T20 Policy Brief

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Task Force 05

INCLUSIVE DIGITAL TRANSFORMATION

Toward Universal and Meaningful Connectivity: Strategy to Overcome Affordability Barriers

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Abstract

The challenge of digital affordability persists, with approximately 2.6 billion people, one-third of the global population, still lacking connectivity. While smartphones and broadband access are becoming more affordable in various regions, they remain financially out of reach for vulnerable populations and remote areas. Achieving broadband price target of 2% Gross National Income (GNI) per capita is difficult for Least Developed Countries (LDCs). Even for G20 countries, although all of them can meet mobile broadband prices, there are six countries which fail to meet the same price target for fixed broadband. In a scenario where meaningful connectivity exceeds mere access, harnessing digital technologies becomes crucial for enhancing productivity and driving the digital economy through a shift towards more productive activities. The proposed recommendations and scenario outcomes include establishing the discourse on the internet as a civil right, promoting the refurbished smartphone market, implementing targeted subsidies, and fostering collaborative efforts.

Keywords: Affordability, smartphones, internet, broadband, meaningful connectivity

Diagnosis of the Issue

Fostering equitable digital access and participation requires achieving universal and meaningful connectivity (ITU, 2022). Universal connectivity strives to bridge the digital divide by providing access to all, irrespective of their geographical location or socioeconomic status. Meaningful connectivity ensures high-quality online engagement, including security, enrichment, and productivity. However, affordability remains a significant barrier to this goal (Gillwald, 2017; A4AI, 2020a; ADB, 2022; GSMA, 2023; RIA, 2023). This policy brief addresses the issue of digital affordability and provides tailored recommendations for the G20.

Digital access encompasses digital devices (such as smartphones, tablets, and computers) and internet connections (including mobile broadband and fixed broadband), all crucial for connecting individuals to the online world. Smartphones are ubiquitous tools for internet access. Furthermore, effective internet usage will empower productivity, thereby fostering economic growth (Rivlin and Litan, 2001; Hjort and Sacchetto, 2022)

In many regions, smartphones are becoming more affordable, yet for vulnerable populations, they remain financially out of reach. A4AI (2022) highlighted that smartphones account for only 2% of the average monthly income in North America, in regions like Europe, Central Asia, Latin America, the Middle East, and North Africa, this figure ranges from 12-19%. Contrastingly, in East Asia, the Pacific, Sub-Saharan Africa, South Asia, and least developed countries (LDCs), smartphones consume an alarming 39-53% of monthly earnings.

The RIA (2023) report highlights disparities in mobile phone ownership and smartphone adoption across African nations. South Africa leads with 92% mobile phone ownership and 71% smartphone adoption, while Ethiopia and Uganda lag behind at 61%

and 68% ownership, with minimal smartphone penetration at 16%. Ghana reports 90% mobile phone ownership but only 54% smartphone adoption, while Kenya and Nigeria show similar trends, with ownership rates of 87% and 76%, respectively, but lower smartphone adoption at 46% and 28%. Rural areas generally lag behind urban areas in ownership rates.

In Indonesia, APJII (2022) survey highlights two key barriers to digital connectivity: expensive internet data packages and a lack of internet-enabled devices. Despite widespread availability, the affordability issue transforms digital access from a necessity to a luxury for low-income individuals. Indonesia Statistics Agency (2023) reveals a disparity in mobile phone ownership (92% in households, 68% individually) and internet access (87% in households, 66% individually), with urban areas showing higher ownership rates compared to rural areas, indicating a 14% urban-rural gap.

The COVID-19 pandemic emphasised the critical need for digital access and highlighted significant inequalities, particularly affecting marginalised groups like poorer women and rural residents. Despite a surge in remote work, accessibility remained limited in the Global South, with only 10%, 16%, and 22% of employed individuals in India, South Africa, and Sri Lanka able to work from home. Women's experiences differed, often balancing work and care responsibilities. Additionally, countries such as India, Peru, and Sri Lanka faced challenges due to inadequate device availability at home, with 27%, 22%, and 11% of respondents, respectively, needing to share devices among household members (Gillwald, 2023). In Indonesia, the high cost of smartphones and internet data packages creates barriers, limiting participation of women in online marketing (Bachtiar et al., 2022).

