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SERIES ON DIGITAL RIGHTS AND INTERNET FREEDOM

Topic 4: Access and Connectivity

Greater Internet Freedom

Centre for Intellectual Property and Information Technology Law (CIPIT)
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Access and Connectivity

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About CIPIT	About GIF
The Centre for Intellectual Property and Information Technology Law (CIPIT) is an evidence-based research and training Centre based at Strathmore University, Nairobi, Kenya. CIPIT was established in 2012 and focuses on studying, creating, and sharing knowledge on the development of intellectual property and information technology utilizing diverse methodological approaches to inform debates on ICT applications and regulation.	**The Greater Internet Freedom Project (GIF) is a three-year, consortium-based, global program implemented by Internews and the GIF consortium across 39 countries. GIF places regional and local organizations at the forefront of the fight to preserve an open, reliable, secure, and interoperable Internet – and, by extension, protects the citizens, civic actors, journalists, and human rights defenders who rely on it to realize fundamental freedoms.**

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Introduction

The CIPIT and the GIF have developed exploratory material relevant to pertinent digital rights and internet freedom topics. The 'Access and Connectivity' topic explores existing and emerging issues impacting access and connectivity in GIF regions.

The Internet has become an integral part of our daily lives, putting us in the reach of endless information and enabling global communication. However, this is yet to be a reality for some groups and communities globally as not all have equal and universal access and connectivity to the Internet. This has far-reaching implications for the unfettered exercise and promotion of digital rights and internet freedom globally. Access refers to what is needed to allow verified entry to a network while connectivity refers to post-access controls that allow you to remain within the network.[1]

Globally, the access and connectivity discussion will be tempered by varied factors, including infrastructural developments, socio-economic development, amongst others. **According to the International Telecommunication Union (ITU), an agency of the United Nations, half of the world's population still lacks internet access, with the majority of those individuals living in developing countries.[2] Furthermore, the access and connectivity discussion goes beyond physical infrastructure, extending to include the state of enabling factors or lack thereof, such as affordability of the internet and the state of digital literacy.**

It is expected that where access and connectivity to the internet is limited, digital rights and internet freedom will invariably be restricted or compromised. To this end, addressing access and connectivity gaps requires a nuanced, multifaceted

approach involving multi-stakeholders to ensure that all people have universal access and connectivity to the internet and its benefits.

This paper shall explore access and connectivity in GIF regions exploring their impact on marginalized communities and groups such as people with disabilities, those discriminated by race, those in impoverished regions, the elderly, and women.

- **Part 1** shall provide a definition and explanation of the contextual use and limits of the use of common terms that will be used in the course of this paper.
- **Part 2** shall tackle the topic of access. This briefly explores affordability and connectivity, digital redlining/discrimination, spectrum and protocol management, taxation and social media tax, and universal service funds.
- **Part 3** shall tackle the topic of connectivity. This briefly explores mobile and digital connectivity, cloud connectivity, and public access points.

Digital rights refer to the rights that individuals have in the digital realm, including the right to privacy, freedom of expression, and access to information.[3] Internet freedom, on the other hand, refers to the "exercise of internationally recognized human rights online… including the freedom to seek or impart information and ideas of all kinds regardless of frontiers through any medium."[4]

Part I: Explainers

Term	Explainer
Affordable Internet Access	This refers to the "ability to connect to and use the internet."[5] The Alliance for Affordable Internet advances the "1 for 2" metric to measure affordable internet, i.e., "w**here** 1GB of mobile broadband data is priced at 2% or less of average monthly income."[6]
Connectivity	This refers to the "use of the Internet by individuals."[7]
Meaningful Internet Access	This refers to "affordable access to an internet connection of sufficient quality to be meaningful and they are able to use that connection in a supportive social environment that allows them to apply their full agency in how the internet affects their life."[8]
Digital Redlining	This refers to "discrimination by internet service providers in the deployment, maintenance, or upgrade of infrastructure or delivery of services. The denial of services has disparate impacts on people in certain areas of cities or regions, most frequently on the basis of income, race, and ethnicity."[9]
Internet Service Provider (ISP)	This refers to "a company that provides individuals and organizations access to the internet and other related services."[10]

Part II: Access

Affordability and Connectivity

According to Eleanor Sarpong, former Deputy Director for Alliance for Affordable Internet (A4AI), '*achieving universal access to the Internet is a global goal. However, digital divides based on discriminative factors such as gender and levels of income remain a big hurdle (**see Topic 5 on the Digital Divides**). A number of developing countries have found creative solutions to lower costs and improve the quality of broadband connectivity including asset financing models such as installment plans and subsidies*.'[11]

