



PARTNERSHIP FOR THE AMERICAS

DISCUSSION PAPER

Rethinking Digital Connectivity in Latin America

The Under-Connected Population Map

Partnership for the Americas | Research Division | March 2026

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Executive Summary

Latin America and the Caribbean (LAC) are often described as highly connected regions. Mobile penetration rates frequently exceed 100 percent of the population, reflecting widespread device ownership and the common practice of using multiple SIM cards per person. Yet these indicators mask a deeper structural challenge: the difference between network coverage and meaningful internet connectivity.

Across the region, hundreds of millions of people live within the technical footprint of mobile broadband networks but do not regularly use mobile internet services. The primary driver of this gap is not infrastructure availability but affordability constraints and usage behavior. According to GSMA estimates, **28 percent of Latin Americans—approximately 174 million people**—live in areas with mobile broadband coverage but still do not use mobile internet services.¹

This phenomenon represents what telecommunications researchers call the “usage gap”—the difference between people who live within mobile network coverage and those who actually access internet services. Globally, this usage gap is many times larger than the infrastructure coverage gap.²

In Latin America, the usage gap is particularly important because the majority of mobile subscribers rely on prepaid plans and intermittent connectivity, meaning they often access the internet only occasionally rather than maintaining persistent mobile data access.

These realities have profound implications for the design of digital platforms, digital development policy, and the deployment of emerging technologies such as artificial intelligence (AI). Many digital services assume continuous internet connectivity, yet millions of users across the region rely primarily on intermittent Wi-Fi access or small prepaid data packages.

To better understand and visualize these dynamics, the Partnership for the Americas (PFA) developed a geospatial mapping system designed to estimate the distribution of under-connected populations across Latin America and the Caribbean.

The map integrates telecommunications infrastructure data, population distribution models, poverty indicators, and mobile data affordability metrics into a spatial analytics framework capable of identifying areas where meaningful connectivity remains constrained.

This discussion paper outlines the rationale for the map, describes the analytical framework behind it, and discusses the implications for digital inclusion, technology deployment, and AI adoption in the region.

1. The Connectivity Paradox in Latin America

Mobile telecommunications infrastructure has expanded rapidly across Latin America over the past two decades. By 2023, approximately **418 million people—about 65 percent of the region’s population**—used mobile internet services, reflecting strong growth in connectivity.³

At the same time, the mobile industry has become a major contributor to economic growth in the region, generating roughly **8 percent of Latin America’s GDP**.³

Despite this progress, the region still faces a substantial digital divide. Estimates from the Inter-American Development Bank suggest that around **244 million people** in Latin America and the Caribbean remain without internet access, with particularly large gaps in rural areas.⁴

*However, the most important barrier is no longer network infrastructure. Research from GSMA and other institutions shows that the majority of the connectivity gap is driven by **adoption barriers** rather than coverage limitations.*

In many cases, individuals live within areas covered by mobile broadband networks but do not use internet services because of affordability constraints, device limitations, or digital skills gaps.¹

This disconnect between network availability and actual usage is increasingly recognized as the primary barrier to universal digital inclusion.

2. Understanding the “Under-Connected”

To better capture the realities of digital access in the region, PFA distinguishes between two forms of connectivity gaps.

Infrastructure Gap (Unconnected Populations)

This group includes individuals who live in areas where:

- Mobile broadband coverage is unavailable or unreliable
- Signal strength is insufficient for meaningful internet access
- Alternative connectivity sources such as fixed broadband or public Wi-Fi are absent

These populations are typically located in remote rural regions, mountainous areas, forest zones, or geographically isolated territories.

Although these infrastructure gaps remain important, they represent a relatively small share of the total connectivity challenge.

Affordability Gap (Under-Connected Populations)

A much larger group lives within areas that technically have network coverage but cannot afford regular mobile data access.

International benchmarks established by the UN Broadband Commission define affordable internet as costing less than **2 percent of monthly income**.⁵

In many lower-income contexts, however, even basic mobile data packages exceed this affordability threshold. Research from the International Telecommunication Union shows that internet services remain expensive relative to income in many developing economies, limiting widespread adoption.⁶

As a result, users often rely on strategies to minimize data costs, including:

- Prepaid mobile plans with limited data allowances
- Intermittent data purchases
- Public or shared Wi-Fi networks
- Downloading content only when connected to Wi-Fi

These patterns produce a form of connectivity that is sporadic rather than continuous, limiting access to many modern digital services.