ITU (2023b) highlights that many countries have reached broadband affordability targets below 2% of monthly Gross National Income (GNI) per capita, with 114

economies meeting the target for data-only mobile broadband and 71 for fixed broadband in 2023. However, achieving this target remains a challenge for low-income economies, especially LDCs, making it more difficult for them to catch up.

Box 1. Satellite-based connectivity

As there are still 2.6 billion people, or about one-third of global population, remain unconnected (ITU, 2023a), breakthrough and innovation should be pursued to provide solution to connectivity. In this context, low earth orbit satellite broadband offers a viable solution for remote areas where traditional infrastructure such as cables and telecommunication towers are impractical. By leveraging satellite technology, governments can circumvent the burden of costly infrastructure development while providing broadband access to remote and underserved communities. However, cost may remain a significant concern, especially for low-income groups. In Indonesia, Starlink is set to commence operations in mid-2024, with the 40% discounted device priced at US$290 and monthly costs ranging from US$46-US$62 (Starlink, 2024).

While reform efforts have made progress, they have not ensured equitable internet access for all. Digital affordability goes beyond the simple price tags of smartphones and internet data — it is a nuanced concept influenced by users' income levels. Even if costs decrease, affordability may not improve if individuals' purchasing power decreases. To tackle this issue, it is crucial to consider broader economic factors and potential government interventions.

Recommendations

1. **Smartphones affordability.** Rising new smartphone costs drive demand for affordable alternatives, fueling growth in the used smartphone market. Economic factors, such as fluctuating incomes, prompt consumers to opt for second-hand devices, particularly in Indonesia, where rising prices and changing buying behaviours favour online shopping. Moreover, new sellers of second-hand smartphone face no barriers to entry, contributing to a predicted growth rate of 9% in the second-hand smartphone market between 2022 and 2026 (Kenresearch, 2022).

Box 2. Used vs. refurbished smartphone

Refurbished and used smartphones differ (Phoenixcellular, 2021). The used smartphone market is informal, with small businesses or individuals as retailers, and there is no guarantee if the phone has issues. In contrast, the refurbished market is formal and involves manufacturers, retailers, and resellers.

Refurbished smartphones offer a cost-effective solution, typically priced between 20% to 90% lower than new devices (GSMA, 2022). Despite a decline in 2022, the consistent sales of refurbished smartphones, illustrated in Figure 1, highlight enduring popularity, albeit with reduced sales in China. This trend is particularly prominent in the Asia Pacific region, where rising new smartphone costs, expanding telecommunication infrastructure, and rapid digital content growth drive the demand for second-hand devices (CMI, 2022).