One of the basic foundations of meaningful connectivity consists of providing individuals with inexpensive access to the correct equipment. However, this remains one of the most troubling obstacles to those who are otherwise keen to connect to the Internet or make use of digital resources. Nearly 2.5 billion people live in countries where the most cost-effective smartphone costs over a quarter of their monthly average wage.[12]

According to a study of smartphone costs undertaken in over 180 countries, LDCs have the most expensive smartphones, costing 53% of the average monthly income. Similarly, gadgets account for 45% of monthly revenue in Sub-Saharan Africa and 40% in South Asia. In Europe, Central Asia, East Asia, the Pacific, the Middle East, and North Africa, they constitute just 23 - 24%. Devices account for around 10% of Latin American and Caribbean monthly revenue. North America is the most outstanding, with gadgets accounting for only 2% of monthly revenue.[13]

The Affordability rankings and the Affordability Drivers Index (ADI) are the two methods used to track countries' progress in providing cheap broadband.[14] Changes in infrastructure and access, as well as changes in the regulatory

environment that allows them, are essential factors for increasing a country's ADI score. A high ADI score equates to lower broadband bills for users.

In 2020, 57 of the 100 nations whose prices were assessed failed to satisfy the "1 for 2" affordability benchmark; that is, 1 gigabit (GB) of mobile broadband data accessible at a cost equivalent to or less than 2% of per capita Gross National Income.[15] Thus, over 1 billion people reside in nations where 1 GB of data is simply prohibitive, at the cost level.

While progress toward universal affordability has been made, it has been slow. For instance, in 52 of the 52 middle-income and low-income nations studied by A4AI each year, 1 GB of mobile data has grown more inexpensive, with costs declining from 7% to 2.7% of gross national income per capita between 2015 and 2020.[16] From 2018 to 2020, the least developed nations had a 15% increase in affordability, with expenses reaching 7.2% of gross national income per capita in 2020. However, massive gaps between countries persist. As of 2020, the Central African Republic was the most expensive country for mobile broadband, with 1 GB of data costing 24.4% of gross national income per capita.[17]

Digital Redlining/Discrimination

As more and more of our lives are conducted online, digital redlining has become an increasingly evident form of discrimination impacting universal access drives. This term refers to a practice in which broadband providers, such as ISPs, create geographical lines through their deployment of infrastructure or services ***that limits access to services based on location***, with the ultimate goal of preventing digital inclusion for all. For example, because ISPs are geared by profit-driven goals, digital redlining manifests through ‘under-investments in areas populated by low-income earners or slower internet speed plans in these areas, with higher charges.’[18]

Important Note

The National Digital Inclusion Alliance (NDIA), an alliance that advances digital equity, notes that this "*denial of services has disparate impacts on people in certain areas of cities or regions, most frequently on the basis of* ***income, race, and ethnicity."***

Source: NDIA.

Digital redlining has a direct negative impact on those who live in affected locations, as access to the internet is vital for accessing educational and employment opportunities, connecting with friends and family, and keeping up with current political and social events. It also creates an unfair advantage for those living in more affluent or well-connected neighborhoods.

Further, digital redlining is often difficult to track and monitor, relying on the entrenched geographic discrimination that has been used for decades in jurisdictions such as the United States of America to discriminate against certain racial or economic groups in housing and other areas of life. ***This means that those most likely to be affected by digital redlining may not even realize they are experiencing this form of discrimination.***

Notably, the issue of digital redlining and discrimination, outside of the US, is explored under the broader 'geographical digital divide' topic, rather than explored as 'digital redlining' explicitly.[19] This prevents stakeholders in the digital rights and Internet freedoms (IF) community from holding broadband providers accountable for their discriminatory practices impacting low-income communities or other marginalized groups.

Positively, the broader analytical umbrella has given rise to policies and legislation across GIF countries examining alternative forms of connectivity in rural and underserved areas (*see A4AI resources below*). Further, this has also given impetus to rural connectivity programs and initiatives such as the Universal Service (Access) Funds (*see below*), community networks, or local broadband projects to bridge the

geographical digital divide (*see Topic 5 on Digital Divides*).

