-forwards

Finally, this section concludes the report by synthesising key insights and offering reflections, learning points and directions for future action. This includes considerations for digital inclusion strategies, capacity-building interventions, and policy priorities aimed at fostering a more equitable digital society.

SECTION 3

Approach to DESA implementation and sample demographics

This section outlines the methodological approach used in the design and implementation of the Digital Engagement South Africa (DESA) instrument, including the sampling strategy and the demographic composition of the respondents, providing the basis for the findings discussed in the sections that follow.

3.1. Methodology

Survey instrument design and pilot

The DESA survey instrument was developed through a systematic and iterative process that combined a comprehensive literature review, policy analysis, stakeholder consultations, and a review of local and international digital inclusion tools and frameworks.[i] It was piloted via an online survey during February and March 2024, yielding 312 responses.

Based on the pilot data, the instrument was further refined, using factor analysis to assess the internal coherence and validity of key constructs.[20] The final instrument comprises just over 100 primarily closed-ended questions, organised across 12 thematic groups. These cover: socio-demographic information, digital access and deprivation, digital skills proficiency and application, digital outcomes, learning pathways and support, attitudes and perceptions, as well as psychosocial dimensions of digital wellbeing and digital resilience. In addition, the instrument incorporates questions on AI awareness and engagement.

Sample construction

Four provinces – Gauteng, Limpopo, KwaZulu-Natal and the Western Cape – were purposively selected to reflect South Africa's geographic and socio-economic diversity. These provinces encompass a wide range of location types, including metropolitan, urban, semi-urban, rural, and traditional rural areas. This selection enabled the survey to reach a demographically and contextually diverse group of citizens within the four provinces, broadly representative of the South African population. To construct the sample, a stratified multi-stage probability sampling method was employed. The four provinces served as the primary strata. Secondary explicit stratification variables included:

[i] See, in particular, the Digimeter, D21-Digital-Index, and the IPSOS Global AI Monitor.

- **Geographic location:** urban and rural
- **Neighbourhood lifestyle index (NLI):** grouped into lower (NLI 1–5) and higher (NLI 6–10) socio-economic status categories[ii]
- **Population group:** Black, Coloured, Indian and White (with overrepresentation of the Coloured, Indian, and White minority groups)

Weighting procedures were assigned to ensure that the final weighted dataset closely reflects the broader population in the four provinces. Each respondent weight reflects the number of people in the population that the respondent represents. **The participants selected for the survey are representative of the population within the four provinces and the results can therefore be generalised to the population residing in these selected provinces.** For further details on the sampling design, refer to the technical report.[iii]

Process of data collection

This first iteration of the DESA survey was conducted with a sample of 534 South African citizens aged 18 years and older, drawn from the four provinces. Data collection was carried out by a professional survey company between 1 and 30 November 2024. Trained interviewers used a face-to-face, individual interview approach guided by a computer-assisted personal interviewing (CAPI) script. While the questionnaire was administered in English, interviewers facilitated responses in the preferred language of the respondent where necessary. Participation was entirely voluntary.

The findings presented in this report are based on self-reported data and reflect respondents' perceptions and experiences of key constructs of digital engagement (and digital inclusion).

Profile methodology

A model-based clustering procedure for mixed data types, called survey-weighted clustMD, was used to develop the profiles for DESA. This survey-weighted clustMD procedure was developed from the clustMD model proposed by McParland and Gormley,[21] with further enhancements to cater for the complex sampling design. This included the use of an alternative initialiser, namely k-medoids, and an adjusted likelihood function to produce a weighted pseudo-multilevel likelihood for the model to determine the clusters that were used for the profiles. The rationale for using this method lies in its ability to accommodate diverse data types, allowing the integration of multiple digital engagement indicators into a cohesive and interpretable typology. This approach facilitated the creation of person-centred profiles that reflect patterns of digital engagement, enabling a nuanced and actionable understanding of digital inclusion in the context of the selected four provinces.

[ii] The neighbourhood lifestyle index (NLI) is an income-based classification model to profile neighbourhoods across South Africa. It uses statistical modelling and geospatial data, such as household income, size, dwelling type and location, to assign each area a score from 1 (poorest) to 10 (most affluent).

[iii] The technical report is available upon request.

3.2. Sample description

Province and area: Gauteng accounted for the highest number of respondents (40%), with an overwhelmingly urban composition (97%). KwaZulu-Natal constituted the second-largest group (27%), exhibiting a more balanced urban (52%) and rural (48%) distribution. The Western Cape followed with 19%, again predominantly urban (83%). Limpopo had the lowest representation (14%), with a largely rural profile (80%). Overall, 72% of the respondents were from urban areas, while rural participants accounted for 28%.

FIGURE 1: PROVINCIAL DISTRIBUTION

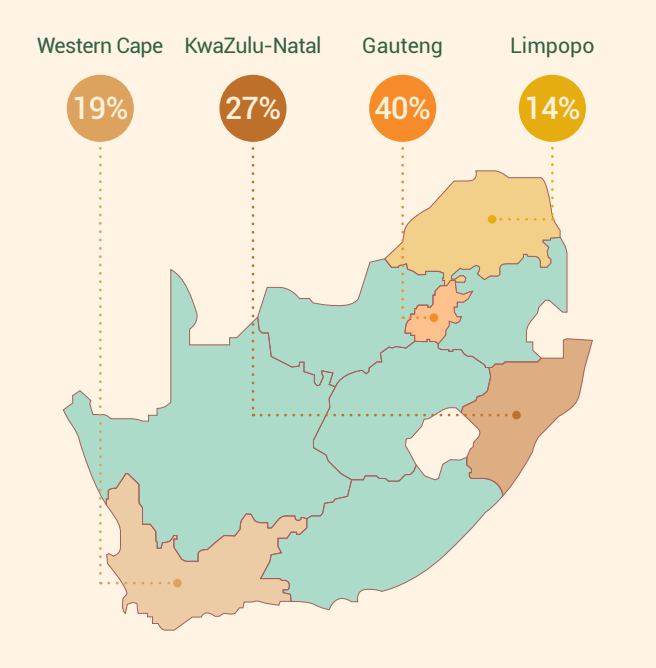


FIGURE 2: GEOGRAPHIC AREA

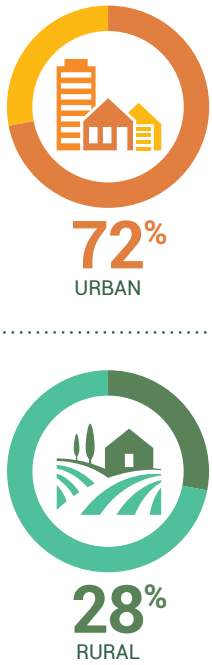
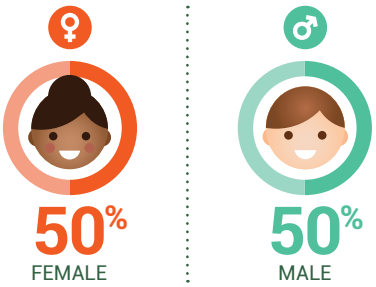
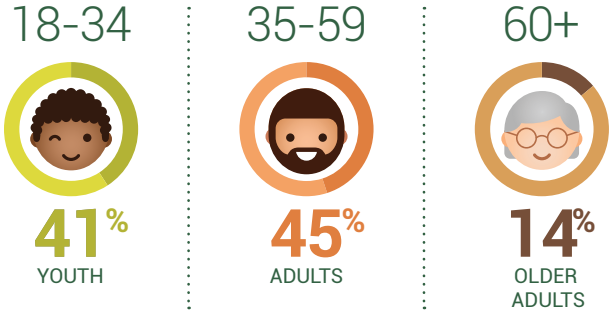


FIGURE 3: GENDER DISTRIBUTION



Gender: The gender distribution was balanced, with 50% female and 50% male respondents.[iv]

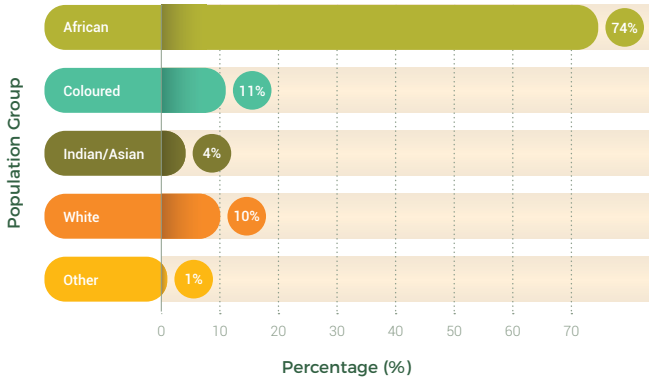
FIGURE 4: AGE CATEGORIES



Age: Respondents were grouped into three age categories: youth (18–34 years), comprising 41% of the sample; adults (35–59 years), 45%; and older adults (60 years and above), 14%.

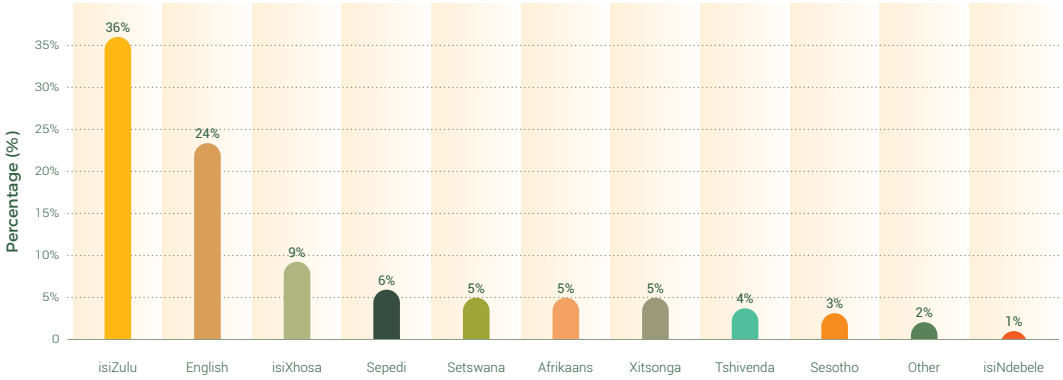
[iv] The non-binary category was excluded from analysis as only one respondent identified as such.

FIGURE 5: POPULATION GROUPS



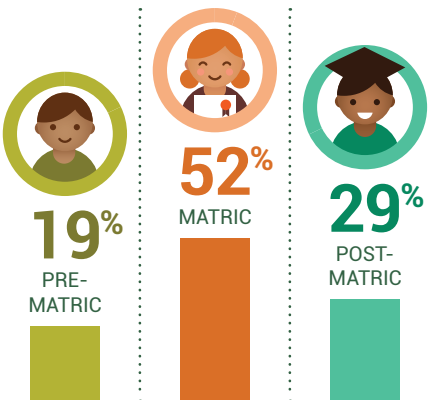
Population group: The majority of respondents identified as African (74%), followed by Coloured (11%), White (10%) and Indian/Asian (4%). A small proportion (1%) identified as belonging to other population groups.

FIGURE 6: HOME LANGUAGE



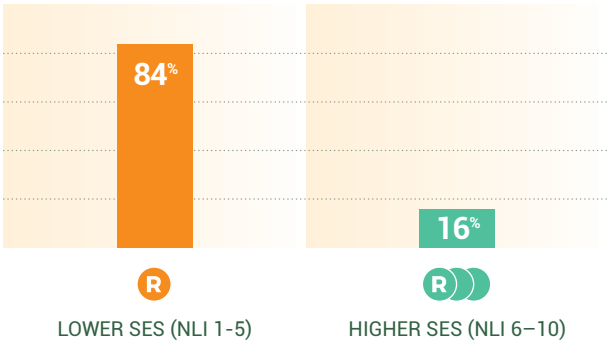
Language: As a multilingual country with 12 official languages, South Africa's linguistic diversity was clearly reflected in the survey findings. The most commonly spoken home languages among the respondents were isiZulu (36%) and English (24%), followed by isiXhosa (9%) and Sepedi (6%). Although more than three-quarters of the respondents reported a home language other than English, only 2% indicated having no understanding of it, suggesting that English is widely understood.

FIGURE 7: EDUCATION LEVELS



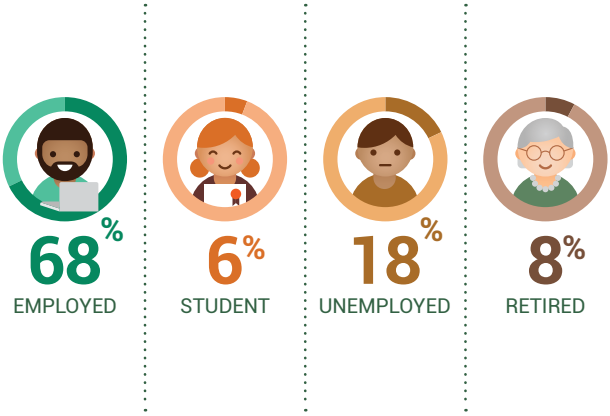
Education: The respondents' level of education was grouped into three categories. The pre-matric group (comprising 19% of the sample) included those with no formal education, or with primary schooling or incomplete high school. The matric group (52%) consisted of those who completed high school and obtained the National Senior Certificate, South Africa's school-leaving qualification. The post-matric group (29%) included individuals with qualifications beyond matric, such as diplomas, certificates or university degrees.

FIGURE 8: SOCIO-ECONOMIC STATUS (SES)



Socio-economic status (SES): The sample was composed predominantly of respondents from lower SES (NLI 1–5) areas (84%), with only 16% from higher SES (NLI 6–10) areas.

FIGURE 9: EMPLOYMENT STATUS



Employment status: The respondents' current economic activities were classified into four categories: employed (including both formal and self-employed individuals), who made up 68% of the sample; students, 6%; unemployed (including those seeking work, not seeking work, or doing unpaid work), 18%; and retired, 8%.

SECTION 4

Digital access, skills and outcomes

Digital inclusion discourse has evolved from focusing solely on access to recognising the importance of digital literacy (skills and competences), which is required to engage meaningfully with technology, as well as the outcomes individuals derive from digital engagement.[22] This section presents findings across three dimensions: (i) device ownership and access, (ii) digital skills (and application), and (iii) digital outcomes. Together, these dimensions provide a necessary view of digital inclusion within the DESA sample, highlighting its layered and multidimensional nature.

4.1. Ownership of and access to digital technologies

South Africa's National Development Plan (NDP) 2030, and other supporting policies such as South Africa Connect and the National Integrated ICT Policy, sets a national goal of achieving universal and affordable digital access for all citizens by 2030. While significant progress has been made, particularly in mobile connectivity, some challenges remain. In South Africa, national-level data on device ownership and internet access is somewhat fragmented: Statistics South Africa reports annually at the household level, while Research ICT Africa's *After Access* surveys provide individual-level data only once every four years. As a result, analyses must draw on datasets collected at different times and using different methodologies. Existing data on device ownership reflects a continued increase in smartphone ownership among the adult population, with over 71% owning a smartphone.[23] However, access to more advanced devices remains limited, with only 25% of households in possession of a computer (desktop or laptop).[24] Internet access has also improved, rising from just over half of the population (53%) in 2018[25] to about 76% of the population currently accessing the internet,[26] predominantly via mobile phones. Other forms of access remain low: 17% connect at home via fixed-line or fibre, 12% at work, and just 9% through public facilities such as libraries or community centres.[27]

The following section reports on the DESA respondents' patterns of device ownership and access to internet connectivity as foundational elements that shape individuals' ability to participate in a digital society.

Assessment of ownership and access

Device ownership was widespread among respondents, with 92% reporting access to at least one internet-enabled device (smartphone, laptop, or tablet). However, a notable 8% had no such access, and within this group some indicated that they lacked even indirect household access via a family member's device — reflecting a stark

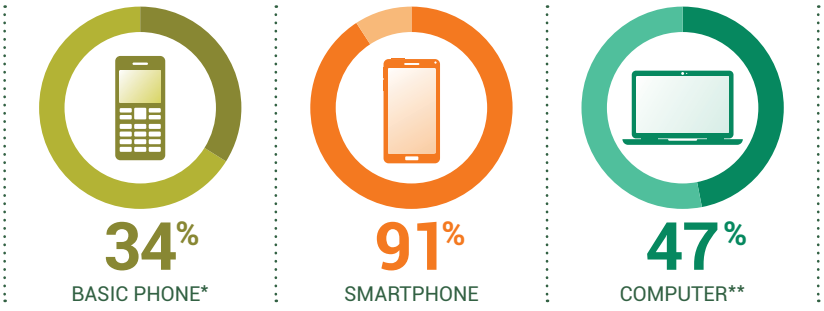
form of exclusion from digital connectivity. In addition, 5% of respondents reported that they had never used the internet. Older adults (aged 60 and above), unemployed individuals, and those with lower education levels were particularly overrepresented in both of these groups, highlighting who remains most at risk of digital exclusion.

Among those who were connected, smartphones overwhelmingly dominated as the entry point to the internet. A total of 91% reported owning a smartphone,[v] and 88% used one daily, reaffirming South Africa's status as a mobile-first nation. **Respondents spent an average of seven hours per day on a mobile phone**, underscoring the centrality of the device to everyday digital engagement.