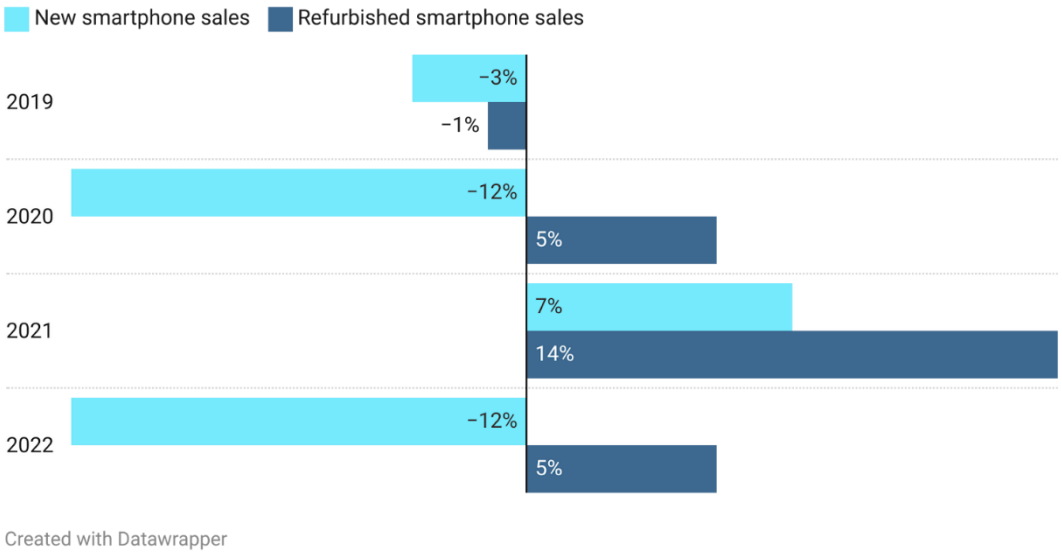

FIGURE 1. Global growth of smartphone sales. Source: Global refurbished smartphone (Counterpoint, 2023)

Online marketplaces (e-commerce) are boosting the growth of the second-hand smartphone market, benefiting buyers and sellers alike. These platforms revolutionise the used smartphone market, offering convenient and secure buying and selling processes. They streamline comparison, payment, financing, delivery, and build trust through user reviews.

However, security risks arise that warrant government attention. Sellers face the risk of hackers accessing their sensitive data, while buyers may encounter malware or malicious apps compromising their personal information. The Indonesia State Cyber and Signal Agency (BSSN) warns against public sales of used digital devices due to security risks (CNBC Indonesia, 2023), urging individuals to exercise caution and employ proper disposal methods to protect personal information.

2. Broadband affordability. The decreasing global price of mobile broadband has facilitated an increase in global internet penetration. ITU (2024) reports that internet data-only price fell over time from 1.9% GNI in 2021 to 1.3% in 2023 while penetration increased steadily, reaching 67% or 5.4 billion people now online, a trend partly accelerated by the COVID-19 pandemic. However, the report also highlights the persistent digital divide between low and high-income countries, urban and rural areas, and male and female populations (Figure 2).

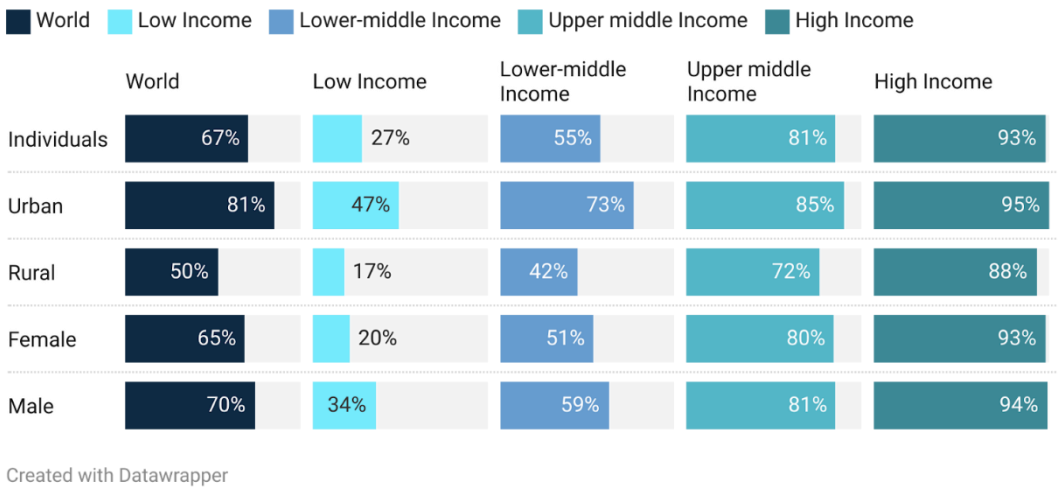

FIGURE 2. Disparity of global internet users in 2023. Source: ITU (2023d)

Income, urban-rural, and gender disparities in internet access persist, particularly with lower broadband prices remaining unaffordable for the poor. While high-income countries experience a narrowing gap, it widens in low-income ones. G20 countries meeting the ITU target should remain vigilant, as the poor, vulnerable women, and rural populations are likely facing internet affordability issues compared to their afluente and urban counterparts.

Unlike mobile broadband, reducing fixed broadband prices is challenging. Figure 3 illustrates the challenge, particularly in six G20 countries (ITU, 2024). These countries represent over 43% of the total G20 population, including Brazil, India, and Indonesia. Assisting these nations in reducing fixed broadband prices would have a meaningful impact.