Resource: A4AI's Rural Broadband Policy Framework

The A4AI's Rural Broadband Policy Framework provides six criteria for examining whether rural broadband policies are satisfactory for addressing digital redlining or the geographical digital divide. These include

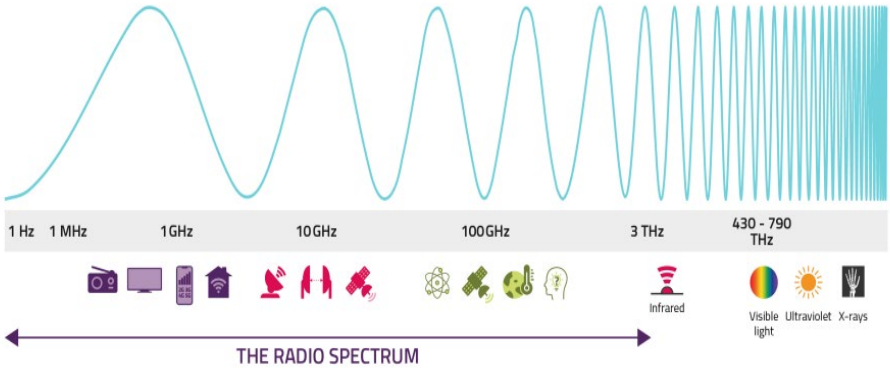
1. *Broadband policies should improve the availability of high-quality, affordable broadband services in underserved rural areas.*
2. *Rural broadband policies should draw from real-world experience—locally, regionally, and globally.*
3. *Rural broadband policies should harness the resources and capabilities of the private sector and complementary providers, such as community networks.*
4. *Rural broadband policies should be comprehensive.*
5. *Rural broadband policies (and all broadband policies) must be gender responsive.*
6. *Effective implementation will require evidence and standards.*

Source: A4AI.

Spectrum Management

Radio spectrum, 'the invisible waves that enable wireless technology, is critical for the delivery of a wide range of wireless applications benefiting different users.'[20] Some critical wireless services that rely on radio spectrum include TV, mobile phones, Wi-Fi, GPS, amongst others, revealing the impact that radio spectrum has on global economies and digital transformation drives.[21]

Figure 1: ***The electromagnetic spectrum. Source: OfCom***



The effective management of radio spectrum across GIF regions is critical for universal access drives noting that wireless communication is dependent on this finite resource. Spectrum management refers to the process of regulating the use of radio frequencies to promote efficient use and gain a net social benefit. At the international level, spectrum management is 'overseen by the International Telecommunications Union (ITU), which enables governments worldwide to discuss and agree on frequency band allocation. Based on this, national regulators are then able to license frequency bands to approved service providers at the national level.'[22] Across GIF regions, there is limited transparency in the allocation of spectrum, with a negative impact on ICT competition.[23]

Resource: GSMA's Introducing Spectrum Management

The GSMA's primer series on spectrum management provides a non-technical introduction to mobile spectrum.

Source: GSMA.

Digital Taxation

One of the core challenges impacting universal internet access drives and global digitization efforts is digital taxation. The term is conceptualized differently across GIF regions given contextual differences, but at its core, this refers to "*policies that specifically target businesses which provide products or services through digital means using a special tax rate or tax base*."[24]

Governments worldwide are grappling with balancing the benefits and opportunities of the digital economy vis-à-vis generating revenue from businesses operating online, often without physical presence, such as social media platforms or cloud services, amongst others.

Resource: OECD/G20 Base Erosion and Profit Shifting Project Statement on a Two-Pillar Solution to Address the Tax Challenges Arising from the Digitalisation of the Economy

To address the taxation challenge of the digital economy, 136 countries agreed on an OECD inclusive framework addressing nexus and profit allocation (Pillar One) and global minimum tax rules (Pillar Two). Despite this, achieving global consensus has been a challenge, resulting in sovereign states enacting unilateral taxation measures.

Source: OECD.

Notably, digital taxation manifests in varying formats, with the most commonly adopted categories including (a) Digital Service Taxes (*gross revenue taxation*), consumption taxes (*Value-added Taxe*s), and social media taxes. DSTs are largely targeted towards U.S. multinational companies[25] and have been levied in countries such as Kenya, Austria and Poland in varying forms in a bid to expand tax bases and derive tax income accrued through digital activities.[26] On the other hand, consumption taxes are levied on the sale of final digital goods or services.[27] Further, social media taxes are additional taxes levied on social media users, and have been aggressively levied in the GIF Africa region.[28] Notwithstanding these global drives to expand taxation bases, digital taxation has a direct negative impact on universal access drives, giving rise to inequalities and a reduction in internet access for individuals from low-income households.[29]

Important Note

"Currently, only around ten African countries have proposed some form of tax regime for digital goods and services – including Angola, South Africa, Cameroon, Nigeria, Algeria, Senegal and Kenya. However, many of the tax frameworks are still basic and do not take into consideration the full spectrum of the digital economy (Musgrove, 2020). In addition, several African countries (including Uganda, Mozambique, Tanzania, Zambia and Benin) are already imposing unilateral tax measures on some digital economy transactions, especially on foreign service providers. These taxes generally comprise excise duties on digital transactions, value-added taxes (VAT), social media taxes, and online content licence fees, with Over-The-Top (OTT) service fees and profit-targeting equalisation levies."