Yet, high smartphone penetration masks significant vulnerabilities. For many respondents, the smartphone was their only digital device. Computer ownership was much lower, at 47%, and 37% reported daily computer use. A further 37% said they rarely (or never) used computers. Computer use was concentrated among respondents with higher education levels and those who were employed or studying, suggesting its strong link to work- and learning-related activities that demand more capable devices. By contrast, unemployed and retired respondents were far more likely to depend exclusively on a mobile phone (whether smart or basic).

FIGURE 10: DEVICE OWNERSHIP

* 'MOBILE PHONE WITH NO INTERNET CAPABILITY ** LAPTOP/DESKTOP/TABLET



This uneven distribution of devices highlights an important dimension of digital inequality: multi-device ownership. While employed individuals and students were more likely to own both a smartphone and a computer, large segments of the population remained reliant on a single device — most often a smartphone. Such dependency heightens vulnerability, as the limited functionality, or loss or damage, of one (mobile phone) device can severely restrict digital participation.

[v] The 1% discrepancy between overall internet-enabled device ownership (92%) and smartphone ownership (91%) reflects a very small group of respondents who owned a computer, laptop, or tablet but not a smartphone.

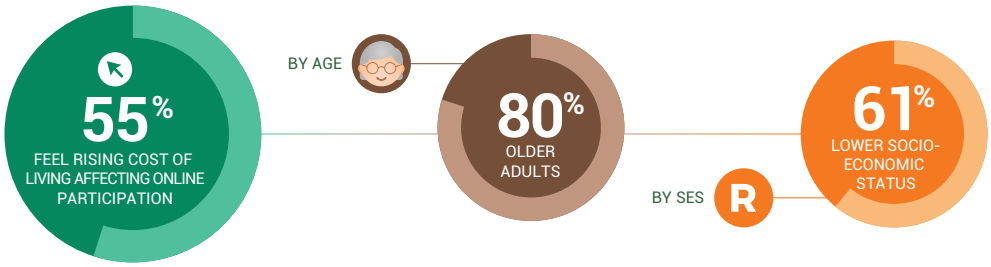
A lens on affordability

Affordability remains a barrier to digital participation. This was explicitly noted as an obstacle among the (5% of) respondents who had never used the internet.

I can't afford a smartphone.
- INTERNET NON-USER

Moreover, more than half of the sample respondents (55%) indicated that the rising cost of living was affecting their ability to participate online. This concern was especially pronounced among older adults and those of lower socio-economic status, and strikingly high in the Western Cape (84%), compared to less than half of respondents in Gauteng and KwaZulu-Natal, and merely around one-quarter in Limpopo. Regarding specifically smartphone affordability, 20% of respondents reported that they or their household would be unable to afford a smartphone if they needed or wanted one, while 15% indicated that they could not afford better internet access (e.g. faster speeds or larger data allowances), even if they needed it. This challenge was more prevalent among the unemployed, where one-third (33%) reported that the cost of a smartphone was beyond their reach.

AFFORDABILITY AS A BARRIER TO DIGITAL ENGAGEMENT



KEY INSIGHTS

South Africa remains a mobile-first society:
Smartphone ownership among respondents was nearly universal, with this being the device most used to access the internet. Given the clear mobile-first status of South Africa, digital services and content, especially those related to education, government, and healthcare services, should be designed with mobile accessibility in mind to ensure broad reach and usability.

Dependence on a single internet-enabled device increases digital vulnerability:
In South Africa, digital inequality is less about whether people are connected at all than about the nature of that connection. Reliance on a single device — most often a smartphone — creates a fragile form of access that narrows the range of online

activities and leaves users especially vulnerable to device loss, damage, or connectivity issues. This limits opportunities for learning, work, and full participation in the digital economy, and reinforces inequality between those with access to multiple (diverse) internet-enabled devices and those who are technically "connected" but whose digital lives remain confined to a single (small) screen.

Access and affordability challenges sustain the first-level digital divide:
While most own smartphones, substantive digital participation remains out of reach for large segments of the population – particularly older adults, the unemployed, and those with lower levels of education. Limited access to internet-enabled devices, and affordability challenges presented by the rising cost of living, continue to constrain online engagement, reinforcing broader socio-economic inequalities and sustaining a persistent first-level digital divide.

4.2. Digital skills

There is growing international recognition of and emphasis on the need for concerted and accelerated initiatives to enhance citizens' digital skills or digital fluency, ensuring their participation in the evolving digital economy. Digital skills or competencies can either restrict or enhance citizens' participation in the digital economy, relating directly to the second level of the digital divide discourse.

Within the South African context, national strategy documents such as the South African National Digital and Future Skills Strategy[28] and its implementation plan, alongside the national strategy in support of economic recovery,[29] explicitly prioritise digital and future skills development. However, the digital skills proficiency levels of South African citizens are not yet assessed and monitored in a consistent and regular manner. The 2025 AI Maturity Assessment of South Africa assessed South African citizens' digital skills proficiency at a Level 2 maturity[30] while the 2024 Portulans Network Readiness Index (NRI), ranks South Africa 100th out of 133 countries (based on a composite score considering multiple factors).[31] An assessment of digital literacy by Research ICT Africa suggested that South Africans demonstrate relatively good levels of competence overall, but with gaps persisting (particularly in security awareness).[32]

Assessment of digital skills levels

Countries (worldwide) are at various stages of developing or refining digital competency frameworks to guide national digital skills strategies and targeted interventions and to facilitate large-scale digital skills assessments across all segments of the population.[vi]

[vi] Further information on the DigComp framework and its recent developments is available from the EU Science Hub (Joint Research Centre): https://joint-research-centre.ec.europa.eu/projects-and-activities/education-and-training/digital-transformation-education/digital-competence-framework-citizens-digcomp_en. Information on the Essential Digital Skills framework and updates can be found at: https://www.gov.uk/government/publications/essential-digital-skills-framework.

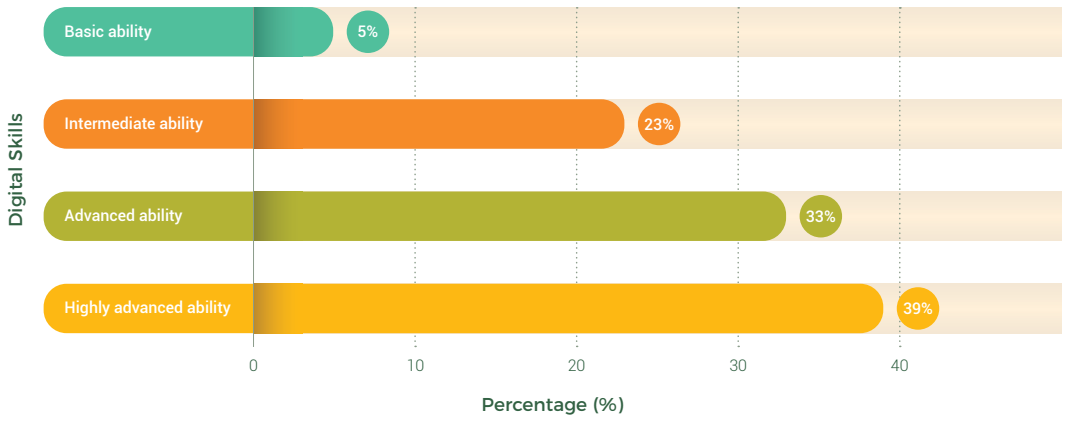
This study adopts the digital competence framework as proposed in the locally developed and internationally aligned Digital Skills Framework One (DSFOne)[33] to determine the digital skills proficiency levels of respondents. According to DSFOne, digital literacy at its foundational level comprises six core competence areas, each encompassing several competencies, totalling 24.[vii] These areas are: **(1) handling of information, data, and digital content, (2) communication and collaboration, (3) digital content creation, (4) safety and security, (5) problem-solving,** and **(6) transacting**. These foundational competences also serve as prerequisites for more advanced digital skills. For the purpose of this study, respondents were requested to rate their abilities across the six competence areas, each comprising two to three assessment items.[viii]

Proficiency in digital competencies is typically measured on a four-point scale, namely (1) basic ability, (2) intermediate ability, (3) advanced ability, and (4) highly advanced ability. An intermediate level typically reflects a matric-level proficiency and is often considered the threshold for work readiness, while advanced and highly advanced levels are generally associated with postgraduate education or individuals in employment.[34] Responses reflect participants' self-assessed ability or confidence in performing specific digital tasks. In the sections below, the findings are presented in terms of the overall summative score on digital skills proficiency as well as an assessment (or score) for each of the six competence areas.

Overall digital skills proficiency

The overall digital skills proficiency level of the respondents is reflected in a summative score, expressed as a single percentage,[ix] which captures their combined performance across all digital competence areas. The average digital skills score across the four provinces was 66%, with half of the participants reporting scores between 50% and 87%.

FIGURE 11: DIGITAL SKILLS



[vii] The term *competence* refers to the six overarching competence areas, whereas competencies denote the individual skills and abilities that make up each of these areas.

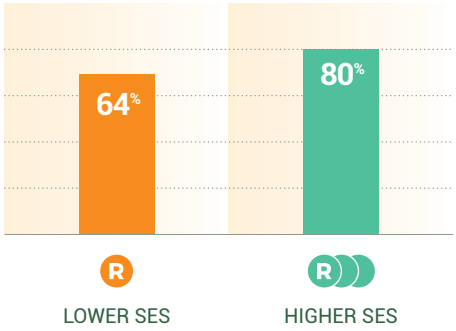
[viii] The current discourse on digital competency frameworks, recognises the requirement for identifying a 7th competence area related to AI/GenAI. However, at the time of the survey, it was not yet included as a competency area but rather addressed as a separate section in the survey to elicit broader perspectives and opinions re AI/GenAI.

[ix] To calculate the summative score, each respondent's score on the digital skills items was added together, and an average was then calculated for the group.

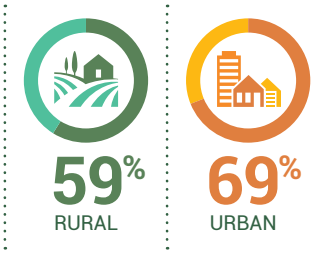
Nearly three-quarters of respondents rated their general digital skills as either highly advanced (39%) or advanced (33%). Almost a quarter (23%) assessed their skills as intermediate – roughly equivalent to Grade 12 proficiency and often considered the threshold for work readiness. Only a small proportion (5%) rated their proficiency as basic. However, this figure likely underestimates the true extent of limited digital skills, as it excludes the 5% of respondents who had never used the internet and were therefore not included in the skills assessment. A perceived lack of digital competence was cited as a key reason for their absence from the internet.

> *I don't know how to use it because I'm not educated.*
>
> *I have no idea what's going on there and I don't understand it.*
>
> - INTERNET NON-USERS

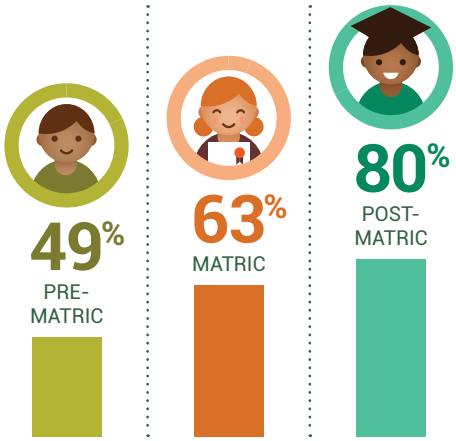
Overall digital skills proficiency scores reveal clear differences across certain demographic groups, detailed below.



Participants from the **lower socio-economic status** bracket judged their digital skills proficiency (64%) as significantly lower than respondents from the **upper socio-economic status** bracket (80%).



Respondents from **rural** areas reported lower levels of proficiency, at 59%, than the reported 69% of their **urban** counterparts.



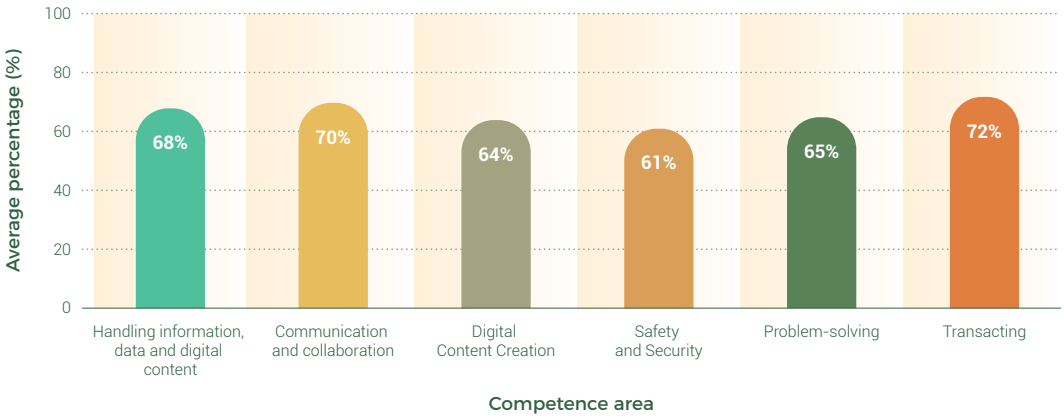
Digital skills proficiency levels differed significantly across the three educational levels, demonstrating a positive relationship between educational attainment and digital skills proficiency. Participants with a **pre-matric** qualification scored a relatively low 49% (significantly lower than the study average of 66%), while respondents with a **matric** qualification scored 63%. In contrast, participants with a **post-matric qualification** scored the highest average (80%), demonstrating significantly higher confidence levels in their digital skills.

There was no significant difference in self-reported digital skills proficiency between genders, with female participants averaging 66% and males 67%.

A more nuanced perspective of the six digital competence areas

Although a summative score provides a fairly straightforward and easy-to-understand perspective on the digital skills proficiency of citizens, it masks the variation in proficiency levels of respondents across the six broader competence areas, namely the **(1) handling of information, data, and digital content, (2) communication and collaboration, (3) digital content creation, (4) safety and security, (5) problem-solving**, and **(6) transacting.** Presenting the findings by competence area offers a more nuanced perspective on participants' proficiency levels, which is especially valuable for identifying areas that may require special interventions.

FIGURE 12: AVERAGE DIGITAL SKILLS PER COMPETENCE



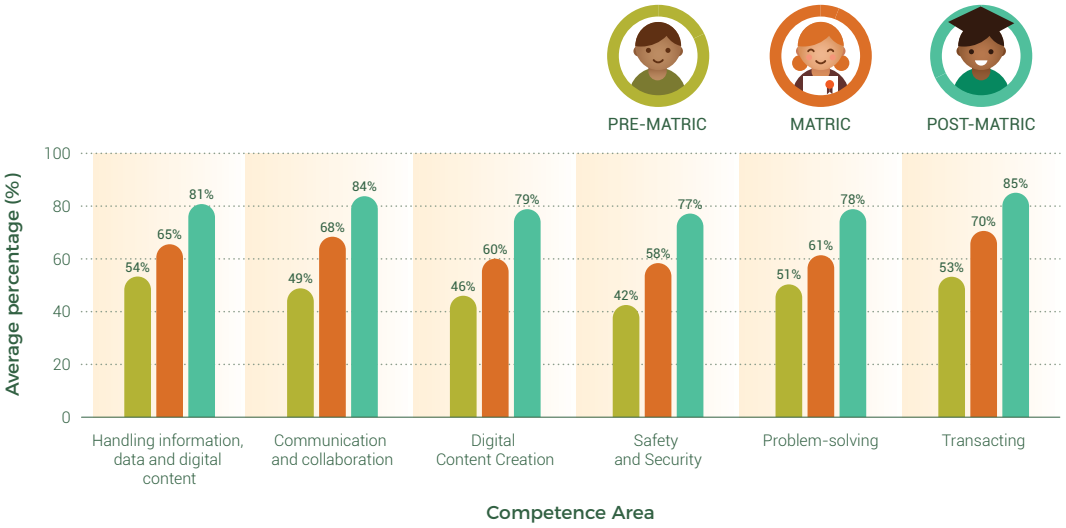
The competence areas that participants felt most confident about were transacting, with the highest proficiency score of 72%, followed by online communication and collaboration (70%), and the handling of information, data and digital content (68%). Participants felt less confident about their ability to solve technical or digital technology-related problems (65%), and the ability to create digital content (64%), while they felt least confident in their ability to ensure their safe and secure online participation (61%).

Self-assessed proficiency across the six broad digital competence areas mirrors the pronounced differences between demographic groups observed in the overall digital skills scores. For illustrative purposes, the average proficiency levels across the six digital competences are discussed for three variables, namely education, age and employment.

Education

Respondents with **post-matric** qualifications consistently rated their proficiency at a higher level on all the digital competence areas, with their lowest average score still a considerable 77%. In contrast, respondents with a **pre-matric** qualification rated their proficiency significantly lower, particularly in terms of their ability to communicate and collaborate online (49%), to create digital content (46%), and to ensure their online safety and security (42%). The educational gradient is steep: every additional level of education is associated with a marked increase in confidence in terms of digital proficiency levels across all domains.