3. The Analytical Framework Behind the Map

The PFA Under-Connected Population Map was designed to quantify these dynamics using a multi-layer geospatial model.

The system integrates multiple datasets, including:

Telecommunications Infrastructure

- Mobile broadband coverage maps
- Cell tower locations
- Signal strength indicators

Population Distribution

- High-resolution population density grids
- Urban and rural settlement patterns

Socioeconomic Indicators

- Income and poverty distribution
- Household survey data

Telecommunications Market Data

- Prepaid vs postpaid subscriber distribution

- Average revenue per user (ARPU)
- Mobile data pricing structures

These layers are combined within a geospatial model to compute an Under-Connected Index at a defined spatial resolution.

Conceptual Framework

Under-Connected Index (UCI) $UCI = w1*(Infrastructure\ Gap) + w2*(Affordability\ Gap) + w3*(Device\ Access\ Gap) + w4*(Behavioral\ Underuse)$ Where: • *Infrastructure Gap* = lack of usable mobile coverage • *Affordability Gap* = data cost relative to income • *Device Gap* = smartphone ownership constraints • *Behavioral Underuse* = observed internet usage patterns

The index is calculated at fine spatial resolution (e.g., 1-kilometer grid cells), allowing analysts to identify geographic clusters of under-connected populations.

4. Why This Matters for Artificial Intelligence and Digital Development

The rise of artificial intelligence introduces new challenges for digital inclusion.

Many AI applications—including cloud-based education platforms, productivity tools, and language learning systems—require continuous internet connectivity and significant data usage.

However, populations that rely on intermittent connectivity may face barriers to accessing these technologies. Without reliable mobile data access, users may be unable to benefit from:

- AI-enabled education platforms
- Telemedicine services
- Digital financial systems
- Remote employment opportunities
- AI-driven agricultural advisory tools

*As digital economies increasingly rely on cloud computing and AI-enabled services, connectivity constraints risk **widening economic disparities** between populations with persistent internet access and those with only intermittent connectivity.*

Understanding where under-connected populations live is therefore essential for designing inclusive digital development strategies.

5. Policy Implications

The Under-Connected Population Map suggests several policy implications.

Connectivity Strategies Must Address Affordability

Infrastructure deployment alone will not close the connectivity gap. Policies that reduce the cost of mobile data—such as spectrum reforms, competition policies, and targeted subsidies—may be equally important.

Digital Services Must Be Designed for Low-Connectivity Environments

Developers of digital platforms should design services capable of operating under low-bandwidth or intermittent connectivity conditions.

Connectivity Data Must Move Beyond Coverage Metrics

Traditional telecommunications statistics focus on network coverage or subscription counts. Policymakers should instead prioritize measures of meaningful connectivity, including affordability and usage patterns.

AI Deployment Strategies Must Consider Connectivity Constraints

As AI tools expand into education, agriculture, finance, and healthcare, their design must account for the connectivity realities of emerging markets.

Appendix A — Methodology Overview

The mapping system integrates several categories of data:

Connectivity Data

- GSMA mobile coverage datasets
- OpenCellID tower location data
- Ookla network performance data

Population Data

- WorldPop population density grids
- National census datasets

Socioeconomic Data

- World Bank poverty datasets
- Household survey data (DHS, national surveys)

Telecommunications Market Data

- Subscriber counts
- Prepaid vs postpaid distribution
- ARPU and pricing structures

These datasets are harmonized within a geospatial database and analyzed using spatial modeling techniques to produce estimates of under-connected populations.

¹ GSMA. ["Connectivity Gaps in Latin America."](#)

² GSMA Intelligence. ["The State of Mobile Internet Connectivity 2024."](#)

³ GSMA. ["Mobile Economy Latin America 2024."](#)

⁴ Inter-American Development Bank. ["Digital Connectivity Gap in Latin America."](#)

⁵ UN Broadband Commission. ["Affordability Targets."](#)

⁶ International Telecommunication Union. ["Affordability of ICT Services 2024."](#)

⁷ World Bank. ["Internet Affordability Research."](#)