Source: Research ICT Africa.

Universal Service Funds

Universal Service Funds (USF) or Universal Service Access Funds (USAF) are regulatory structures geared at increasing accessible and affordable universal service or access to telecommunications services for all people of a nation, regardless of geographic or socioeconomic position.[30]

Important Note

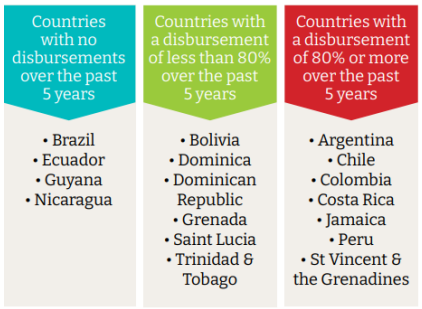
USF/USAF's are communal funds that are "typically financed through mandatory contributions by mobile network operators and other telecommunications providers."

Source: World Wide Web Foundation, A4AI, UN Women.

Universal service is a critical obligation for both telecoms regulators and governments, but despite the existence of USF/USAF, coverage gaps continue to persist across nations. Illustratively, "*nearly 28 per cent of low-and middle-income countries either have no universal access and services fund (UASF) or do not have a UASF that is active. The remaining countries have no mechanism in place or use other mechanisms to promote UA objectives, including licence conditions, subsidies, and public-private partnerships (PPPs).*"[31]

In the GIF Africa region, Ghana, Nigeria and Kenya have made significant strides to connect underserved areas to telecommunications networks through their USF/USAFs. In the LAC region, as evidenced by Figure 2 below, A4AI found a disbursement rate of 80% of more in many LAC countries, revealing that committed funds are being used to implement projects. Despite this high rate, the report also found that some LAC countries are reallocating USF/USAF funds to non-related universal service or access projects.

Figure 2: ***Highest disbursement rates reached in a single year between 2016 and 2020 in selected LAC countries. Source: A4AI***



Part III: Connectivity

Mobile and Digital Connectivity

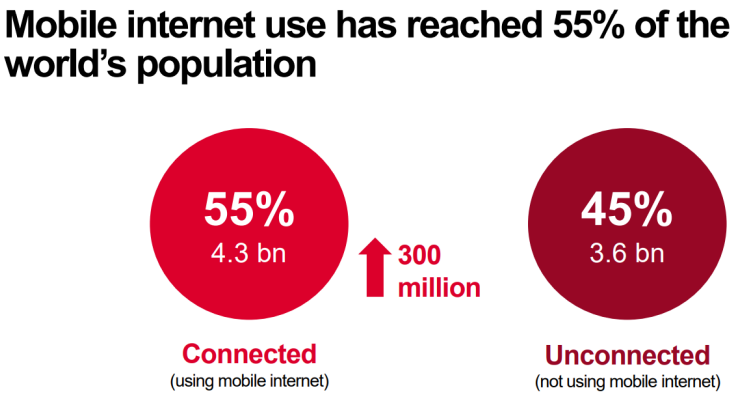
Resource: GSMA Presentation on The Usage Gap and Demand Side Barriers to Internet Adoption

This presentation summarises 'The State of Mobile Connectivity 2022' report. It offers useful, condensed information and graphics that can be used by the digital rights and IF community to magnify the usage gap and key barriers to mobile internet adoption in GIF regions.

Source: GSMA.

Mobile connectivity is defined as the provision of Internet access via mobile devices, such as smartphones and tablets, using wireless networks. This encompasses various forms of technology, including 3G, 4G, and emerging 5G networks which all smartphone are capacble of supporting. Mobile connectivity enables real-time data transmission, allowing users to access and share information anytime, anywhere.[32]

Figure 3: ***Mobile internet use has reached 55% of the world's population. Source: GSMA***



Mobile internet use is increasingly rising, with low- and middle-income nations driving the majority of the growth. Critically, mobile connectivity is an integral part of how we live out our lives in the digital age, enabling individuals to connect with

family and friends, shop online, access information on the go, and even pay bills while on the move, in real-time. As illustrated by Figure 3 above, 4.3 billion people around the globe have mobile connectivity with 'half of all people living in low and middle-income countries using mobile internet.'[33] Despite this, the connectivity gap remains large with 3.6 billion people still lacking mobile connectivity.