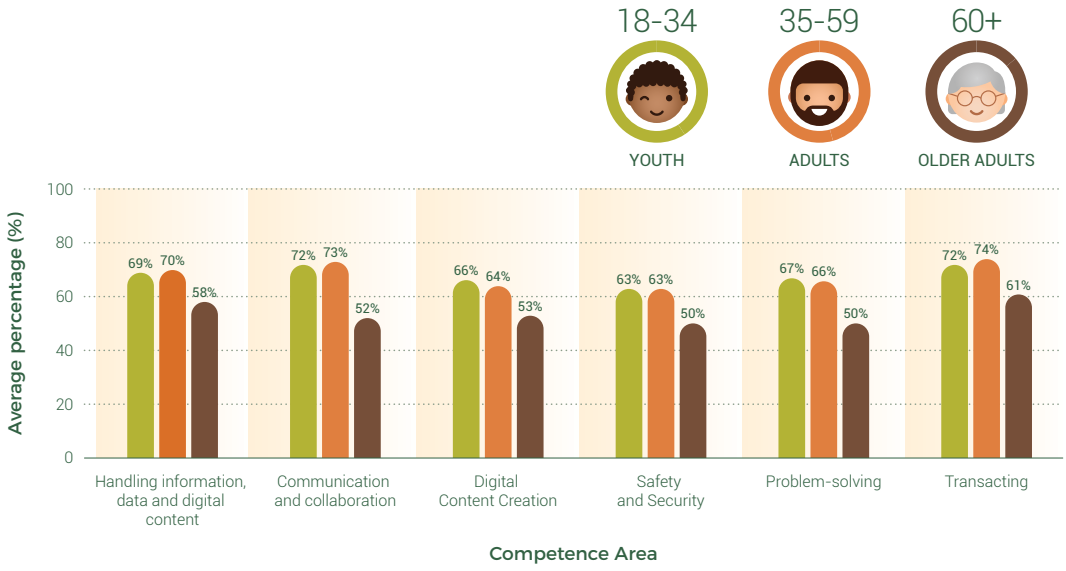
FIGURE 13: AVERAGE DIGITAL SKILLS PER COMPETENCE BY EDUCATION LEVEL



Age

Youth (18 to 34) and **adults (35 to 59)** reported similar levels of digital proficiency, with scores ranging from a high of 72% to 74% in the transacting domain, to a low of 63% in ensuring online safety and security. In contrast, **older adults (60+)** reported significantly lower proficiency levels – between 15 and 30 percentage points lower across most competences – with the highest rating at 61% for online transacting, and the lowest at 50% for both online safety and security, and problem-solving. It is evident that older adults are trailing behind significantly in terms of digital skill levels, which may have serious implications for their ability to participate in – and continue participating in – the digital economy, particularly within the context of a rapidly evolving digital landscape.

FIGURE 14: AVERAGE DIGITAL SKILLS PER COMPETENCE BY AGE GROUP



Employment

Students and employed respondents demonstrated significantly higher levels of confidence in their digital skills levels across all competence areas, in comparison to unemployed participants and retirees. **Students** reported high overall proficiency levels, with the highest scores in communication and collaboration (79%) and transacting (78%), and a notable drop in confidence in their problem-solving abilities (65%). **Employed** individuals follow closely, with proficiency levels ranging between 74% and 65%, and safety and security as the lowest rated competence amongst this group. **Unemployed** and **retired** participants exhibited significantly lower confidence in their digital abilities, particularly in safety and security, and problem-solving.

FIGURE 15: AVERAGE DIGITAL SKILLS PER COMPETENCE BY EMPLOYMENT STATUS

These findings suggest a critical relationship between structured environments – such as workplaces and educational institutions – and the development of digital skills. It is plausible that limited access to structured environments that offer regular digital engagements negatively influences the digital proficiency of unemployed individuals and retirees, to their disadvantage.

KEY INSIGHTS

Digital skills proficiency levels reveal stark disparities:
While the overall digital skills score of participants reflects an encouraging 66%, the study highlights consistently lower proficiency levels among participants with lower levels of education, those living in rural areas, the unemployed, older adults, and individuals from lower socio-economic backgrounds. This underscores the persistent impact of disparities in access to and affordability of digital technologies, which increase the risk of vulnerable groups falling behind in digital skill levels, and heighten their potential exclusion from the digital economy and essential online services (e.g., government, healthcare, and financial services). Without targeted interventions to address these digital skills gaps, the second-level digital divide is likely to persist, further entrenching inequality in usage and outcomes.

Variance in proficiency between and within digital competence areas:
Respondents' confidence in their digital proficiency varied notably across the six competence areas. They report the highest confidence in transacting, and in communication and collaboration skills. Confidence declines for handling information, problem-solving and digital content creation, with online safety and security consistently rated the lowest across all groups. This variance underscores the value of breaking digital skills down into their foundational competence areas, and even into individual competencies. Such disaggregation offers a more nuanced understanding of digital proficiency and how it manifests across different user groups. Interventions targeting specific problem areas (such as online safety and security) may be more effective than adopting a blanket approach to digital skills development.

Low perceived proficiency in safety and security a cause for concern:
The drop in confidence around online safety and security skills is a concern – especially among vulnerable groups such as older adults, unemployed individuals, and those with lower educational qualifications. In today's rapidly evolving digital environment, where AI, GenAI and hyperconnectivity are ever-present, low digital literacy in online safety leaves people increasingly exposed. As digital interactions expand across banking, health, education, government and work, the opportunities for cyberattacks, fraud, identity theft and misinformation likewise grow. This requires special interventions to enhance the safety and security proficiency level of citizens, in general.

Value of a digital competence framework as measurement instrument:
The self-assessment of digital skills proficiency levels against a defined digital competence framework is a valuable tool for assessing the digital skills of citizens and monitoring progress in digital skills development over time.

Application or use of digital skills

Self-reported digital skills surveys are viable for large-scale studies, but less accurate than objective tests such as simulations. Some individuals tend to underestimate their personal proficiency levels (often the higher educated individuals), while others tend to overestimate their proficiency level. Asking respondents what they actually *do* – i.e. what skills they apply or use on a regular basis – helps to provide a more realistic picture of their actual digital skills proficiency.

Comparing the average proficiency score to the average use or application of digital skills, participants consistently rated their ability slightly higher than their actual usage – except in the case of safety and security, where reported use slightly exceeded perceived ability. However, the scores for proficiency rating and actual use are fairly aligned (between 1% and 5% difference in scores).

FIGURE 16: DIGITAL SKILLS VS DIGITAL USAGE

A focus on actual digital skills usage – specifically, which skills are used frequently versus those rarely or never used – offers insight into South Africa's mobile-first context.

Table 1: Most and least frequently used digital competencies

MOST FREQUENTLY USED DIGITAL COMPETENCIES		RARELY OR NEVER USED DIGITAL COMPETENCIES	
Communication & collaboration: send/reply to emails and on social media	73% do this frequently	**Communication and collaboration:** collaborate on shared documents	61% rarely or never do this
Transacting: manage money and transactions online	65% do this frequently	**Digital content creation:** create and edit digital text	65% rarely or never do this
Handling of information: Search for information online	60% do this frequently	**Handling of information:** determine whether online information is trustworthy	59% rarely or never do this

The most frequently used digital skills – such as messaging, searching for information, and managing money and transactions online (reflected in the left column of the table) – are the skills for which participants rated their ability highest. This pattern likely reflects South Africa's mobile-first digital engagement, in which activities such as transacting, communication, and collaboration are prioritised because they can be performed easily on mobile devices. Conversely, skills such as collaborating on shared documents, or creating/editing digital content (where respondents were least confident), are typically better suited to a larger screen, a keyboard, and more advanced functionality – features more commonly associated with computers. This pattern likely reflects the high levels of mobile phone ownership among the respondents, contrasted with significantly lower levels of computer ownership. It seems as if the higher-order skills needed for more advanced participation in the digital economy, particularly in education and the workplace, are trailing behind the more basic digital skills.

PERSPECTIVES ON DIGITAL ENGAGEMENT

Connected but not empowered

Ownership of a device with internet access does not necessarily equate to advanced or meaningful participation in the digital economy. Although a very high 92% of the respondents have access to the internet via a (mobile) device, the average digital skills proficiency level is (only) at 66% with the more basic digital skills – such as *sending and receiving messages or managing money and transacting online* – rated as the most frequently used. By contrast, more advanced digital skills (i.e. collaborating on shared documents) are predominantly rarely or never used. Thus, while the vast

majority report having internet access, and many indicate intermediate to advanced levels of digital skills, only a small proportion actually apply these advanced skills in practice.

Action without evaluation

A paradox seemingly emerges between confidence and frequency of use compared to critical judgement or depth of skill.

- 71% of respondents rated themselves as advanced in information seeking, although only half (50%) said they were advanced at assessing trustworthiness
- while 60% frequently searched for information online, only 42% regularly considered whether that information is actually trustworthy

This suggests that, although people are confident and active in key digital behaviours like information-seeking, they are not consistently critically evaluating and judging the validity or quality etc. of the content obtained online. This requires upskilling to protect people from misinformation, disinformation, scams and other potential threats.

KEY INSIGHTS

Recognise mobile literacy as a distinct dimension of digital literacy:
South Africa is a mobile-first country, and it is a reality that a significant segment of the population relies solely on their mobile devices to participate in the digital economy. The high levels of confidence in transacting abilities, sending and replying to emails and social media posts, and searching for online information – and the frequent use of these skills – underscores this mobile-first profile. Given that vulnerable groups are trailing behind in access and digital competence, it is critical to recognise mobile literacy as a distinct dimension of digital literacy, and prioritise interventions in this respect. Mobile literacy initiatives ought to focus on developing also the more advanced mobile digital skills to enable citizens to derive maximum benefit from their digital engagement – thereby contributing towards their quality of life (digital wellbeing).

Digital inclusion by design:
This relates to the deliberate, human-centred approach to developing digital platforms and services that embed inclusivity from the outset. This means proactively addressing

barriers related to for instance, access, affordability, digital skills, language, disability, and other social factors to ensure meaningful and safe digital participation for all. For government departments, agencies, and institutions (i.e. health, finance, and service delivery) this principle warrants serious consideration especially when serving vulnerable communities. Ensuring platforms are mobile-friendly and integrating digital upskilling into service delivery are essential steps.

Broaden the range of digital and mobile competency:
While communication remains the most common form of digital engagement, more complex and professionally relevant skills – such as content creation, collaboration, and critically assessing online information – are significantly underused. Despite high confidence in information-seeking abilities, far fewer users regularly evaluate the trustworthiness of what they find. This highlights a disconnect between perceived competence and actual practice, underscoring the need for training that not only broadens and deepens the range of digital skills used, but also strengthens media and information literacy.

Differentiated approaches required for digital skills interventions:
These findings clearly point to the need for differentiated approaches to digital skills development, based on the profile of a particular audience (i.e., age, employment status) and whether the need revolves around digital skills for everyday life or those required for the world of work.

4.3. Digital outcomes

The concept of digital outcomes encompasses the meaningful and/or tangible outcomes that individuals derive from digital engagement across economic, social, cultural, and personal domains.[35] A study among users of mobile devices in semi-urban South African communities found that participants experienced digital outcomes under broad categories of social, economic and psychological benefits.[36] As a key component of digital inclusion, digital outcomes underscore that, even with comparable access and skills, individuals may experience vastly different benefits from using digital technologies. In the South African context, however, measurement and monitoring efforts have focused largely on first-level digital divide indicators related to access, such as infrastructure, device ownership, and connectivity. National-level tracking or coordinated assessment of digital outcomes remains limited, leaving a critical gap in understanding the broader impacts of digital participation.

Assessment of outcomes of digital engagement

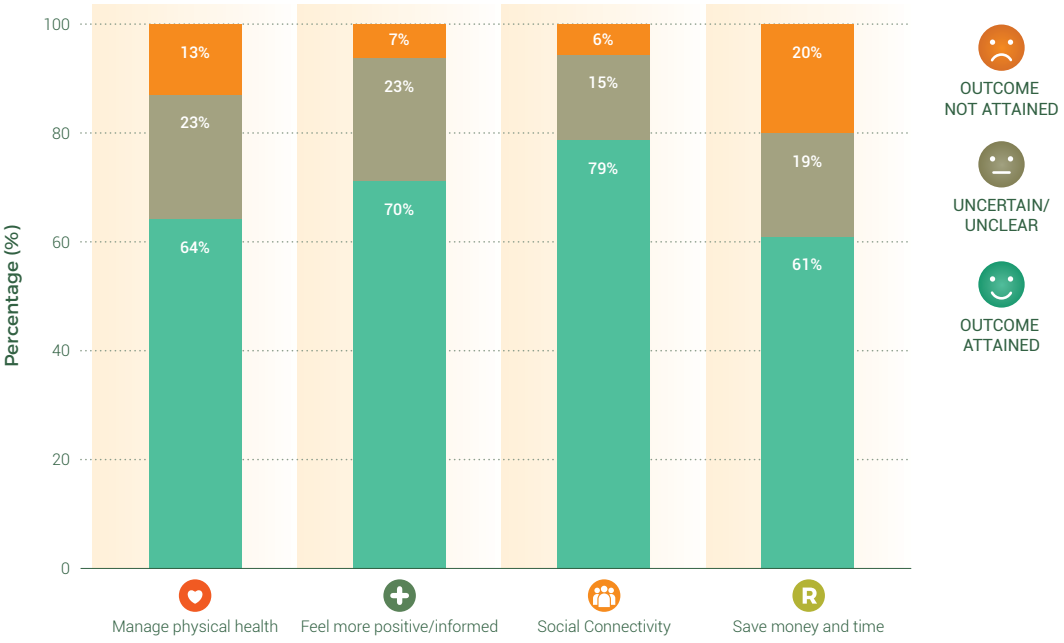
Social connectivity, specifically the ability to stay in touch with family and friends, emerged as a key benefit of digital access and use. This was the most widely experienced outcome among respondents, with only 6% indicating that they did not benefit in this area.

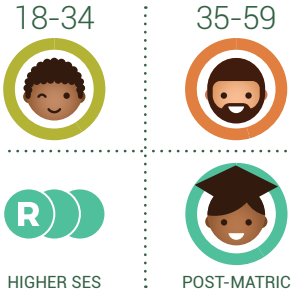
Digital technologies are also widely perceived to support self-improvement and access to information, with the majority of respondents (70%) reporting more positive feelings about their ability to grow and stay informed. This suggests that technologies are viewed as effective tools for enhancing self-efficacy, confidence and knowledge.

In terms of health outcomes, nearly two-thirds of the respondents (64%) reported benefits from using digital technologies to manage their physical health. However, a notable proportion did not report such benefits, or had mixed experiences in this area, which may reflect varying levels of access to or trust in digital health tools.

Experiences related to economic outcomes were more divided than in other areas. Although 61% of respondents reported saving time and money through online purchases and transactions, 20% stated they had not experienced such benefits, while 19% were undecided or unsure. This suggests that a considerable minority have yet to see gains from financial digital transactions, possibly due to factors such as connectivity costs, distrust in online platforms, or limited access to digital financial infrastructure.

FIGURE 17: OUTCOMES OF DIGITAL ENGAGEMENT





Notable differences in outcomes were observed across socio-economic and demographic groups. Respondents in the lower age categories **(youth and adults)**, as well as those of **higher socio-economic status**, and with a higher level of education (i.e. **post-matric**), reported greater benefits derived from digital technologies.

In contrast, **older adults (60+)**, **lower socio-economic status** groups, and individuals with lower levels of education (particularly **pre-matric**) reported less positive outcomes.

KEY INSIGHTS

Widespread social gains – but economic benefits remain limited:
Social benefits from digital technologies appear widespread, with informational gains also notable, though less so. However, there remains a disconnect between users' reported digital skills and their ability to realise other meaningful outcomes – especially in terms of economic, financial, and productivity-related benefits. While many feel confident and regularly transact online, this engagement often remains functional rather than transformative, potentially due to high fees, limited platform efficiency, or poor service integration. Addressing this requires going beyond access and skills to improve the value, affordability, and effectiveness of digital financial services, enabling users to experience real economic gains.

Digital outcomes are unequally distributed:
Older adults, those of lower socio-economic status, and respondents with lower education levels were consistently less likely to report benefits gained from the use of digital technologies. This highlights a third-level digital divide, where socio-economic disparities influence the capacity to derive meaningful outcomes from digital engagement, placing marginalised groups at greater risk of digital exclusion.

SECTION 5

Digital wellbeing and digital resilience

As digital technologies increasingly shape daily life, it is vital to consider how individuals experience digital engagement and adapt to digital advancements. This section explores two key psychosocial aspects related to digital engagement (inclusion): (i) digital wellbeing – the perceived balance between the benefits and harms of being online, and (ii) digital resilience – the capacity to cope with and adapt to digital challenges. Understanding these dimensions is essential for fostering more inclusive, supportive digital environments in South Africa's evolving digital society.

5.1. Digital wellbeing

Wellbeing is a multifaceted concept that broadly refers to how positively individuals evaluate their lives, and how effectively they function across various domains. It encompasses emotional states (e.g., happiness), cognitive evaluations (e.g., meaning and purpose in life), and functional aspects (e.g., social relationships and occupational achievement).