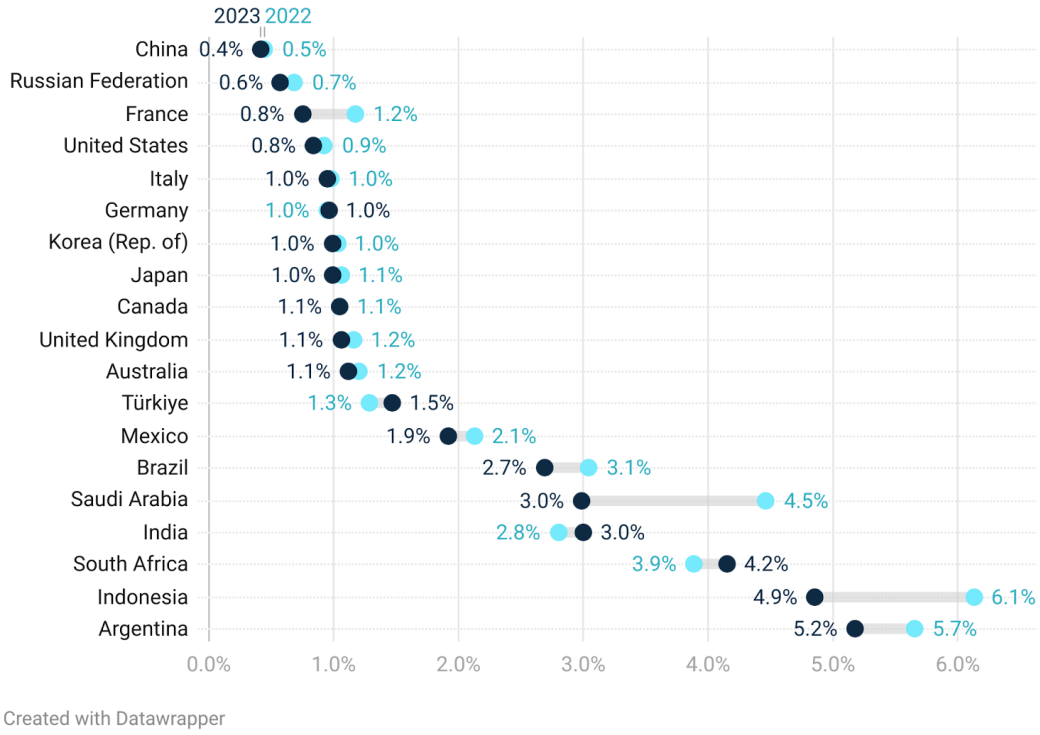

FIGURE 3. Fixed broadband prices in 2022-2023. Source: ITU (2023e)

Moreover, fixed broadband offers greater stability, speed, and data usage, providing a more cost-efficient experience with unlimited data plans compared to mobile broadband (Husna and Budiman, 2023). Thus, it serves as a better indicator of meaningful connectivity (box 3).

Box 3. Measurement of universal and meaningful connectivity

While affordability remains a critical barrier in the digital divide, the ITU's affordability threshold of 2% GNI/capita for 2 GB of mobile broadband and 5 GB of fixed broadband only addresses universal access. To gauge meaningful connectivity, the World Data Lab introduced the Internet Poverty Index in 2021 (Cuaresma et al., 2022). This index considers not only affordability (10% of total personal spending) and data quantity (1 GB per month or approximately 40 minutes/day) but also connection quality (10 Mbps download speed). Previously, A4AI developed a measurement in 2019 to target meaningful connectivity (A4AI, 2020b). This framework raises the bar for internet access, with thresholds including daily internet use, a smartphone as the appropriate device, unlimited connection at home or place of work or study, and fast 4G connection.

However, due to better quality and complex installation, majority of people opt for mobile broadband. In Indonesia, for example, the APJII (2024) survey indicates that approximately 85% of users spent between US$0.7 to US$6.6 per month for mobile broadband in 2023 and 2024 (Figure 4). Meanwhile the lowest monthly subscription cost of fixed broadband is US$15 for 20Mbps (Pricebook, 2024), as depicted in Figure 5.

