Broadband Expansion: Disseminating Policy Lessons on COVID-19

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Abstract

COVID-19 quarantines spurred a digital revolution; by 2021, Internet users grew to 4.9 billion. This growth was marked with inequity. Internet infrastructure is expensive, and access is still out of reach for historically marginalised groups. This brief calls for the UN to establish a policy tracker that assesses COVID-19 broadband expansion policies worldwide. As our world recovers from the coronavirus epidemic, policymakers, world organisations, and private sector companies can use the assessment to guide future broadband policies. By learning from lessons in broadband, world governments can make Internet access more accessible and affordable.

This brief focuses on how the UN-STI Forum can conduct a COVID-19 policy assessment to reduce the digital divide.

In 2019, only 54% of individuals used the Internet[1]. In 2021, that number climbed to 63%[1]. COVID-19 lockdowns accelerated the pace of this digital transformation, compelling governments to roll out new policy frameworks to support broadband infrastructure.

Despite double-digit growth, broadband remains a privilege. In the least developed countries, only one individual out of a hundred had an Internet subscription[2]. In developed countries, 90% of the population was online[2].

Already, disadvantaged and marginalised groups are overrepresented in the offline population: female, rural, poor, disabled, old, indigenous and/or with limited education[3]. In 2020, the percentage of urban households with Internet access (72%) was almost twice as much as in rural areas (38%)[3]. People with disabilities face affordability barriers and limited access to websites and devices[3]. Indigenous peoples face a lack of digital content in their native languages[3].

Digital inequality inhibits economic recovery from COVID-19. Small businesses have low access to digital technologies[3]. Their inability to meet the sudden surge in digital demand prevents regions that depend on these businesses - Latin America, South East Asia, and Africa - from achieving pre-pandemic revenue[3].

At the same time, digital transformation can foster social inclusion. Wealthy and developing governments have used digital means to extend social protection and efficiently disburse financial support[3]. Luxembourg - a wealthy and small country - set up an online platform where senior citizens, the immunocompromised, and those suffering from chronic diseases could schedule home delivery services[3]. Bangladesh - a developing nation that is larger than Luxembourg - designed a mobile-powered cash assistance program for 5 million families impacted by the pandemic[3].

1 Boosting Accessibility

Lockdowns forced many people to work and learn online, causing Internet congestion to become an issue. Quality of service was reduced as networks were forced to carry more data than they were designed for. For the Internet to be accessible, spikes in traffic must be handled efficiently.

World governments, international agencies, and the private sector have sought to boost network efficiency. Ascertaining whether these measures were successful involves surveying Member States on whether such measures were implemented. Internet companies could report on how they upheld the policy measures listed below. To confirm whether these policies are successful, the United Nations could establish a minimum benchmark for broadband speed and require countries to report quarterly numbers of individuals who have broadband access. Correlations between policy and broadband data could be drawn.

In tracking the success of these policies, Sustainable Development Goal (SDG) 17 can be achieved. Building

[1] United Nations Department of Economic and Social Affairs. (2023) *Goals 17: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development.* https://sdgs.un.org/goals/goal17

[2] International Telecommunication Union. (2021). *Measuring digital development: Facts and figures.* ITU.

[3] Deganis, I. Haghian, P. Z., Tagashira M. (2021). *Leveraging digital technologies for social inclusion.* United Nations Department of Economic and Social Affairs.

broadband infrastructure can be a public-private venture. Governments can create the regulatory frameworks for expansion and incentives, while private companies build the network. This brief works to engage government and industry in the conversation about past and future development.

Should the success of these policies be tracked, policymakers looking to build broadband infrastructure in under-resourced areas can be more sure about their decisions. Other countries have tested a variety of broadband expansion measures and reported on the benefits and drawbacks of these measures. Other policymakers can confidently reference and build on past broadband ventures. In disseminating aggregated policy analysis, the outcomes of COVID-19 broadband policy can inform future policies across countries.