In the psychological literature, wellbeing is often conceptualised as a subjective psychological construct, which includes emotional, cognitive, and functional dimensions. The term subjective wellbeing (SWB) refers more specifically to individuals' evaluations of their own lives, typically comprising three components: positive affect, negative affect, and life satisfaction. While wellbeing and subjective wellbeing are often used interchangeably, the latter has a more defined empirical and theoretical basis in psychology, and is often the preferred term when discussing measurable indicators of individuals' lived experiences.[37]

With the integration of digital technologies into daily life, there is increasing recognition of the role of digital environments in subjective wellbeing. People frequently make cognitive evaluations of their own life based on their experiences with and exposure to digital content, as well as their ability (or inability) to access and participate in digital life. In the digital context, individuals may compare their lives to the curated portrayals they see online, leading to shifts in mood, self-perception and relationships. Despite limited research on digital wellbeing in the South African context, emerging studies have provided evidence of the association between digital access and mental health-related outcomes. For instance, a study of young South African women reported an association between mobile phone use and mental health concerns, including depression, social withdrawal, and smartphone addiction.[38] Similarly, research undertaken among children and adolescents in the Western Cape province reported that extensive e-media use was associated with sleep disturbances, somatic complaints, and reduced health-related quality of life.[39]

At the same time, those who lack adequate access to digital technology may experience a sense of exclusion, marginalisation, or disconnection from important social, educational, and economic opportunities. This digital exclusion can contribute to feelings of frustration, decreased self-worth, and a diminished sense of agency, which can adversely impact subject wellbeing. Hence, both digital engagement and digital exclusion are salient determinants of subjective wellbeing, particularly in societies characterised by inequitable access to digital resources.

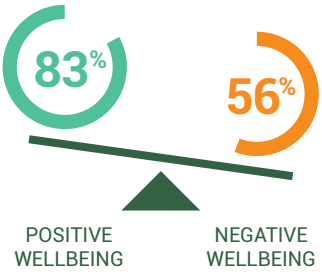
Researchers increasingly argue for recognising digital wellbeing as an extension of subjective wellbeing, and for incorporating digital dimensions into the broader concept of wellbeing, such as how digital habits influence feelings, relationships, and overall life satisfaction. Digital wellbeing is positioned at the intersection between digitalisation and general wellbeing.[40] Since it is still a relatively new concept, there is no universally accepted definition.[41] Some researchers conceptualise digital wellbeing as the relationship between digital media use and subjective wellbeing,[42] while others adopt a broader approach, referring more generally to the relationship between mobile or digital connectivity and wellbeing.[43]

Guided by the approach followed in the Digimeter, this study adopts the definition of digital wellbeing as referring to a subjective individual experience of optimal balance between the benefits and drawbacks obtained from digital connectivity. This experiential state comprises affective and cognitive appraisals of the integration of digital connectivity into ordinary life. People achieve digital wellbeing when experiencing maximal controlled pleasure and functional support, together with minimal loss of control and functional impairment.[44]

Assessment of digital wellbeing

The assessment of the construct of digital wellbeing included six key dimensions related to positive and negative appraisals of the integration of digital connectivity into ordinary life, as applied in the Digimeter. The overall score for positive wellbeing was 83%, with half of respondents scoring between 73% and 100%. The overall score for negative wellbeing was lower, at 56%, with half scoring between 44% and 72%. This suggests that participants generally have a much more positive appraisal of how digital connectivity fits into their daily lives than a negative one.

FIGURE 18: POSITIVE AND NEGATIVE DIGITAL WELLBEING



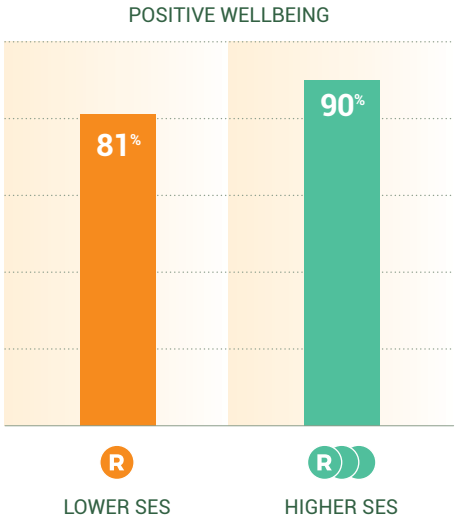
Positive appraisal of digital connectivity

- Source of entertainment
- Prevents boredom
- Using technologies is enjoyable
- Makes life easier
- Provides inspiration and meaning
- An essential part of life

Negative appraisal of digital connectivity

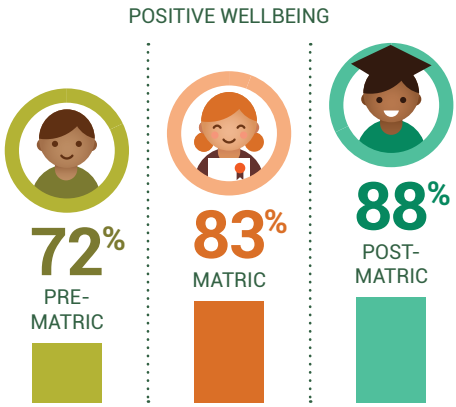
- Waste of time
- Distracts me more than I would like
- Makes me less present in the moment
- I feel stressed from having to be always online
- Interferes with work/home performance
- Leads to conflict with family, friends, or colleagues

The following interesting perspectives can be derived from the overall summative scores on positive and negative wellbeing:



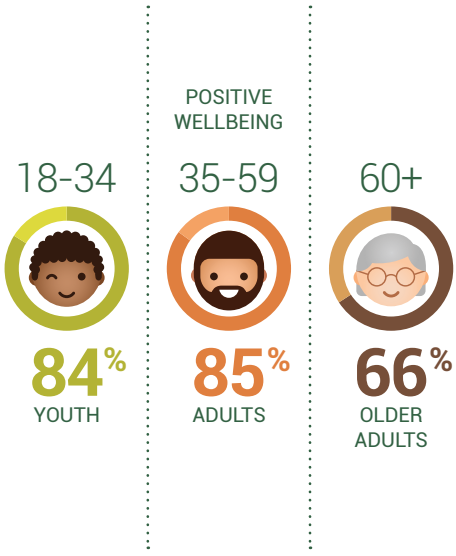
Participants from **higher socio-economic** levels reported significantly higher levels of positive appraisal (90%) compared to those from **lower socio-economic** levels, who reported 81%. This may be attributed to better access to digital technologies and higher self-reported digital skills proficiency among individuals in the higher socio-economic group, which enables them to more effectively explore and benefit from their digital engagement.

However, there was no significant difference between these groups in their negative appraisal of digital connectivity.



Educational attainment is strongly related to positive appraisals of digital connectivity. Respondents with a **pre-matric** qualification reported a 72% positive wellbeing score; those with a **matric** qualification reported 83%; and respondents with a **post-matric** qualification reported the highest positive appraisal, at 88%.

No significant differences were reported for the various educational groups in terms of negative wellbeing.



Age significantly influenced the experience of digital wellbeing. **Older adults (60+)** reported a notably lower positive appraisal (66%) compared to younger participants in the **18 to 34** age group (84%) and the **35 to 59** age group (85%).

No significant differences were found between age groups in terms of negative appraisals of digital connectivity. The lower perceived digital proficiency among older adults may hinder their ability to fully experience the positive potential of digital technologies. In contrast, these lower proficiency levels might also offer a degree of protection from the negative effects associated with digital engagement.

5.2. Digital Resilience

Resilience refers to an individual's capacity to adapt positively in the face of adversity, stress, or trauma, and to maintain or regain psychological functioning despite challenging circumstances. It involves processes of recovery, adaptation, and growth, and is shaped by both internal traits and external resources.[45] In the context of contemporary global challenges, ranging from rapid technological change and economic instability to climate transitions[x] and demographic shifts, resilience has emerged as a critical capacity for navigating complexity and uncertainty. Reports such as the World Economic Forum's Future of Jobs Report (2025) and the OECD Education 2030 framework[xi] underscore the need for resilience, alongside flexibility, adaptability, and agility, as essential "soft skills" for future readiness in both education and the workplace.[xii]

The concept of digital resilience initially emerged within the field of information technology (IT), where it was primarily concerned with enhancing an organisation's capacity to maintain the functionality of its digital systems in the face of technical disruptions. Early research focused on how technological infrastructures could adapt to, and recover from, IT-related challenges to ensure continuity of operations.[46] Casalino *et al*[47] broadened this view by framing digital resilience as an integrated set of strategies, practices, and policies that enable societies to preserve, adapt, or restore their digital functions during crises or disruptions. From a technical standpoint, digital resilience refers to the robustness of systems and infrastructures, specifically their ability to remain operational and responsive following cyberattacks or system failures. At the societal level, digital resilience also involves ensuring that digital tools and data are accessible, interoperable, reliable, and up to date.

Digital resilience builds on this broader understanding and refers specifically to the ability to navigate, adapt to, and recover from challenges encountered in digital environments. It encompasses the capacity to critically evaluate digital content, manage digital risks (such as cyberbullying, misinformation, and privacy breaches), maintain wellbeing in the face of online pressures, and make responsible use of technology. Importantly, digital resilience is not only about avoiding harm, but also about engaging with digital technology in ways that are empowering, constructive, and conducive to long-term wellbeing. As digital technologies become increasingly embedded in education, work, and social life, the need to cultivate digital resilience, particularly among children, adolescents, and young adults, has become more urgent.[48, 49, 50]

---

[x] These five trends are identified as amongst the major drivers expected to influence society globally and to transform the labour market (WEF Future of Jobs report 2025).

[xi] Refer to the WEF 2025 Future of Jobs report and the Organisation for Economic Co-operation and Development Education 2030 framework (2018). *The future of education and skills: Education 2030 concept note—Skills for 2030.* https://www.oecd.org/content/dam/oecd/en/about/projects/edu/education-2040/1-1-learning-compass/OECD_Learning_Compass_2030_Concept_Note_Series.pdf

[xii] Other leading soft skills mentioned in the OECD and WEF reports include: critical thinking, creative problem-solving, emotional intelligence, collaboration and teamwork, leadership and social influence, active learning, and learning-to-learn.

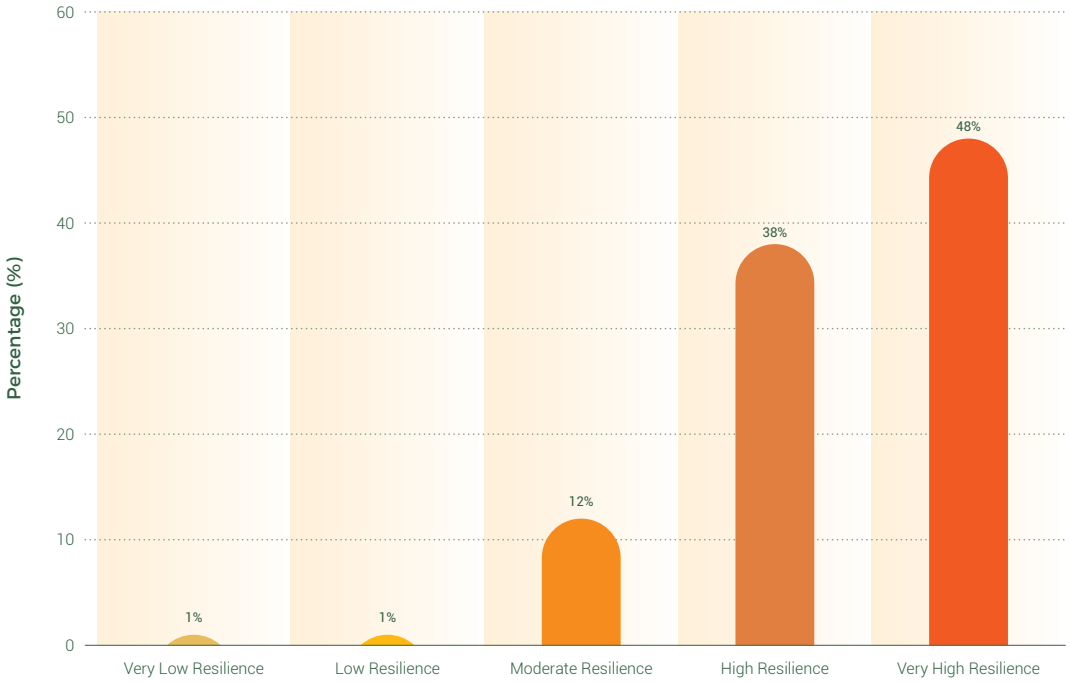
South Africa presents a unique context for examining digital resilience. The country faces high levels of inequality, unemployment, and social fragmentation, which place considerable stress on individuals and communities. Despite these challenges, studies have highlighted the psychological strengths and adaptive capacities of South African youth and adults in the face of adversity. One study, in particular, found that resilience was a key buffer against the negative psychological effects of COVID-19-related stress, particularly among university students.[51]

Following the approach used in Germany's annual digital index,[52] this study adopts the five protective factors identified there as potential indicators of an individual's digital resilience – the ability to respond proactively to changes arising from digital transformation. These factors include: an optimistic attitude towards technology; a reflective assessment of one's own digital competence; an understanding and/or acceptance of increasing future demands; the recognition that individuals must take responsibility for keeping up with digital changes; and a certain level of mental stability to cope with the pressures of adjustment.

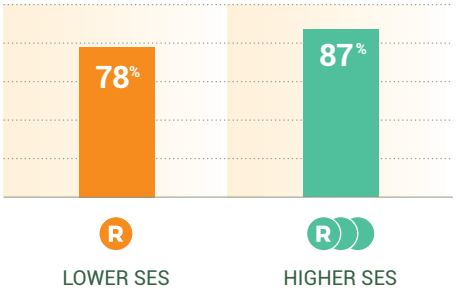
Assessment of digital resilience

The respondents' average digital resilience score was 79%, with half scoring between 72% and 92%. It is encouraging that the majority of the participants (86%) reported a high to very high level of digital resilience. They demonstrated a positive future-looking perspective and seemed aware of the requirement for continuous adjustment and their individual responsibility to keep up with the changes.

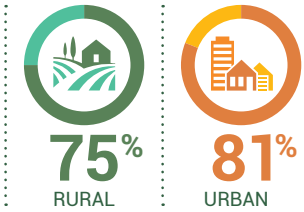
FIGURE 19: DIGITAL RESILIENCE LEVELS



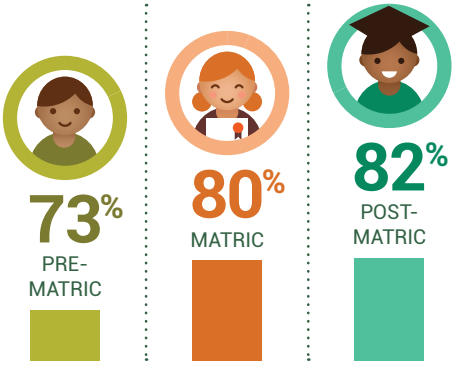
Comparing the average (or summative) score of digital resilience across the different demographic groups (e.g. gender, age groups, educational qualifications, employment status, geographical positioning, or socio-economic categories) highlights the vulnerabilities of particular groups.



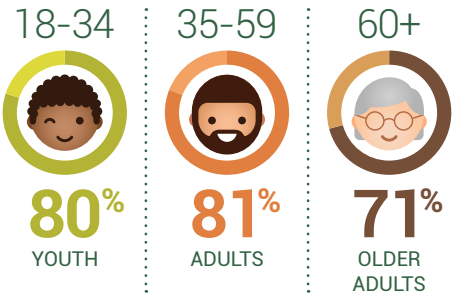
Respondents from the **lower socio-economic** category reported significantly lower levels of digital resilience, at 78%, than their **higher socio-economic** counterparts, at 87%.



Respondents from **rural** areas reported significantly lower levels of digital resilience (75%) compared to respondents in **urban** environments (81%).



Pre-matric respondents reported a significantly lower digital resilience score (73%) than respondents with **matric** (80%) and those with a **post-matric** qualification (82%).



Older adults seem to demonstrate a significantly lower level of digital resilience (71%) than the **youth** (80%) and **adults** (81%).

KEY INSIGHTS

Unequal digital resilience and its consequences:
Respondents from lower socio-economic status categories, those with a pre-matric qualification, and older adults, many of whom are retired, demonstrate lower levels of digital resilience than their counterparts. These disparities are not solely technical or infrastructural in nature, they also underscore the inherently social and psychological dimensions of digital resilience. Limited financial and educational resources can reduce access to digital information, lower digital literacy, and restrict available tools and support systems – all of which intensify the pressures of digital transformation. This sense of exclusion or inadequacy in navigating digital environments can result in increased psychological distress, feelings of incompetence, helplessness, or anxiety, and diminished self-efficacy. For older adults in particular, unfamiliarity with digital technologies can undermine confidence and reinforce generational divides, exacerbating social isolation. Without adequate support, these groups risk being left behind in access to services, employment opportunities, and in their sense of agency and wellbeing, deepening social inequalities and contributing to a growing digital stratification of psychological health.

Interventions must combine skills with psychological support:
Strengthening digital resilience and enhancing digital wellbeing requires addressing both technical competence and psychological empowerment, ensuring that individuals are not only equipped with skills and infrastructure but also supported to build confidence, reduce fear, and feel a sense of control in digital spaces. Policies and programmes that are inclusive and tailored to vulnerable groups are essential for promoting equitable digital participation and overall wellbeing. This involves providing supportive physical and psychological environments that enable the development of a positive mindset, relevant skills, and the confidence to meaningfully engage with the opportunities offered in a digital society. Programmes that adopt peer support models, hands-on experiential learning, and intergenerational mentoring can be particularly effective in fostering a safe and encouraging environment for digital learning.