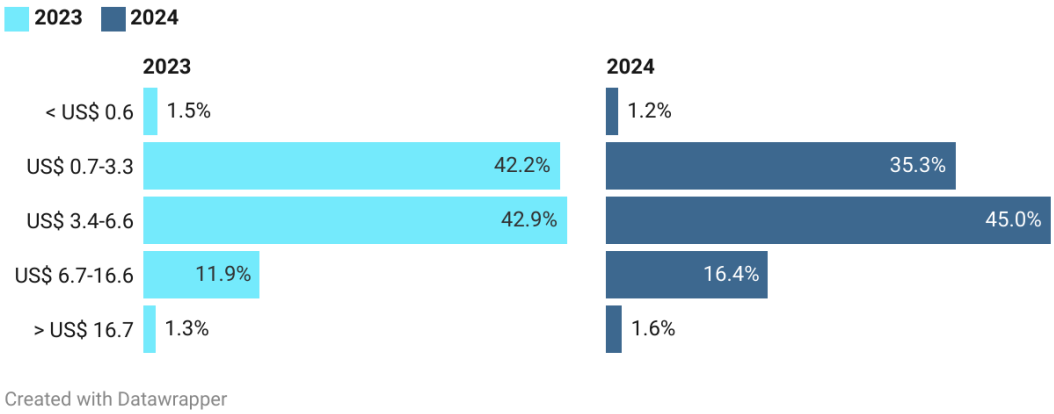

FIGURE 4. Mobile broadband users in 2023-2024

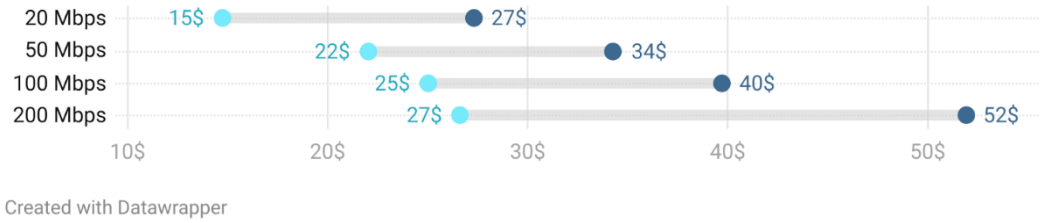

FIGURE 5. Fixed broadband monthly costs in 2024. Source: Pricebook (2023)

Efforts to lower fixed broadband costs should prioritise policies promoting meaningful connectivity. Fixed broadband is often seen as pricier due to extra expenses like modem fees, installation charges, and bundling with cable TV. Emphasising internet-only plans offers a more affordable alternative, catering to those who don't need bundled services.

Scenario of Outcomes

The internet as a civil right discourse

Universal digital connectivity is imperative for societal advancement, reducing inequality, and improving quality of life. Recognising the 'internet as a civil right' underscores the government's responsibility in providing access (Cerf, 2012; Bachtiar et al., 2020). Achieving all 17 SDGs by 2030 hinges on universal connectivity (ITU, 2021).

Structural challenges hinder the realisation of internet access as a civil right in archipelagic countries like Indonesia and the Philippines, particularly in remote island communities with prohibitive costs. A comprehensive approach is needed for internet provision in such areas. Notably, Greece, Estonia, Finland, Spain, Costa Rica, and France have recognised internet access in their constitutions (Psaila, 2022). Meanwhile, the European Union mandates member states to ensure the right to faster internet access.

Second-hand smartphones market

The second-hand smartphones market is widely accessible, and the proposed policy intervention should prioritise promoting refurbished smartphones to address key concerns regarding device security and product quality. Furthermore, Integrating financing options with installment payments would improve affordability by allowing customers to spread out the cost over time. E-commerce platforms should prioritise establishing robust security measures to foster a safer and more secure online shopping environment. This will instil confidence in online transactions and enhance accessibility for consumers.