1.1 Releasing Additional Spectrum

Governments have released additional spectrum on a temporary basis or approved temporary commercial spectrum transactions between providers that put unused spectrum into service[4]. For example, the United States' Federal Communications Commission (FCC) granted temporary access to spectrum in the 5.9 gigahertz to meet increased rural broadband demand. The African Telecommunications Union (ATU) proposed a similar plan to empower member states. The ATU provided options on how the radio spectrum bandwidth could meet increased demand while also be rolled out to rural areas[5].

1.2 Upgrading Infrastructure

Governments could stimulate broadband providers to deploy fibre networks and gradually phase out Digital Subscriber Line (DSL) technologies. DSL was primarily built for low-speed traffic and - unlike fibre - fails to support high performance online activities. Spain experienced an explosion of fibre networks following the pandemic[6]. As part of public funding from the Digital 2025 Agenda, the Spanish government will receive 4.3 billion euros for expanding fibre-optic infrastructure to underserved areas and extending 5G coverage[7].

1.3 Facilitating Direct Interconnection

Big communication operators often refuse to interconnect domestically with other networks, forcing smaller networks to send domestic traffic over large distances in other countries and back[4]. For example, two large operators forced 64% of Canadian domestic traffic to flow across the border through the United States[4]. These routes resulted in increased costs, network instability, and lower Internet quality[4].

1.4 Private Sector Anticipates Demand

Rapid digital transformation already taking place prior to COVID-19 was accelerated during the pandemic[3]. Innovation already in the works, coupled with the preventive measures companies took, reduced congestion. For example, Irish network operators set up Internet ports that could be brought online remotely[8]. Additionally, they preemptively built out an extra 100G of core network capacity[8].

2 Improving Affordability

Broadband is an expensive commodity and the model for constructing infrastructure profit-driven. Internet companies often build networks in densely-populated, urban areas first, sidelining rural and low-income communities. In making Internet access more affordable, more individuals can connect to the Web.

Legislators and international agencies have worked to make the Internet a more affordable resource during COVID-19. The success of the policies listed below could be corroborated by the UN's worldwide Economic and Social Commissions. These commissions could track whether traditionally under-resourced communities gained Internet access and whether broadband prices have reached an affordable level.

[4] Organisation for Economic Co-operation and Development. (2020). *Keeping the Internet up and running in times of crisis*. https://www.oecd.org/coronavirus/policy-responses/keeping-the-internet-up-and-running-in-times-of-crisis/

[5] African Telecommunications Union. (2020) *Options on Special Spectrum Release (or System Authorization) in Fight of COVID-19 and its Impact Mitigation*. https://atuuat.africa/2020/12/07/options-on-special-spectrum-release-or-system-authorization-in-fight-of-covid-19-and-its-impact-mitigation/

[6] Observatorio Nacional 5G. *European homes with fiber optics have tripled in the last five years*. https://on5g.es/en/european-homes-with-fiber-optics-have-tripled-in-the-last-five-years/

[7] IEEE Communications Society. (2020). Spain's plan to bring FTTH and 5G to its entire population. https://techblog.comsoc.org/2020/12/02/spains-plan-to-bring-ftth-and-5g-to-its-entire-population/

[8] Gallagher, E. (2020). *Covid-19 Planning and Response*. https://www.inex.ie/inex-news/covid-19-planning-and-response/

Investing in broadband expansion spurs economic growth. Digital connectivity and expanding access to information via the Internet increases skilled employment, raises household incomes, and creates job opportunities[9].

Improving affordability paves the way for SDG 9. Removing financial barriers makes communities more equitable[10]. According to the ONE campaign, connectivity could lift 160 million people out of extreme poverty and increase the life expectancy of 2.5 million HIV/AIDS patients thanks to better monitoring and adherence to treatment[11]. Connectivity could also improve the health care system, saving the lives of 2.5 million people worldwide[11].

2.1 Pledges

During the early stages of the lockdown, governments asked corporations to be lenient. For example, former FCC chairman Ajit Pai announced the Keep Americans Connected Initiative[12]. Over 800 companies pledged to (1) not terminate services for customers because of their inability to pay their bills, (2) waive late fees, and (3) open Wi-Fi hotspots for customers in need[12].