SECTION 6

Learning and support

The ability to continuously acquire new digital skills and access appropriate support is essential for meaningful participation in a digital society. Beyond individual access or motivation, social support – defined as emotional, instrumental, and informational aid from one's network – plays a critical role in how people engage with digital technologies, build digital confidence, and gain access to enhanced learning pathways.[53] This support takes many forms, from formal training to informal learning through friends, family or colleagues, and even having digital tasks completed on one's behalf. Informal networks are often the most immediate and prevalent sources of support.

South Africa-based research shows that (a small sample of) participants draw on diverse and overlapping strategies to develop digital capabilities, including formal training, learning through observation, self-learning, and informal support.[54] However, informal learning – particularly through family and friends – was by far the most common, while self-learning was less typical. Among older adults in particular, social support has also emerged as key to digital inclusion.[xiii] Many rely on intergenerational assistance from children or grandchildren – with mixed results. Older adults with wider social networks (for example, involvement in senior groups or churches) are more likely to access encouragement and practical help, whereas isolated individuals remain at higher risk of digital exclusion.

Overall, support-seeking strategies vary widely and often overlap, reflecting different levels of access, confidence, and social embeddedness. The following section explores (i) how individuals acquire digital competences and (ii) the types of support they rely on when navigating digital environments.

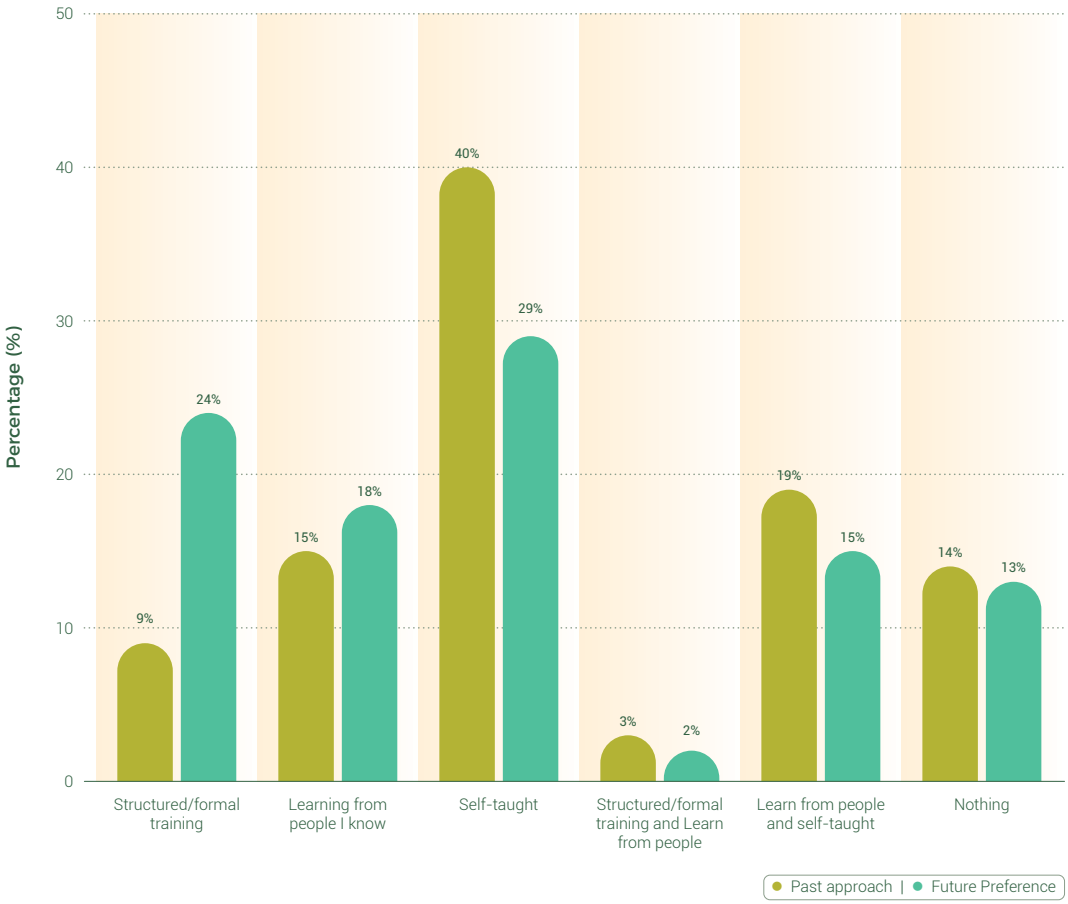
6.1. Approaches to digital skills development

The survey explored how respondents had approached digital skills development over the preceding two years, as well as their preferred methods for future learning.

Findings suggest a gap between how respondents have developed digital skills in practice and how they would prefer to do so. Over half of respondents reported being at least partly self-reliant in developing their digital skills over the preceding two years, with 40% identifying it as their primary approach. Informal learning through familiar contacts – such as family and friends – was also common, used by 37% of respondents, although it had been the sole strategy for just 15%. Nearly one in five respondents combined informal learning with self-directed efforts – reflecting a blended approach to skills development.

[xiii] Report published by UWC with funding by NEMISA (Title: Facilitating the digital inclusion of older adults in the digital economy – A focus on digital skills development).

FIGURE 20: APPROACHES TO DIGITAL SKILLS DEVELOPMENT



In contrast, only 12% had engaged in any form of structured or formal training during this period – whether through dedicated digital skills programmes and/or work-based training – a figure that includes both those who relied on such training alone (9%) and those who combined it with informal learning from others (3%). Notably, 14% of respondents had not participated in any digital skills learning over the previous two years.

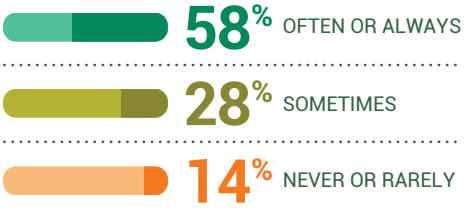
Looking ahead, respondents indicated a continued preference for self-directed learning (29%), informal learning through social networks (18%), or a combination of both (15%). However, an important shift is evident in relation to structured or formal training: 25% selected it as a preferred future approach, more than double the proportion who had pursued such training in the preceding two years. This suggests that while most respondents have relied on self-teaching and informal support up to now, there is a clear desire for more structured opportunities.

Notably, a similar proportion of respondents who had not engaged in any digital skills learning previously expressed no intention to do so in the foreseeable future – highlighting a persistent group at risk of digital exclusion.

6.2. Support networks

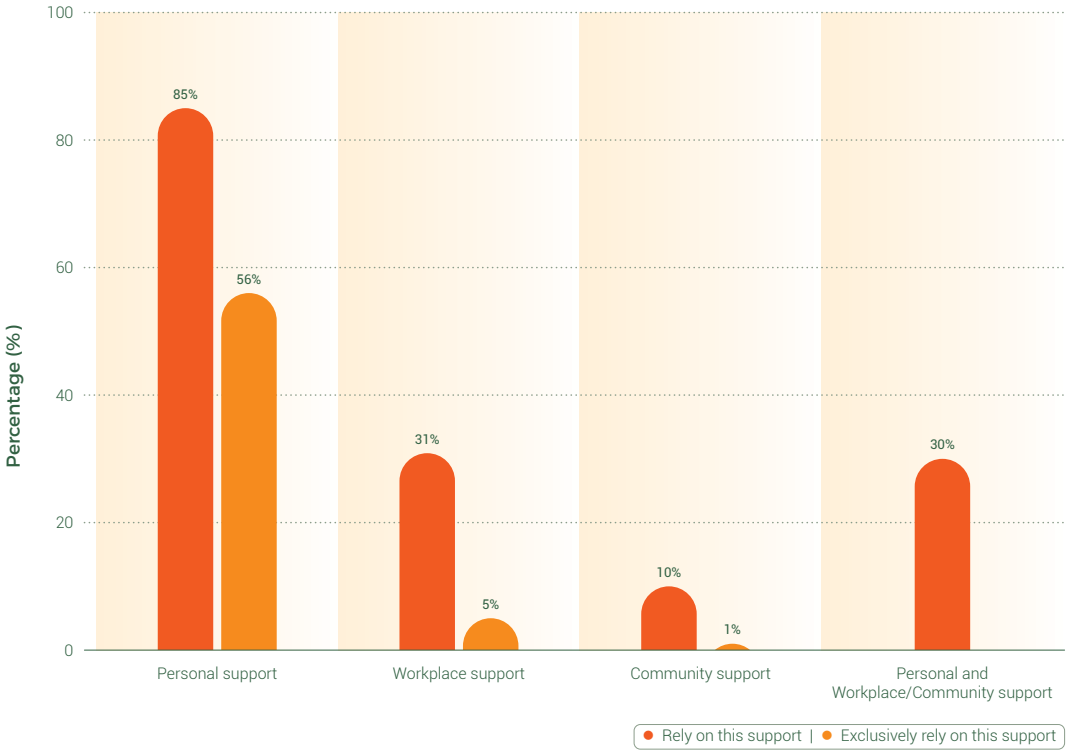
Over half of the respondents (58%) reported having reliable access to support networks when they needed assistance with digital tasks, while 28% indicated they had access only sometimes, suggesting possible situational or inconsistent support. A notable 14% of respondents indicated that they never or rarely have access to support.

AVAILABILITY OF SUPPORT



Among respondents who had access to digital support, friends and immediate family were the major source of assistance, with work colleagues playing a smaller role. There was minimal reliance on external sources such as libraries or digital hubs/e-centres (classified as forms of 'community support' in literature[xiv]). Notably, nearly one in three (30%) of the respondents reported drawing on combinations of personal (family and/or friends) and workplace (work colleagues), and/or community support (i.e. public access points like libraries or e-centres).

FIGURE 21: SOURCES OF SUPPORT FOR DIGITAL TASKS



[xiv] See Asmar *et al.* (2020). Social support for digital inclusion: Towards a typology of social support patterns.

KEY INSIGHTS

Informal and self-learning dominate – but formal training is gaining appeal:
Support-seeking strategies vary and often overlap, though people most often build digital skills through self-directed learning or informal support from family, friends, or peers. These flexible and accessible approaches remain dominant – partly because, as in many other countries, digital skills development is not yet fully integrated into basic or tertiary education curricula, and formal options are limited. Yet, the growing interest in structured training suggests that while people have relied on informal and self-learning up to now, there is increasing demand for more formalised opportunities.

Support networks are uneven – and critical for digital engagement:
While many individuals have reliable support when navigating digital tasks, others face inconsistent or limited help. These disparities in social support contribute to unequal digital participation, particularly for those who lack embedded networks, are not engaged in structured or professional environments (such as work or educational settings) where support might be more readily available, and have lower confidence in their digital abilities.

A disengaged group highlights the need for targeted support:
A small but persistent segment of the population remains disengaged from digital learning – both in the past and looking ahead. This group may face multiple barriers beyond access, including low motivation, limited awareness, or social isolation. Addressing their needs requires tailored interventions that extend beyond generic training offers.

SECTION 7

Attitudes and perceptions: Trust and confidence in digital spaces

Beyond the foundational elements of access and skills, understanding how the public navigates issues of trust, privacy, and institutional responsibility is essential for shaping responsive and inclusive digital policies.

Attitudes towards and perceptions of digital technologies go beyond assessments of personal competence and play a pivotal role in shaping patterns of digital engagement. While such technologies are widely associated with convenience, connectivity, and enhanced opportunity, concerns around data privacy, algorithmic bias, and digital overdependence are prevalent.[55] Trust, confidence, and apprehension regarding online safety and misinformation significantly influence whether and how individuals engage.[56, 57] As digital technologies become part of everyday life, people's motivations, concerns, and beliefs play a crucial role in shaping whether digital participation leads to empowerment, or reinforces existing forms of marginalisation.

This section explores attitudes and perceptions regarding privacy and trust in technologies and online platforms. It also examines perceptions of public and private institutions, their role in promoting online safety education, and the perceived reliability of institutional media.

7.1. Perceptions of online risk, privacy and trust

The survey explored perceptions of risk in online financial transactions, as well as concerns about privacy, data collection, and trust across a range of digital platforms.

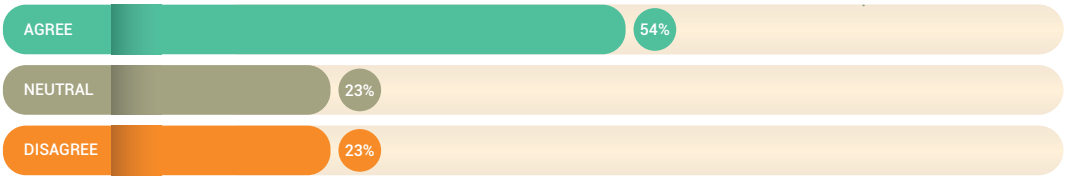
A majority of respondents (54%) perceived online financial transactions as risky, reflecting widespread concern about cybersecurity and fraud. In contrast, nearly one-quarter (23%) disagreed, which suggests that some of the respondents retained a limited sense of safety or trust in digital financial environments.

Nearly two-thirds of respondents (64%) expressed worry about the nature and extent of personal data collection by technologies and online services, while a similar proportion (66%) were concerned about the impact of social media on their privacy. Only small shares of respondents disagreed with these concerns (13% and 16%, respectively), indicating widespread anxiety about digital privacy, scepticism about data governance, and low trust in social media platforms specifically.

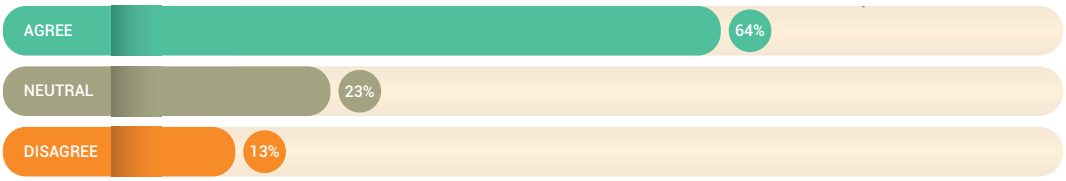
A notable share of neutral responses (18% to 23% across the range of privacy- and security-related questions) suggests uncertainty, limited understanding, or gaps in digital literacy – particularly when it comes to assessing risks or understanding how personal data is collected and used.

FIGURE 22: PERCEPTIONS OF ONLINE RISK, PRIVACY, AND TRUST ACROSS DIGITAL PLATFORMS

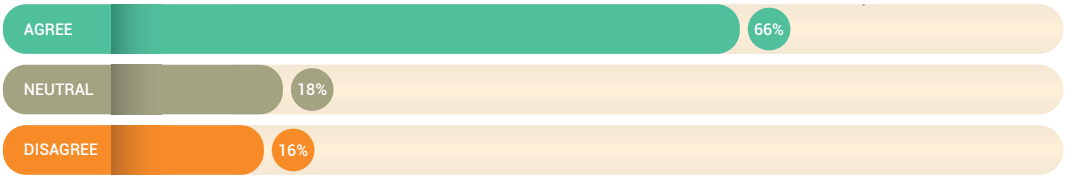
People who perform online financial transactions put themselves at risk.



I am worried about the nature and amount of my personal data that can be collected through technologies and online services/agents.



I am worried about the influence of social media on my privacy.



31%
RURAL

63%
URBAN

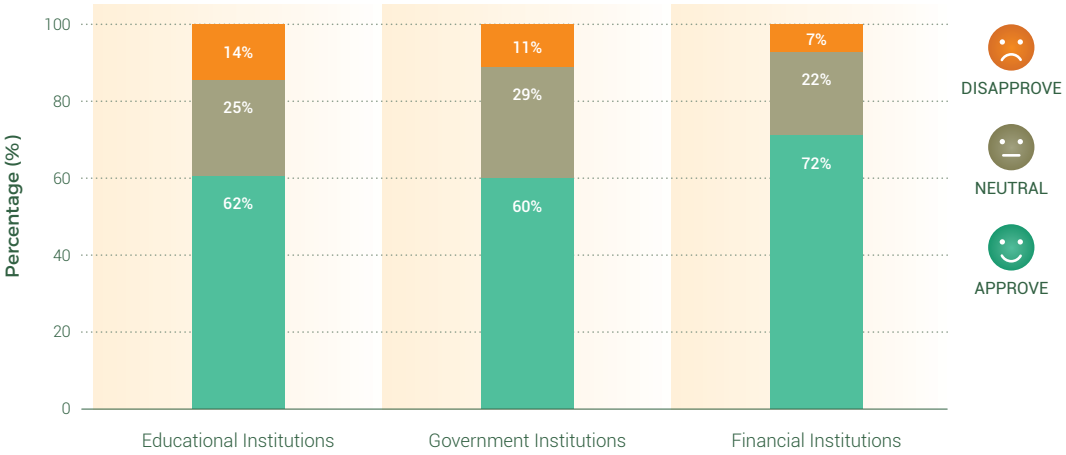
Privacy and security concerns were significantly more pronounced among urban respondents than their rural counterparts. For instance, **63% of urban respondents viewed online financial transactions as risky, compared to just 31% of rural respondents** – highlighting a stark urban-rural divide in perceived digital vulnerability.