On the other hand, digital connectivity is broader that mobile connectivity, and is defined as "*the ability of individuals and communities to access and use information and communication technologies (ICTs)*".[34] This encompasses a variety of digital services, including internet access, mobile networks, and broadband services. Digital connectivity is a key enabler of socioeconomic development, fostering inclusive growth and driving progress across all the United Nations Sustainable Development Goals (SDGs).

Important Note

"…digital connectivity alone cannot solve any of the global challenges the world is facing. It is only one of many enablers of sustainable development. "Analogue complements", including governance, security, health, education, transport infrastructure, and entrepreneurship are needed."

Source: ITU.

As noted by the ITU's note above, digital connectivity relies on critical enablers and complements to achieve universal digital connectivity. In addition to these analogue complements, it is imperative that digital complements such as digital literacy and skills are promoted, particularly for young and elderly people, to ensure their actual use of ICTs in the digital age. Generation Unlimited, a leading global Public-Private-Youth Partnership, promotes digital connectivity through schools, spurred by the reality that "29 per cent of young people aged 15 to 24 worldwide – around 346 million – are not online," with girls in LMICs being disproportionately disadvantaged.[35]

Cloud Connectivity

Cloud connectivity technologies are transforming the way individuals interact with each other, access information, and utilize resources, with the COVID-19 pandemic spurring a transition away from legacy infrastructure.[36] Cloud computing is categorized as middle-mile infrastructure that is required for connectivity, ranking alongside data centers and Internet exchange points (IXPs).[37]

By harnessing the power of cloud computing, users can reach computing resources and products via the internet. These encompass development tools, corporate applications, computer utilities, data storage, and networking resolutions. Oracle notes that 'cloud computing services are housed within a software provider's data center and are overseen by either the cloud service provider or, in some cases, at the client's own data facility.'[38]

Important Note

"Cloud computing offers computing power, on-demand infrastructure, competitive cost, maintenance, and advanced big data technologies. While it is attractive to store data on the cloud, cost, latency, and national security remain important considerations for countries."

Source: ITU.

The expansion of cloud connectivity has both significant benefits and challenges for digital rights and internet freedoms. On one hand, it amplifies the ability of users to exercise their right to information and freedom of expression. The cloud acts as a global platform where ideas can be shared, discussed and scrutinized without fear of censorship or government intervention. This encourages informed public discourse, which is a cornerstone of any democratic society.

However, the challenges are substantial. The digital divide threatens to leave behind those who lack access to reliable internet and cloud technologies. Ensuring equal access to the benefits of cloud connectivity is a responsibility that falls on

both governments and tech companies. Further with the potential for misuse emerging as a pressing issue, concerns around cybercrimes, identity theft, and data breaches have become more prevalent, underscoring the importance of data privacy, data protection, and security.

Public Access Points

Public access points (PAPs) have become an increasingly important tool for enabling universal connectivity, as more individuals get connected. PAPs are especially important for connecting people who are otherwise disconnected or underserved by traditional networks and infrastructure, serving as entry points into digital ecosystems in GIF regions where broadband penetration is low.

By providing free or low-cost access in public spaces, PAPs provide users with the opportunity to engage in the digital economy, access internet resources, from online education and communication tools to health information and financial services, participate in digital activities and realize the benefits of digital rights. However, this access comes with a number of challenges, ranging from inadequate infrastructure, potential government interference, inadequate security measures, and lack of digital literacy among users, amongst others.

Spotlight on Vietnam's Public Internet Access Points

In Vietnam, Decree 72/2013/ND-CP, provides for PIAPs, which are public places where people can access ICT technologies as well as other ICT oriented services. Under the Decree the Vietnamese government provides ISPs and owners of PIAPs specific rights and duties. Under Clause 6, Article 3 of the Decree, PIAPs include:

- The locations where Internet agents may provide services legally;
- Public Internet access points of enterprises are the locations under the management of affiliated units or representatives of Internet service providers where Internet access services are provided for Internet users.
- Public Internet access points in hotels, restaurants, docks, bus stations, coffee shops, and other public places are locations where organizations and individuals may legally provide Internet access services for Internet users.

Sources: Decree 72/2013/ND-CP; Trần Thanh Rin.

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