2.2 Need-Based Aid

To support students who lacked the Internet access necessary for online learning, the United Nations Scientific and Cultural Organization (UNESCO) launched a global partnership to support countries in scaling up their distance learning practices and reaching children and youth who were most at risk[13]. The coalition included private sector partners such as Microsoft, Google, and Zoom[13].

World governments have also joined in these efforts[13]. Italy announced an 85 million euro package to support distance learning for 8.5 million students and improve connectivity in isolated areas[13]. China provided computers to students from low-income families and offered mobile data packages and telecommunication subsidies for students[13]. In France, efforts were made to lend devices and provide printed assignments to the 5% of learners who did not have access to the Internet or computers[13].

Need-based aid also extends beyond education. Through the Emergency Broadband Benefit Program, American households who lived below the poverty line or experienced a substantial loss in income could receive monthly discounts on broadband services[14].

2.3 Investment

Governments and international agencies have invested in building Internet infrastructure. For example, the World Bank invests in expanding broadband access in low-income states, such as Burundi, Democratic Republic of Congo, Gabon, The Gambia, Guinea, Liberia, Malawi, Rwanda, and São Tomé and Príncipe[15]. Since 2007, the World Bank has allocated 1.2 billion USD in projects for submarine cables and terrestrial backbone networks, and for regional integration in the South Pacific, the Caribbean, and East, Central and West Africa[15]. Four-fifths of the offline population are located in Africa and Asia-Pacific[3].

[9] Nelson, E. (2022). *Digital Connectivity: The Benefits of Inclusive Internet Access.* https://www.usglc.org/blog/digital-connectivity-the-benefits-of-inclusive-internet-access/

[10] United Nations Department of Economic and Social Affairs. (2023) *Goals 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation .* https://sdgs.un.org/goals/goal9

[11] Todd, E. Connecting everyone: Internet access for all by 2030. https://www.one.org/us/blog/connecting-everyone-internet-access-for-all-by-2030/

[12] Federal Communications Commission. (2020). *Keep Americans Connected.* https://www.fcc.gov/keep-americans-connected

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[14] Federal Communications Commission. (2021). *Emergency Broadband Benefit.* https://www.fcc.gov/broadbandbenefit

[15] The World Bank. (2023) *Connecting for Inclusion: Broadband Access for All.* https://www.worldbank.org/en/topic/digitaldevelopment/brief/connecting-for-inclusion-broadband-access-for-all

3 Policy Recommendations

In 2021, the UN laid out a commonly agreed upon framework to close the digital divide. It includes the following statutes[3]:

1. **Accessibility**: Enable a regulatory environment that promotes efficient information and communication technology (ICT)[3].
2. **Affordability**: Establish regulations that decrease the excessive cost of Internet connection and creates a more competitive market. Governments can expand access by providing targeted subsidies or tax rebates[3].

In building upon this framework, this policy brief calls for an international assessment of COVID-19 era broadband expansion policies. These policies include

- releasing unused spectrum
- deploying fibre and phasing out DSL networks to upgrade infrastructure
- facilitating connection between large and small communication operators
- increasing Internet network capacity in anticipation of high demand
- encouraging companies to pledge community support
- delivering aid to marginalised communities
- investing in Internet infrastructure

Broadband access can exacerbate pre-existing inequalities in gender, income, age, and location (i.e. the rural-urban divide). The proposed assessment lays the groundwork for a more ethical deployment of broadband infrastructure, supporting the Technology Facilitation Mission (TFM)'s Emerging Technologies workstream[16].

Such an assessment could be integrated into the TFM's Online Platform. In aggregating best international practices and lessons learned, the assessment facilitates multi-stakeholder collaboration among Member States, the scientific community, and the private sector[17]. The UN-STI Forum could construct a working group to catalogue and assess the efficacy of different programs that worked in the Global North and South. This will benefit member nations that are considering the most effective way to achieve universal broadband access.

In designing policies that strive to provide universal and affordable Internet, world governments can build resilient infrastructure and support economic development.

4 Acknowledgments

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[17] United Nations Department of Economic and Social Affairs. (2023). *Online Platform (2030 Connect)*. https://sdgs.un.org/tfm/online-platform