7.2. Perceptions on the educational efforts of institutions

The survey examined respondents' perceptions of the efforts made by public and private institutions to educate citizens about online safety, as well as levels of trust in prominent media institutions.

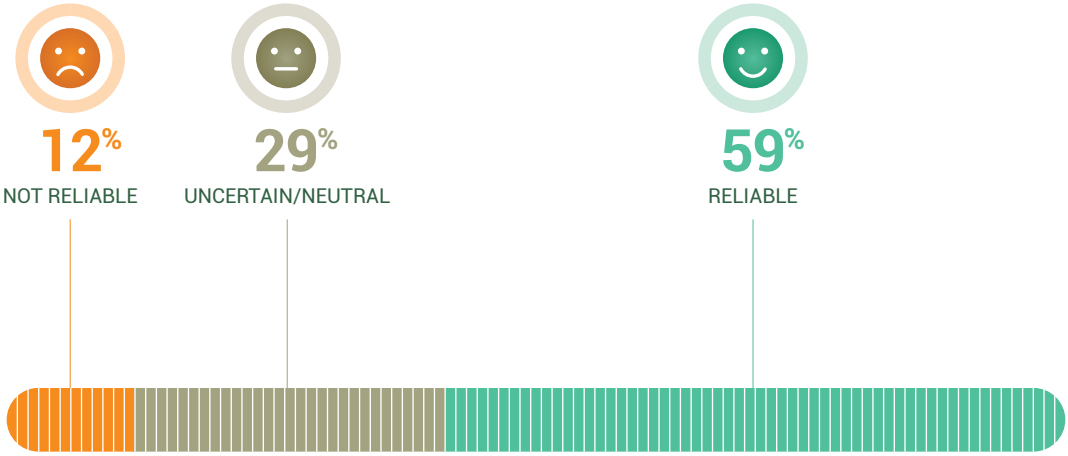
There was an overall positive sentiment among respondents, with 60% or more feeling that educational, government, and financial institutions were taking adequate steps to educate the public about online safety. Financial institutions, in particular, received the highest level of public endorsement, with 72% of participants feeling they were doing enough. In contrast, while 60% of respondents agreed that the government was taking adequate steps, this category also registered the highest level of neutrality (29%). Notably, educational institutions drew the greatest share of disapproval, with 14% of respondents indicating they were not doing enough.

FIGURE 23: PERCEPTIONS ON INSTITUTIONAL EFFORTS TOWARDS ONLINE SAFETY EDUCATION FOR CITIZENS



A majority (59%) of respondents expressed agreement that information from online news agencies was reliable, indicating a general trust in mainstream digital news platforms, although not an overwhelming endorsement. It is notable that 29% of respondents adopted a neutral stance, which may signal a cautious approach to consuming online news.

FIGURE 24: PERCEPTIONS OF RELIABILITY OF INFORMATION FROM ONLINE NEWS AGENCIES



KEY INSIGHTS

Widespread concerns about digital privacy and security:
Public concern about privacy, data collection, and cybersecurity is widespread, particularly in relation to online financial transactions and social media use. Alongside this distrust, a substantial number of neutral responses suggest uncertainty or limited understanding – pointing to gaps in digital literacy that may hinder individuals' ability to assess and manage digital risks effectively.

Digital risk perceptions reflect environmental, not just individual, factors:
Privacy and security concerns are more pronounced among urban respondents than rural ones, pointing to an environmental or community-level influence on digital perceptions. Interestingly, individual factors like age and education – which strongly influence digital skills and outcomes – appear less relevant when it comes to attitudes toward privacy and trust, highlighting a distinction between personal capabilities and collective perceptions.

Confidence in institutions is cautious and uneven:
Public and private institutions – particularly financial services – are generally seen as making adequate efforts to promote online safety. Confidence in government and educational institutions, however, is more tentative, with higher levels of neutral and negative evaluations suggesting limited visibility, public uncertainty, and some dissatisfaction with their efforts. Similarly, trust in digital media remains cautious, likely shaped by ongoing concerns about misinformation, fake news, and AI-generated content.

SECTION 8

Artificial intelligence

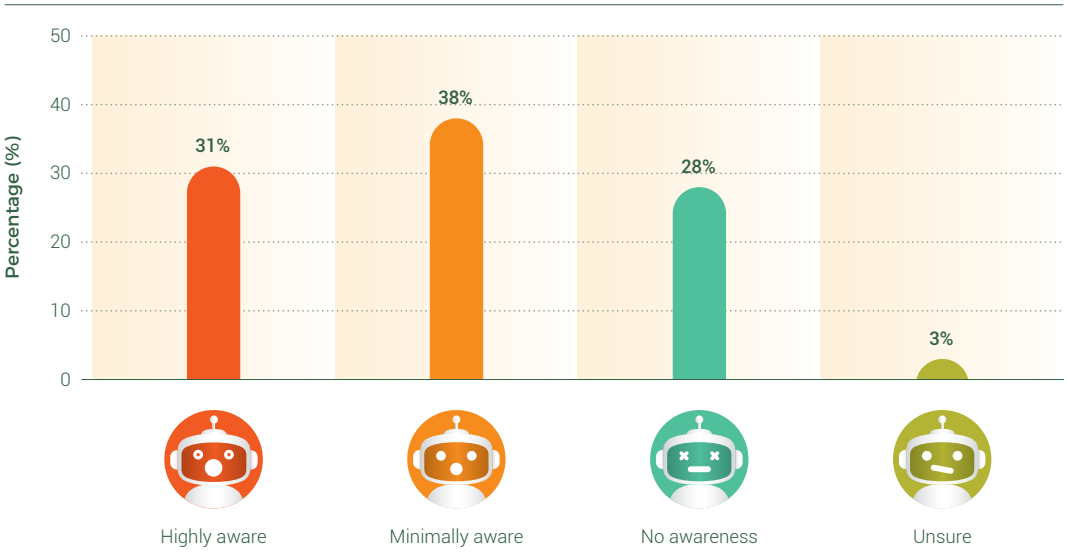
Artificial intelligence (AI) is increasingly shaping all aspects of modern life, making it critical to assess how citizens engage with this advanced and rapidly evolving technology. Recent data from the Ipsos Global AI Monitor 2024 indicates that South Africans demonstrate relatively high levels of awareness and understanding of AI, coupled with a generally optimistic and trusting outlook – particularly in relation to its implications for privacy.[58] However, this survey sample was skewed towards a more urban, educated, and affluent population, likely reflecting the perspectives of the country's more digitally connected segments. In contrast, the 2025 AI Maturity Assessment of South Africa rated the country's progress in the area of Citizen Engagement With and Empowerment Through AI as only at an "Emerging" level.[59] It highlights that overall public awareness and trust in AI remain limited, especially among marginalised groups. Ongoing challenges, such as inadequate internet access and the high cost of connectivity, continue to hinder inclusive participation in the AI-driven digital future.

Guided by question constructs of the Ipsos AI Monitor survey, this section explores awareness, usage, and perceptions of AI, including patterns of generative AI (GenAI) adoption and sentiment about its impact.

Assessment of AI awareness, use, and sentiment

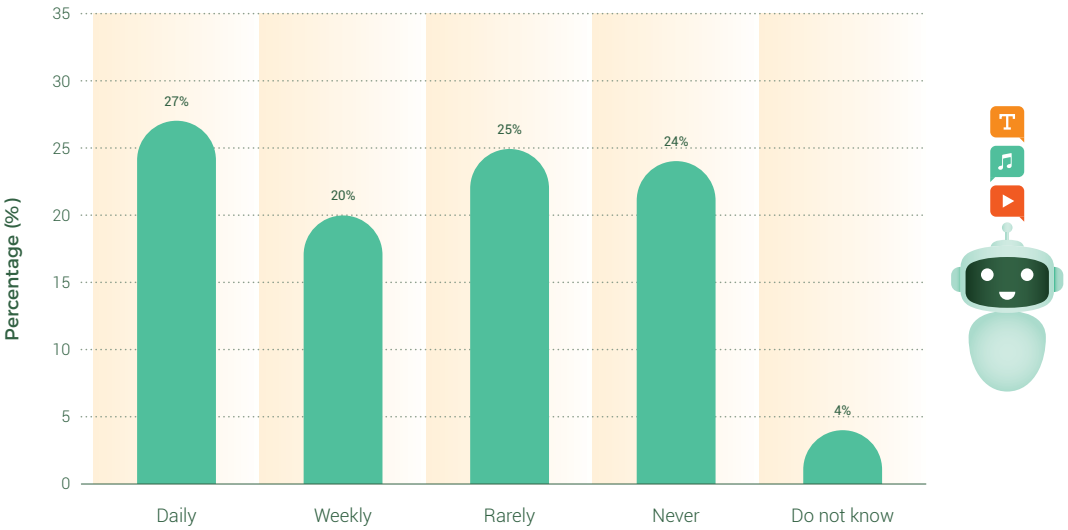
While a majority of respondents (69%) reported having heard about AI, most of them described only minimal familiarity. More than a quarter (28%) of participants indicated they had never heard of AI at all, highlighting a notable awareness gap amongst citizens.

FIGURE 25: AWARENESS OF ARTIFICIAL INTELLIGENCE (AI)



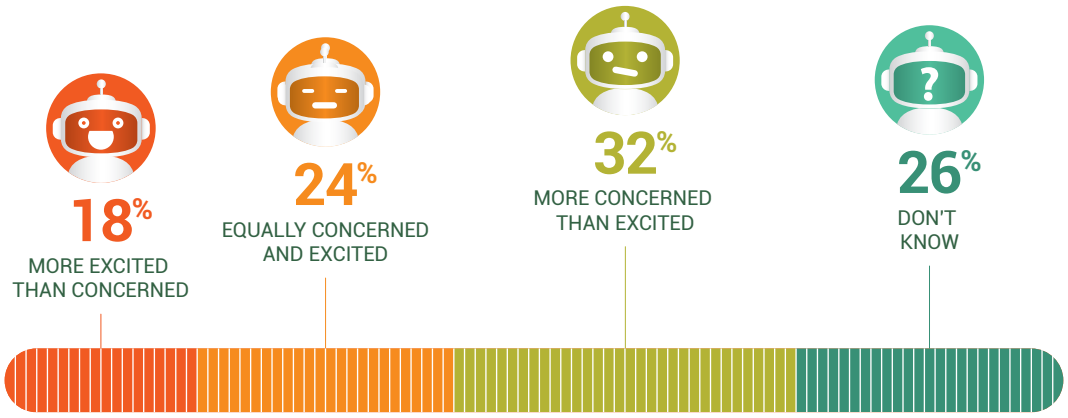
Despite this relatively limited familiarity, a substantial portion (47%) reported using GenAI tools to create content frequently (27% using them daily, and 20% at least weekly). However, usage remained highly polarised: nearly half (49%) of respondents reported limited or no use of these tools – with 24% stating that they never use them.

FIGURE 26: FREQUENCY OF USING GENERATIVE AI FOR TEXT, AUDIO AND VIDEO CREATION



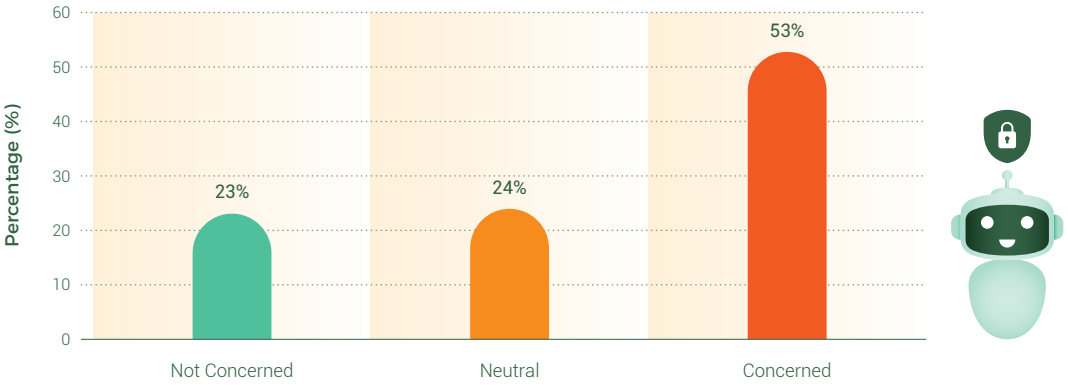
Overall, sentiment towards AI leans towards the cautious side: nearly one-third (32%) felt more concerned than excited about its increasing presence in everyday life, while half reported either ambivalence – feeling equally concerned and excited – or uncertainty.

FIGURE 27: FEELINGS ABOUT INCREASED USE OF AI IN DAILY LIFE



Just over half of respondents (53%) expressed concern about AI's impact on their privacy – lower than concerns previously reported for online financial platforms, social media, and digital technologies more broadly. This combination of comparatively lower privacy concerns, relative to older or more familiar technologies, along with overall caution and notable uncertainty, may reflect limited direct exposure to AI, or a lack of understanding of its implications.

FIGURE 28: CONCERN ABOUT AI'S INFLUENCE ON PRIVACY

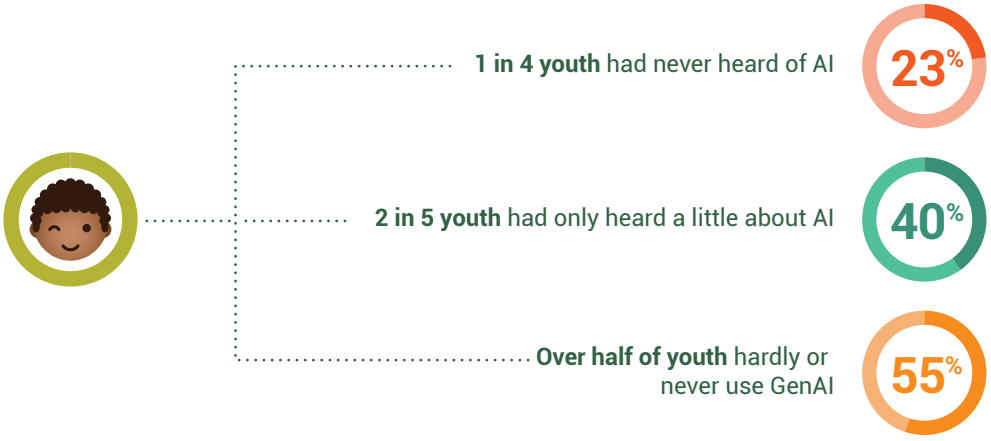


Together, these findings suggest that, while AI is becoming more visible in public discourse, and the adoption of generative tools has already gained substantial traction, overall awareness, understanding and engagement remain limited. The results point to an uneven adoption landscape, likely shaped by factors such as digital literacy, accessibility, and perceived relevance, as well as broader uncertainty regarding the risks and societal impact of AI. This highlights the need for more informed, inclusive dialogue around AI and its role in everyday life.

A note on 'digital natives'

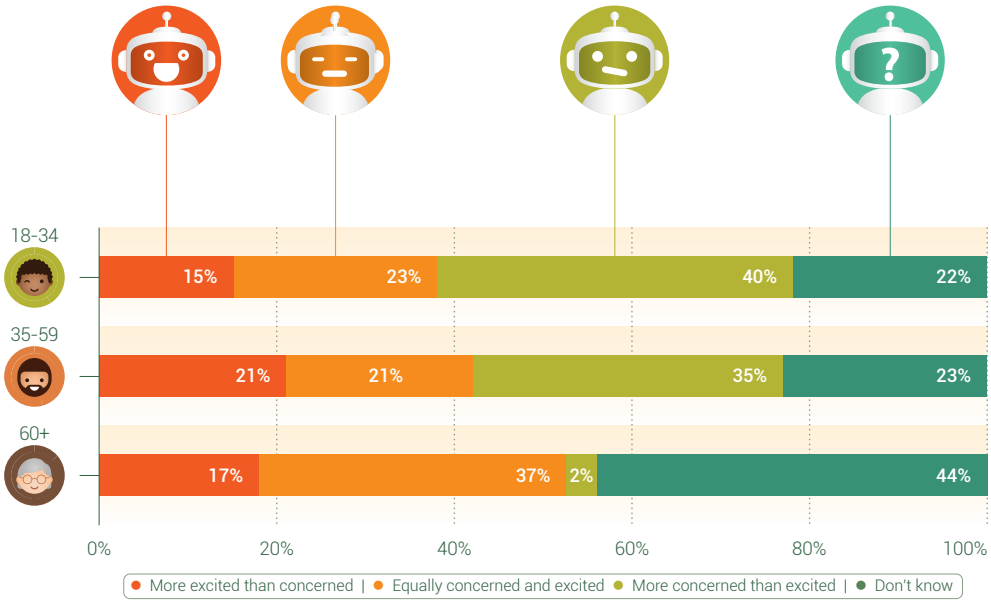
> Young people are often described as digital natives, on the assumption that they are tech-savvy, highly engaged, and early adopters of digital technologies. However, the findings from this study challenge this perception.