Targeted subsidies

Targeted subsidies and flexible payment options offer viable solutions to bridging the digital divide and facilitating smartphone access in underserved areas, particularly rural regions (A4AI, 2022). Espín & Rojas (2024) underscores the significant impact of subsidies in narrowing the gap in broadband access compared to infrastructure deployment policies. Income-varying subsidies, in particular, show promise in reducing disparities across income levels. Abdo et al. (2022) proposed government schemes to lower internet data costs through free data and tariff plans. For instance, during COVID-19, the Indonesian government provided free internet quotas and waived access fees/internet plans for educational platforms. The Indonesian House of Representatives has also proposed subsidies to aid parents of underprivileged students in purchasing smartphones (Kompas 2020).

Implement targeted subsidies to assist low-income groups in purchasing smartphones and accessing broadband internet. By reallocating subsidies from existing programs to this more productive approach, governments could introduce initiatives that have a greater impact on socioeconomic development and equitable access to technology. Nonetheless, subsidy programs may strain government budgets and primarily benefit certain groups. Clear eligibility criteria, ongoing funding, beneficiaries database, and social protection system are essential to ensure fair and effective subsidy programs in the long run.

Affordable broadband

Improving internet speed and reliability is vital for enhancing user experience and effectively utilising digital technologies. However, the limited user base and higher prices of fixed broadband compared to mobile broadband pose challenges in achieving the 2%

GNI/capita broadband target. Balancing high-quality internet services with affordability remains difficult, as faster speeds often come at a higher cost. Although innovations like Starlink satellite broadband promise improved connectivity, affordability, especially for low-income demographics, remains a significant concern. To address these challenges, collaborative efforts are crucial. Encouraging infrastructure/network sharing, fostering Public-Private Partnerships (PPPs), and promoting competition among providers can reduce costs, expand coverage, and improve broadband affordability.

Meaningful connectivity

In a scenario of meaningful connectivity, surpassing mere access, individuals and communities leverage digital technologies to enhance productivity and drive economic development in the digital economy. In the case of four G20 countries, the majority of internet users in 2023 engage in non-productive activities (Figure 6). Fostering meaningful connectivity is expected to shift this trend towards more productive activities.

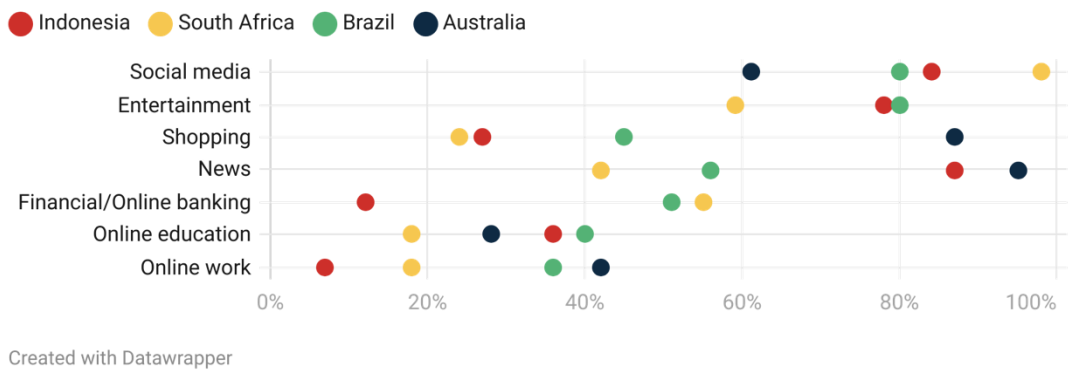

FIGURE 6. The purpose of accessing the internet. Source: Indonesia Statistics Agency, 2023; RIA, 2023; CETIC, 2023; ACMA, 2023.

Note: Entertainment and Financial/online banking variables are not available for Australia

Collaboration among government agencies, private sector companies (telecommunications, technology, and digital industries), non-governmental organisations (NGOs), academic institutions, and research organisations is crucial for developing and implementing effective, inclusive, and sustainable digital literacy and skills development programs. By pooling resources, expertise, and networks, multisectoral collaboration ensures that these initiatives are tailored to the needs of different populations and can thrive in the long term.

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