More than half (55%) of respondents aged 18 to 34 reported limited or no use of GenAI, showing slightly lower engagement than their older counterparts, aged 35 to 49. Even more strikingly, nearly a quarter (23%) of young respondents had not heard of AI at all, while an additional 40% reported only minimal awareness (with 3% unsure).



Furthermore, the largest share of young respondents (40%) expressed greater concern than excitement about AI. In fact, this age group emerged as the most concerned and least excited about AI compared to older respondents (those aged 35 and above).

FIGURE 29: VIEWS ON THE INCREASING USE OF AI IN DAILY LIFE



These findings highlight the need for digital inclusion and skills development strategies to avoid assuming that young people will naturally adopt or engage with new technologies. This is particularly crucial at a time when developing AI-related skills is essential for both current and future employment – especially in South Africa, where youth unemployment remains alarmingly high.

KEY INSIGHTS

Public understanding is not keeping pace:
AI has entered public discourse and, for many, daily life through generative tools – but familiarity and understanding remain limited. This gap between surface-level awareness and active engagement suggests that AI's integration into society is outpacing people's capacity to critically assess or fully participate in its use.

Public sentiment is cautious, not resistant:
While concern outweighs excitement for many, the prevailing mood is ambivalence or uncertainty rather than opposition. Notably, lower-than-expected privacy concerns – compared to other digital technologies – may suggest limited understanding of AI's

risks, rather than genuine comfort with the technology. This presents both a challenge and an opportunity: to foster more informed public engagement before assumptions about trust or acceptance take hold.

Adoption is uneven – and assumptions about youth readiness must be re-evaluated:

AI adoption is highly fragmented: while some individuals engage frequently, many remain entirely disengaged. Young people – often assumed to be natural adopters – showed unexpectedly low awareness, limited use, and heightened concern. This challenges the "digital native" narrative and underscores that factors beyond age, such as digital literacy and perceived value, shape engagement. In the context of high youth unemployment, this highlights the need for inclusive skills development that not only improves access, but also builds meaningful, job-relevant capabilities.

An inclusive AI future requires intentional design:

Uneven awareness and polarised adoption risk a deepening of digital inequality. There is a clear need for proactive, accessible, and contextually relevant education and dialogue to ensure that AI development and governance reflect the needs, concerns, and participation of all communities.

SECTION 9

Profiles

This section of the report applies a typology-development approach to synthesise and conceptualise respondents' positioning on the various digital engagement constructs measured in this study. Typologies are a well-established social science tool used to refine concepts, create measurement categories, and identify underlying dimensions.[60, 61]

For this report, descriptive profiles serve as the first step in developing and presenting digital engagement typologies. Following the methodology outlined in Section 3, four profiles are proposed to illustrate participants' relative positions on the digital engagement continuum and the nature of their engagement with digital technologies. These profiles differ according to: (i) their socio-demographic context, (ii) the extent and nature of their engagement with digital technologies, and (iii) their attitudes and perceptions towards digital technologies, including self-reflections on digital wellbeing and digital resilience.

The four profiles are:

- **Digitally Peripheral:** the disconnected or peripheral participants, representing the largest proportion of participants at 39%;
- **Cautious Connectors:** the emerging but insecure users, representing 9% of participants;
- **Strategic Engagers:** the confident and selective users, representing 19% of participants;
- **Digitally Immersed:** the deeply engaged and immersed users, the second largest proportion, representing 33% of participants

.

Digitally Peripheral (39%)

Who they are

Although largely composed of youth (18–34 years old), the group notably includes 77% of older adults (aged 60+). They mainly live in rural areas, with low monthly income (R2 001–R5 000)[xv] and lower education levels (pre-matric or matric).

Their digital life

They have basic to intermediate digital skills and regularly engage with digital technologies, almost exclusively on a smartphone, which is typically their only internet-enabled device, gaining some – but limited – benefits. Their AI awareness is minimal (most have heard little or nothing about AI), and GenAI use is largely non-existent.

[xv] While the report discusses socioeconomic status, the typologies are further distinguished by income levels, defined here in terms of individual (as opposed to household) income.

Their mindset

They recognise positive influences of digital technologies in their own lives, while also expressing concerns about online risks, privacy, and trust. At the same time, they generally maintain a neutral view on feeling personally negatively affected – a stance that likely reflects their limited and low-intensity engagement with digital technologies rather than genuine ambivalence. Viewing themselves as somewhat digitally resilient, they neither fully embrace nor reject digital technologies, holding a moderately positive outlook tempered by underlying anxieties.

Implications

This group faces the greatest risk of deepening digital exclusion, especially as services and opportunities shift further online. It is therefore essential to expand affordable and reliable internet access, increase entry-level device availability, strengthen localised, community-based digital literacy programmes, accelerate advanced digital skills interventions aimed at equipping especially vulnerable young people who are seeking employment opportunities, and provide ongoing support that builds both technical skills and user confidence.

The Cautious Connectors (9%)

Who they are

Primarily youth (18–34 years old), based in urban areas, with matric-level education and mid-level monthly income (R5 001–R10 000).

Their digital life

They have intermediate to advanced digital skills and engage in digital tasks or activities regularly, gaining some benefits from these technologies. Most own only a smartphone, while some own just a basic phone. They are on the lower side of AI familiarity and engagement, with most having little knowledge of AI (having heard little or nothing about it) and making rare to occasional use of GenAI.

Their mindset

They demonstrate an openness towards digital technologies, tempered by a cautious stance. While they recognise both positive and negative impacts of digital technology in their lives, they tend to avoid strong positions, a tendency accompanied by some degree of trust concerns and a measured, rather than robust, sense of digital resilience. This mindset points to a preference for careful engagement over wholehearted adoption or outright rejection.

Implications

These users are poised to progress on the digital inclusion continuum but need support to deepen and diversify digital skills, particularly by moving beyond exclusive reliance on mobile devices and by strengthening online safety practices.

The Strategic Engagers (19%)

Who they are

Mostly youth (18–34 years old), based in urban areas, with post-matric qualifications and higher monthly income (above R10 000).

Their digital life

They have highly advanced digital skills, own multiple forms of smart devices, and engage in digital activities very often, deriving clear benefits from these technologies. Despite moderate-to-high awareness of AI, they make little to no use of GenAI, suggesting selective engagement.

Their mindset

This group has an optimistic outlook on digital technologies, recognising their significant positive impact on their lives. They generally feel that digital technologies do not negatively affect them, while remaining aware of potential risks. They demonstrate strong digital resilience.

Implications

With their advanced skills and positive digital mindset, this group could further benefit from encouragement to explore more advanced technologies, whether through highlighting additional benefits or targeted interventions, as they appear content with their current technology use. They are also well-positioned to serve as role models or mentors for others navigating the digital space.

The Digitally Immersed (33%)

Who they are

Predominantly adults aged 35–59, based in urban areas, with post-matric qualifications and higher monthly income (above R10 000).

Their digital life

They have advanced to highly advanced digital skills, engage in digital tasks or activities often, and own multiple smart devices (mobile phones and computers). They feel strongly that they benefit from digital technologies. They have moderate-to-high AI awareness and engage in frequent GenAI use (at least once a week to several times a day).

Their mindset

This group has a strong sense that digital technologies positively influence them. At the same time, they recognise some negative impacts on their own lives, express strong concerns about trust, privacy, and online risks, and demonstrate high digital resilience. This combination of optimism, worry, and resilience likely reflects both substantial exposure to digital technologies and a critical, reflective mindset that carefully weighs their advantages and drawbacks.

Implications

Deeply embedded in digital ecosystems, this group combines strong engagement with high digital resilience and a reflective awareness of both benefits and risks. Their ability to integrate AI and GenAI in their digital skills repertoire with the required critical mindsets, demonstrates digital fluidity – a concept often used to refer to people, teams and systems that demonstrate the ability to move seamlessly across tools, platforms and contexts, and to learn unfamiliar technologies quickly enough to remain effective as conditions change.[62, xvi] They are well-positioned to act as early adopters, role models, and champions of responsible digital practices, influencing peers and communities while advancing digital transformation.

FIGURE 30: CONTINUUM OF DIGITAL ENGAGEMENT: FROM PERIPHERAL TO IMMERSED

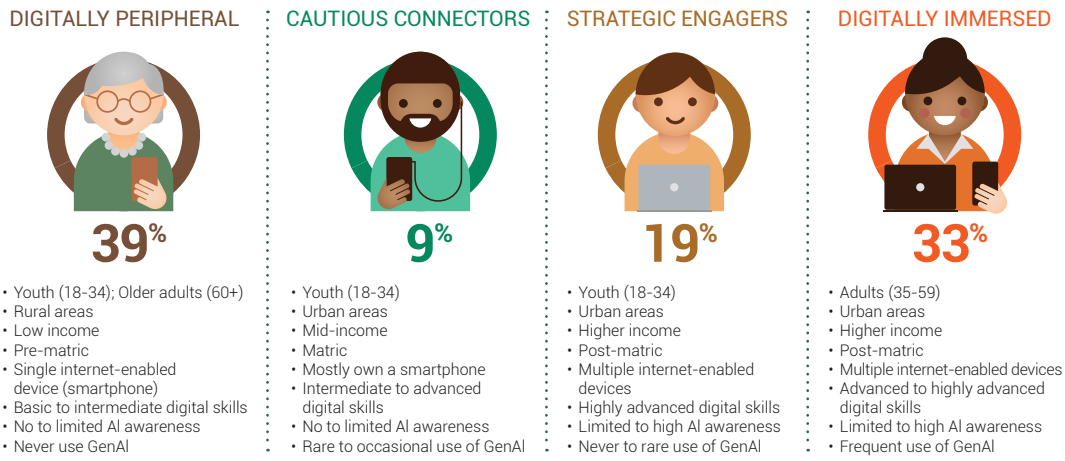


Table 2: Descriptive summary of profile variables

Description of variables	Digitally Peripheral (39%)	Cautious Connectors (9%)	Strategic Engagers (19%)	Digitally Immersed (33%)
Education (Pre-matric, Matric and Post-matric)	Majority have either pre-matric or matric qualification	Majority have matric qualification	Majority have post-matric qualification	Majority have post-matric qualification
Income categories	Majority earn R2 001 to R5 000 per month	Majority earn R5 001 to R10 000 per month	Majority earn above R10 000 per month	Majority earn above R10 000 per month
Geographic area (Urban/Rural)	Majority live in rural areas	Majority live in urban areas	Majority live in urban areas	Majority live in urban areas
Age categories (Youth, Adults, Older adults)	Majority are between 18 and 34 years old; comprise 77% of participants who are 60 years and above	Majority are between 18 and 34 years old	Majority are between 18 and 34 years old	Majority are between 35 and 59 years old

[xvi] Digital fluidity is not necessarily a concept used in competency profiles, but it is typically operationalised and captured in the digital competence areas (JRC Publications on the DigComp, World Bank Documents on Digital Skills for Africa; https://thedocs.worldbank.org/en/doc/0a4174d70030f27cc66099e862b3ba79-0200022021/original/DSCAP-MethodGuidebook-Part1.pdf

Description of variables	Digitally Peripheral (39%)	Cautious Connectors (9%)	Strategic Engagers (19%)	Digitally Immersed (33%)
Digital device ownership	Majority have smartphone as only internet-enabled device	Majority have either a basic phone or a smartphone as their only internet-enabled device	Majority have multiple internet-enabled devices	Majority have multiple internet-enabled devices
Overall digital skills proficiency	Basic to intermediate	Intermediate to advanced	Highly advanced	Advanced to highly advanced
Frequency of engagement in digital activities	Frequently engage in digital activities	Frequently engage in digital activities	Very frequently engage in digital activities	Frequently engage in digital activities
Digital outcomes	Agree to some extent that they benefit from digital technologies	Agree to some extent that they benefit from digital technologies	Fully agree that they benefit from digital technologies	Fully agree that they benefit from digital technologies
Positive wellbeing	Agree to some extent that digital technologies have a positive influence in their life	Agree to some extent that digital technologies have a positive influence in their life	Fully agree that digital technologies have a positive influence in their life	Fully agree that digital technologies have a positive influence in their life
Negative wellbeing	Neither disagree nor agree that they are negatively affected by digital technologies	Agree to some extent that they are negatively affected by digital technologies	Disagree to some extent that they are negatively affected by digital technologies	Agree to some extent that they are negatively affected by digital technologies
Digital resilience	Agree to some extent that they have digital resilience	Agree to some extent that they have digital resilience	Fully agree that they have digital resilience	Fully agree that they have digital resilience
Perceptions of online risk, privacy and trust	Agree to some extent that they are worried about digital technologies	Agree to some extent that they are worried about digital technologies	Agree to some extent that they are worried about digital technologies	Fully agree that they are worried about digital technologies
AI awareness	Majority have heard nothing at all to a little about AI	Majority have heard nothing at all to a little about AI	Majority have heard a little to a lot about AI	Majority have heard a little to a lot about AI
Use of generative AI	Majority never use generative AI	Majority use generative AI rarely to at least once a week	Majority never or rarely use generative AI	Majority use generative AI at least once a week to several times a day

SECTION 10
Take-forwards

The findings of the first Digital Engagement South Africa (DESA) survey provide a critical baseline for understanding the lived realities of digital engagement and participation across different communities, life stages, and socio-economic contexts in Gauteng, Limpopo, KwaZulu Natal and the Western Cape.

What emerges is a complex and layered picture, one in which remarkable gains in access and mobile-first connectivity coexist with deep, persistent inequalities in digital skills, meaningful use, and outcomes. The following reflects strategic priorities for advancing digital participation in South Africa.

Design for a mobile-first society
With smartphone ownership nearly universal, mobile devices remain the dominant means of internet access. Public services, educational resources, and health platforms must be designed for mobile usability from the outset ("digital inclusion by design") to ensure reach and accessibility, especially for vulnerable groups.

Position mobile literacy as equally essential
Beyond designing mobile-ready platforms, equal emphasis must be placed on mobile literacy as a core digital competency. For many in South Africa (a low to middle-income country), mobile devices are the sole entry point into the economy and essential services, making the ability to navigate them effectively as important as traditional computer literacy. Strengthening mobile literacy can expand digital engagement and improve access to government, health, and other critical services for vulnerable groups.

Address persistent digital divides at all levels
While device ownership is high, meaningful digital participation remains constrained by persistent challenges, for example a lack of affordable, reliable internet connectivity and access to suitable (high-quality) devices. These barriers disproportionately affect groups such as older adults, the unemployed, rural residents, those with lower educational attainment, and those of lower socio-economic status, exacerbating South Africa's broader socio-economic inequalities. These groups experience:

- A first-level divide (access to devices and connectivity).
- A second-level divide (gaps in digital skills).
- A third-level divide (unequal ability to derive benefits from digital engagement).

Addressing these divides requires targeted, needs-driven approaches that improve both physical access and affordability, alongside digital skills development and better service integration to ensure that digital inclusion meaningfully reduces entrenched inequality.

Build breadth and depth of digital competencies

Frequent use and high confidence are concentrated in basic and transactional skills (messaging, searching, transacting), with far lower confidence in more complex or critical competencies such as assessing the trustworthiness of information, content creation, and online safety. Bridging the digital skills gap will require (among other actions):

- Disaggregating digital skills into foundational competence areas for targeted interventions, differentiating between digital skills for life and digital skills for work.
- Developing advanced digital skills across mobile and computer platforms to expand capabilities for meaningful engagement and to unlock beneficial outcomes for life and work.
- Strengthening media and information literacy to equip people to navigate misinformation, scams, and online risks – a need heightened by low confidence in online safety skills, especially among vulnerable groups.

Assess digital skills using a structured competency framework

As recent international reports advocate,[63, 64] conducting assessments against a defined framework is essential to advancing a country's digital engagement and skills agenda. Applying the DSFOne in this study enabled the measurement of proficiency across six digital competence areas, identifying skills gaps and vulnerable groups. The outcome can inform targeted learning interventions, support more efficient resource allocation, and can be applied to monitor ongoing progress.

Foster digital fluidity, characteristic of the digitally immersed

The ability to move seamlessly across digital tools, platforms, and contexts – and to learn unfamiliar technologies quickly enough to remain effective as conditions change (such as with AI and GenAI) – appears to depend on advanced to highly advanced digital-skills proficiency and on the capability to transfer these skills to new and evolving digital environments. This appears to be more likely where people have access to advanced technologies, demonstrate high levels of digital resilience and are situated in structured settings with access to peer learning and supportive networks.

Address digital attitudes, trust, and perceptions alongside skills

Privacy, security and misinformation concerns are widespread, with public sentiment generally cautious rather than resistant. These attitudes often stem from collective, community-level influences. Digital inclusion efforts must therefore tackle not only skills and access, but also perceptions and trust, using transparent communication and community engagement to support confident, informed participation.

Recognise and address psychosocial dimensions of digital engagement

The focus on enhanced digital participation must go beyond traditional divides to address social and psychological dimensions of digital engagement, particularly contemporary concepts such as digital wellbeing and digital resilience. This includes recognition of the nuanced positive and negative implications of digital engagement, along with fostering confidence, reducing anxiety and fear, and promoting a sense of control and agency in navigating digital environments. Vulnerable groups, such as older adults and those with

fewer resources, often face heightened challenges that affect both their competence and wellbeing, increasing the risks of exclusion and distress. Peer support models, hands-on experiential learning, and intergenerational mentoring can create supportive environments that enhance both digital skills and wellbeing, helping individuals engage meaningfully and confidently in the digital society.

Expand inclusive learning opportunities

Self-directed and informal learning remain the dominant modes of digital skills development, but there is growing demand for structured training. Access to consistent support networks varies widely, and a small yet persistent segment remains disengaged from all forms of digital learning. To address this, both formal and informal learning opportunities should be broadened, particularly targeting those outside structured environments like workplaces and educational institutions, where exposure to digital technologies is more common. Tailored outreach is essential for individuals facing multiple barriers, including low motivation or social isolation, to ensure equitable access and engagement.

Strengthen digital outcomes with economic impact

While social and informational gains from digital engagement are relatively widespread, economic and productivity-related benefits remain limited. Improving these outcomes requires enhancing the functionality, affordability, and integration of digital financial and productivity tools, ensuring they deliver tangible value.

Equip the public for emerging technologies

Adoption and understanding of AI are uneven, with low awareness and use among many. Public sentiment is cautious, shaped by uncertainty and limited understanding of the risks. Proactive, accessible AI education and dialogue – grounded in local realities – will be essential to ensure equitable participation and prevent new divides from emerging.

Reassess assumptions about youth digital readiness and prioritise their inclusion

Although vulnerable groups require focused support, young people should not be overlooked due to the mistaken belief that they are naturally digitally skilled. The adoption of digital and AI technologies among the youth is uneven, with many showing low awareness, and concern about risks. In South Africa's context of high youth unemployment, inclusive skills development that builds meaningful, job-relevant capabilities is essential to empower young people economically and socially. Particular focus is required for accelerating targeted digital skills engagement interventions for vulnerable youth from rural and lower socio-economic backgrounds to support their entry into the digital economy.

Recognise older adults as a vulnerable group in digital engagement

Older adults remain largely invisible in South Africa's digital engagement agenda, despite facing substantial barriers. They are concentrated among the least engaged users, with lower digital skills, weaker resilience, and fewer benefits gained from digital technologies

compared to other groups. These challenges are not only technical but also psychological, often reinforcing social isolation and undermining wellbeing. Targeted interventions that address both competence and confidence are needed to ensure older adults are not left behind as services and opportunities continue to move online.

Apply a profile-based lens to understand citizens' digital engagement

The digital engagement (digital divide) discourse is layered and multidimensional. The development of typologies – a well-established social-science method – helps refine concepts, define measurement categories, and reveal underlying dimensions of digital engagement. The DESA study identified four profiles using this approach:

- **Digitally Peripheral:** the disconnected or peripheral participants, representing the largest proportion of participants at 39%.
- **Cautious Connectors:** the emerging but insecure users, representing 9% of participants.
- **Strategic Engagers:** the confident and selective users, representing 19% of participants.
- **Digitally Immersed:** the deeply engaged and immersed users, the second largest proportion, representing 33% of participants.

These profiles not only make visible the diversity of experiences and practices but also provide a practical tool for tailoring interventions to groups' positions along the digital engagement continuum, thereby improving the effectiveness and inclusivity of digital strategies.

Addressing digital inequality and enhancing digital engagement is not achieved by ensuring access alone. It requires a holistic approach combining infrastructure, affordability, skills, safety, confidence, psychosocial support and relevant opportunities – ensuring all South Africans are empowered to fully participate in the digital society. This involves enabling individuals and communities to build their social, economic, and cultural capital, including moving beyond passive consumption toward becoming creators and active participants and contributors. Such engagement fosters personal and professional development, helps reduce structural inequalities, and supports meaningful, agency-filled involvement in an increasingly digital world.

The Digital Engagement in South Africa (DESA) survey has demonstrated its value in capturing the multidimensional nature of digital engagement, offering a people-centred perspective on digital (in)equality at the individual level, as well as a means to monitor progress over time. Its design reinforces the importance of considering skills, confidence, resilience, and wellbeing as integral to achieving the vision of 'leaving no one behind'. Expanding the survey to cover the remaining provinces would further strengthen the evidence base, informing strategies that promote equitable opportunities and meaningful engagement across South Africa.

References

[1] Cho, S. H. (2024, July 2). *AI and the expanding 'digital economy' will help bridge global divides. Here's why.* World Economic Forum. https://www.weforum.org/stories/2024/07/ai-expanding-digital-economy-bridging-divides/

[2] Lythreatis, S., Singh, S.K., & El-Kassar, A. (2022). The digital divide: A review and future research agenda. *Technological Forecasting & Social Change* 175, 121359. https://doi.org/10.1016/j.techfore.2021.121359

[3] Hendawy, M. (2024, Jun 14). The intensified digital divide: Comprehending GenAI. *Internet Policy Review*. https://policyreview.info/articles/news/intensified-digital-divide-comprehending-genai/1772

[4] Lythreatis *et al*. (2022). The digital divide.

[5] Lythreatis *et al*. (2022). The digital divide.

[6] Van Deursen, A. J. A. M., & Van Dijk, J. A. G. M. (2019). The first-level digital divide shifts from inequalities in physical access to inequalities in material access. *New Media & Society,* 21(2), 354–375. https://doi.org/10.1177/1461444818797082

[7] Radovanović, D., Holst, C., Banerjee Belur, S., Srivastava, R., Houngbonon, G. V., Le Quentrec, E., Miliza, J., Winkler, A. S., & Noll, J. (2020). Digital literacy key performance indicators for sustainable development. *Social Inclusion,* 8(2), 151–167. https://doi.org/10.17645/si.v8i2.2587

[8] OECD. (2019). *How's life in the digital age? Opportunities and risks of the digital transformation for people's well-being.* OECD Publishing. https://doi.org/10.1787/9789264311800-en

[9] Njenga, J. K. (2018). Digital literacy: The quest of an inclusive definition. *Reading & Writing* 9(1), a183. https://doi.org/10.4102/rw.v9i1.183

[10] Van Dijk, J., & Hacker, K. (2003). The digital divide as a complex and dynamic phenomenon. *The Information Society* 19(4), 315–326. https://doi.org/10.1080/01972240309487

[11] Helsper, E. J. (2021). *The digital disconnect: The social causes and consequences of digital inequalities.* SAGE. https://doi.org/10.4135/9781526492982

[12] Ragnedda, M. (2017). *The third digital divide: A Weberian approach to digital inequalities.* Routledge.

[13] OECD. (2019). How's life in the digital age?

[14] Lythreatis *et al*. (2022). The digital divide.

[15] Helsper, E. J. (2012). A corresponding fields model for the links between social and digital exclusion. *Communication Theory,* 22(4), 513–533. http://dx.doi.org/10.1111/j.1468-2885.2012.01416.x

[16] Büchi, M. (2021). Digital wellbeing theory and research. *New Media & Society,* 26(1), 172–189. https://doi.org/10.1177/14614448211056851

[17] United Nations. (2023). *The sustainable development goals report.* Special edition. *Towards a rescue plan for people and planet.* United Nations. https://unstats.un.org/sdgs/report/2023/The-Sustainable-Development-Goals-Report-2023.pdf

[18] De Marez, L., Georges, A., Sevenhant, R. & Devos, E. (2025). Imec.digimeter.2024. Digitale trends in Vlaanderen. Imec. https://www.imec.be/nl/vlaamse-innovatiemotor/kennisuitwisseling/techmeters/digimeter

[19] United Nations. (2023). *The sustainable development goals report.* Special edition.

[20] Anrijs, S., Ponnet, K., & De Marez, L. (2020). Development and psychometric properties of the Digital Difficulties Scale (DDS): An instrument to measure who is disadvantaged to fulfill basic needs by experiencing difficulties in using a smartphone or computer. PLoS ONE, 15(5), e0233891. https://doi.org/10.1371/journal.pone.0233891

[21] McParland, D., & Gormley, I. C. (2016). Model-based clustering for mixed data: clustMD. *Advances in Data Analysis and Classification,* 10(2), 155–169. https://doi.org/10.1007/s11634-016-0238-x

[22] Helsper. (2021). *The digital disconnect.*

[23] Partridge, A., Makumbirofa, S., Moyo, M., Omar, N., & Ahmed, A. (2024). *Digital Africa post the pandemic: South Africa report (After Access 2022–2023).* Research ICT Africa.

[24] StatsSA (2025). *General household survey 2024.* Statistics South Africa.

[25] Gillwald, A., Mothobi, O., & Rademan, B. (2018). *The State of ICT in South Africa.* Policy Paper No. 5; Series 5: After Access – Assessing Digital Inequality in Africa. Research ICT Africa.

[26] International Telecommunication Union. (n.d.). *South Africa digital development data* [Dataset]. ITU DataHub. https://datahub.itu.int/data/?e=ZAF&c=701

[27] StatsSA (2025). *General household survey 2024.*

[28] Department of Communication and Digital Technologies. (2020, September 23). *National digital and future skills strategy. Government Gazette* (No. 43730, Notice 513). https://www.gov.za/sites/default/files/gcis_document/202009/43730gen513.pdf

[29] Department of Higher Education and Training. (2022). *Skills strategy: Support for the South African economic reconstruction and recovery plan.* https://www.dhet.gov.za/Planning%20Monitoring%20and%20Evaluation%20Coordination/Skills%20Strategy%20-%20Support%20for%20the%20South%20African%20Economic%20Reconstruction%20and%20Recovery%20Plan%20-%202022.pdf

[30] Craffert, L., Archer, E., Blignaut, R., Breytenbach, J., Brydon, H., Grové, W., Joubert, J., Katunga, N., Keating, C., & Oriakhogba, D. (2025). *GIZ FAIR Forward: Artificial intelligence maturity assessment framework for South Africa.* Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

[31] Dutta, S., & Lanvin, B. (Eds.). (2024). *Network Readiness Index 2024: Building a digital tomorrow – Public-private partnerships for digital readiness.* Portulans Institute. https://networkreadinessindex.org/

[32] Partridge, A., Makumbirofa, S., Moyo, M., Omar, N., & Ahmed, A. (2024). After Access 2022–2023: Digital South Africa post the pandemic

[33] Craffert, L., Claassen, W. T., Rammitlwa, T., Katunga, N., Keating, C., Grove, W., Gajjar, N., & Ntaba, A. (2023). *Digital skills framework one – DSFOne: Concepts and building blocks of the unified digital skills framework.* University of the Western Cape.

[34] World Bank. (2020). *Digital skills: Frameworks and programs.* World Bank. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/490174581433561370/digital-skills-frameworks-and-programs

[35] Helsper. (2021). *The digital disconnect.*

[36] Katunga, N., Keating, C., Craffert, L., & Van Audenhove, L. (2023). Digital inclusion interventions for digital skills education: Evaluating the outcomes in semi-urban communities in South Africa. In D. Radovanović (Ed.), *Digital literacy and inclusion: Stories, platforms, communities* (pp. 177–193). Springer. https://doi.org/10.1007/978-3-031-30808-6_12

[37] Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin,* 125(2), 276–302. https://doi.org/10.1037/0033-2909.125.2.276

[38] Dietrich, J. J., Otwombe, K., Pakhomova, T. E., Horvath, K. J., Hornschuh, S., Hlongwane, K., Closson, K., Mulaudzi, M., Smith, P., Beksinska, M., Gray, G. E., Brockman, M., Smit, J., & Kaida, A. (2021). High cellphone use associated with greater risk of depression among young women aged 15–24 years in Soweto and Durban, South Africa. *Global Health Action,* 14(1), 1936792. https://doi.org/10.1080/16549716.2021.1936792

[39] Chetty-Mhlanga, S., Fuhrimann, S., Eeftens, M., Basera, W., Hartinger, S., Dalvie, M. A., & Röösli, M. (2020). Different aspects of electronic media use, symptoms and neurocognitive outcomes of children and adolescents in the rural Western Cape region of South Africa. *Environmental Research,* 184, 109315. https://doi.org/10.1016/j.envres.2020.109315

[40] Büchi, M. (2021). Digital wellbeing theory and research. *New Media & Society,* 26(1), 172–189. https://doi.org/10.1177/14614448211056851

[41] Zelenev, S. (2023). Promoting digital inclusion: Intergenerational aspects. In A. L. Peláez, S. M. Suh, & S. Zelenev (Eds.), *Digital transformation and social wellbeing: Promoting an inclusive society* (pp. 3-22). Routledge.

[42] Büchi. (2021). Digital wellbeing theory and research.

[43] Vanden Abeele, M. M. P. (2021). Digital wellbeing as a dynamic construct. *Communication Theory,* 31(4), 932–955. https://doi.org/10.1093/ct/qtaa024

[44] Vanden Abeele. (2021). Digital wellbeing as a dynamic construct.

[45] Pretorius, T. B., & Padmanabhanunni, A. (2022). Validation of the Connor-Davidson Resilience Scale-10 in South Africa: Item response theory and classical test theory. *Psychology Research and Behavior Management,* 15, 1235–1245. https://doi.org/10.2147/PRBM.S365112 PMID: 35603351; PMCID: PMC9122044.

[46] Sun, H., Yuan, C., Qian, Q., He, S., & Luo, Q. (2022). Digital resilience among individuals in school education settings: A concept analysis based on a scoping review. *Frontiers in Psychiatry,* 13, 858515.

[47] Casalino, N., Żuchowski, I., Labrinos, N., Munoz Nieto, Á. L., & Martín, J. A. (2019). Digital strategies and organizational performances of SMEs in the age of coronavirus: Balancing digital transformation with an effective business resilience. *Law and Economics Yearly Review,* 8, 347–380.

[48] Qamaria, R. S., Kuswandi, D., Setiyowati, N., & Bahodirovna, A. M. (2025). Digital resilience in adolescence: A systematic review of models, methods and theoretical perspectives. *Multidisciplinary Reviews,* 8(9), 2025287. https://doi.org/10.31893/multirev.2025287

[49] Lee, A. Y., & Hancock, J. T. (2023). Developing digital resilience: An educational intervention improves elementary students' response to digital challenges. *Computers & Education: Artificial Intelligence,* 4, 100144. https://doi.org/10.1016/j.caeo.2023.100144

[50] Initiative D21. (2023). *D21-Digital-Index 2022/23: Jährliches Lagebild zur Digitalen Gesellschaft.* https://initiatived21.de/uploads/03_Studien-Publikationen/D21-Digital-Index/2022-23/d21digitalindex_2022-2023.pdf

[51] Padmanabhanunni, A., & Pretorius, T. B. (2022). Promoting well-being in the face of a pandemic: The role of sense of coherence and ego-resilience in the relationship between psychological distress and life satisfaction. *South African Journal of Psychology,* 53(1), 124–133. https://doi.org/10.1177/00812463221113671

[52] Initiative D21. (2025). *D21-Digital-Index 2024/2025: Jährliches Lagebild zur Digitalen Gesellschaft.* https://initiatived21.de/publikationen/d21-digital-index/2024-25

[53] Asmar, A., Van Audenhove, L., & Mariën, I. (2020). Social support for digital inclusion: Towards a typology of social support patterns. *Social Inclusion,* 8(2), 138–150. https://doi.org/10.17645/si.v8i2.2627

[54] Keating, C., Van Audenhove, L., & Craffert, L. (2022). Social support for digital inclusion of women in South African townships. *Telematics and Informatics,* 75, 101893. https://doi.org/10.1016/j.tele.2022.101893

[55] OECD. (2019). How's life in the digital age?

[56] Lythreatis *et al*. (2022). The digital divide.

[57] Helsper (2012). A corresponding fields model.

[58] Ipsos. (2024, June). *AI Monitor 2024: A 32-country Ipsos Global Advisor survey.* Ipsos. https://www.ipsos.com/sites/default/files/ct/news/documents/2024-06/Ipsos-AI-Monitor-2024-final-APAC.pdf

[59] Craffert *et al*. (2025). GIZ FAIR Forward.

[60] Collier, D., LaPorte, J., & Seawright, J. (2012). Putting typologies to work: Concept formation, measurement, and analytic rigor. *Political Research Quarterly,* 65(1), 217–232. https://doi.org/10.1177/1065912912437162

[61] Asmar, A., Mariën, I., & Van Audenhove, L. (2022). No one-size-fits-all! Eight profiles of digital inequalities for customized inclusion strategies. *New Media & Society,* 24(2), 279–310. https://doi.org/10.1177/14614448211063182

[62] Ramasundaram, A., Pandey, N., Shukla, Y., Alavi, S., & Wirtz, J. (2023). Fluidity and the customer experience in digital platform ecosystems. *International Journal of Information Management,* 69, 102599. https://doi.org/10.1016/j.ijinfomgt.2022.102599

[63] International Telecommunication Union. (2024). *Facts and figures 2024.* https://www.itu.int/itu-d/reports/statistics/2024/11/10/ff24-foreword/

[64] Burtscher, M., Piano, S., & Welby, B. (2024). *Developing skills for digital government: A review of good practices across OECD governments* (OECD Social, Employment and Migration Working Papers No. 303). OECD Publishing. https://doi.org/10.1787/f4dab2e9-en

CoLab for e-Inclusion
and Social Innovation

Goldfields Building
University of the Western Cape
Robert Sobukwe Road, Bellville
Western Cape, South Africa
Tel: +27 21 959 4065
Email: colab@uwc.ac.za
www.wcapecolab.org

ISBN 978-1-83492-925-5