

Broadband Access in Sri Lanka, the United States and Germany: What the Numbers Measure

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Abstract

Broadband comparisons often combine measures of infrastructure, subscriptions and individual internet use as though they describe the same outcome. Evidence from Sri Lanka, the United States and Germany shows why this can misdirect assessments of competition and inclusion. This article develops a measurement crosswalk connecting network reach, local orderability, paid services, service experience and participation. It combines a common international indicator with country-specific regulatory statistics, household surveys, company disclosures and selected advertised costs. In the International Telecommunication Union series distributed through World Bank World Development Indicators, internet use reached 54.6% in Sri Lanka, 94.7% in the United States and 93.5% in Germany in 2024, the latest common nonmissing year in the inspected window. These figures provide country context; unresolved underlying age coverage and observation status limit stronger comparisons. The country evidence reveals three distinct interpretation problems: traffic growth with nearly unchanged subscription counts in Sri Lanka, acquisition-related changes in a United States provider's customer stock, and Germany's different fibre activation ratios when connected premises or reported homes passed form the denominator. Selected tariffs similarly measure conditional expenditure rather than comparable national affordability. The resulting framework identifies which measures permit a common source-published contextual comparison, which support only country-specific inference, and which additional observations are needed. Its contribution is a reproducible distinction between commercial expansion and broader usable access, without constructing a country ranking from incompatible measures.

Keywords: broadband access; Sri Lanka telecommunications; United States broadband; Germany telecommunications; internet use; digital inclusion; fibre take-up; measurement comparability

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Contents

1	Participation provides context, not a market score	1
2	A crosswalk from infrastructure to participation	1
3	Three country lessons about growth	2
4	National surveys answer different questions	3
5	Household cost comparisons must preserve the bill	4
6	What a stronger comparative study should observe	5
7	Methods, data and reuse	5
8	Funding and competing interests	6
	References	7

1 Participation provides context, not a market score

The three markets present different participation levels and different measurement problems. One defensible common starting point is the ITU internet-use series distributed through World Bank World Development Indicators. The following table uses the same indicator, published unit and annual reference years throughout.

Table 1: Individuals using the internet, source-published country measures, 2022-2024

Country	2022	2023	2024	Change, 2022-2024
Germany	91.6%	92.5%	93.5%	+1.9 percentage points
Sri Lanka	48.3%	51.2%	54.6%	+6.3 percentage points
United States	92.7%	93.5%	94.7%	+2.0 percentage points

Source: ITU, through World Bank WDI, indicator IT.NET.USER.ZS^[1], accessed 18 September 2026, source revision 13 July 2026. Changes are original calculations from unrounded source values; display values use one decimal.

The indicator concerns individuals using the internet from any location during the preceding three months, through any device. All three countries had missing 2025 values in the inspected 2022-2025 window. Consequently, 2024 is the common observation year here, even though the data were retrieved in 2026. The accessed metadata does not establish identical national survey age bands or whether each country-year observation came directly from a survey or an estimation procedure. These are harmonised source-published country measures, not demonstrably identical raw samples. World Bank, indicator definitions and methodology^[2].

The series records increased participation across the window, with a larger percentage-point rise in Sri Lanka. It does not explain that change or measure the quality of participation. A person using mobile internet occasionally and a household with reliable fixed broadband can both contribute to internet use. Neither market concentration nor affordable access can be read from the table.

2 A crosswalk from infrastructure to participation

The comparison’s organising principle is that access has several observable components. A network can reach a location before a customer can order service. An orderable service can be unaffordable or difficult to install. A paid connection can be unsuitable for a household’s activities. Equally, one subscription can support several people, while one

person can hold several subscriptions. These relationships prevent a simple conversion from connections into connected people.

Table 2: Measurement crosswalk from infrastructure to participation

Measurement object	Evidence needed	Permitted interpretation in this comparison
Network reach	Defined premises or geographic footprint, technology and date	Deployment potential; not guaranteed orderability or unique households
Local choice	Independently controlled networks and orderable offers at the same address	Feasible alternatives for a specified customer; not the number of national brands
Paid service	Active subscriptions, customer scope and reporting period	Commercial service stock; not people or newly included households
Growth in service stock	Net additions, acquisitions, disposals and reporting adjustments	Separation of operating expansion from ownership or classification changes
Effective expenditure	Recurring charges, installation, equipment, taxes, discounts and contract duration	A specified household scenario; not national affordability without an income distribution
Service experience	Comparable performance, reliability and support observations	Whether a connection meets an identified task; not inferred from advertised speed
Participation	Defined people or households, reference window and survey method	Use within that population; not automatically fixed-broadband adoption

This crosswalk is an analytical classification, not a measured causal sequence. The country records do not follow the same households across these stages. Its purpose is to identify the evidence a claim requires before treating growth at one stage as progress at another.

3 Three country lessons about growth

Sri Lanka demonstrates why usage and subscriptions need separate treatment. Between January and July 2026, provisional fixed-broadband subscriptions moved from 2,024,513 to 2,024,699, while mobile-broadband subscriptions moved from 21,991,606 to 21,994,161. Reported fixed and mobile traffic increased by approximately 11.5% and 46.7%, respectively. Both endpoint months contain 31 days. The country audit’s seven-month series also shows how changes in month length affect intermediate comparisons. TRCSL, January 2026 overview^[3]; July 2026 overview^[4].

This combination is compatible with greater use across an almost unchanged connection base. It cannot establish how many previously excluded people began using the internet, how usage was distributed, or whether networks became congested. Capacity utilisation

requires a capacity denominator, while congestion requires location and busy-period evidence. The commercial question concerns the economics of carrying additional traffic; the inclusion question concerns who can participate.

The United States example concerns the difference between customer-stock growth and operating additions. AT&T’s consumer-fibre stock rose from 10.406 million at December 2025 to 12.144 million at June 2026. Reported first-half net additions totalled 617,000. Subtracting those additions from the 1.738 million stock increase leaves a 1.121 million reconciliation item. AT&T separately disclosed a rounded 1.1 million acquisition-related base adjustment. The residual is not a precise independent estimate of acquired customers. AT&T, *2Q26 Trending Schedule*, printed pp. 8 and 16, footnote 12^[5].

The operating flow remained positive, but treating the entire increase as ordinary customer acquisition would overstate it. More fundamentally, one provider’s growth can reflect a transfer from another provider without increasing national household access. This company sequence therefore illustrates a reconciliation method; it is not a national market-share estimate or a measure of fibre’s displacement of cable.

Germany supplies a third distinction. At year-end 2025, the regulator reported 27.1 million fibre homes passed, 10.4 million connected and 6.4 million active. Active divided by connected equals 61.5%; active divided by reported passed equals 23.6%. Both calculations can be correct because they describe different relationships. The 2025 passed definition was clarified, implementation remained incomplete and some overlap was possible. Neither ratio is a unique-household adoption rate or an identified probability of converting a newly passed premises. Bundesnetzagentur, *Jahresbericht Telekommunikation 2025*, pp. 17-19^[6].

Together, the cases expose three different sources of apparent growth: more traffic per connection, a changed company boundary, and different denominators within deployment stages. None can substitute for the others. A useful comparison retains the original object rather than translating all three into a generic measure of market success.

4 National surveys answer different questions

The national participation evidence adds detail that the common international series cannot supply, but its denominators prevent direct substitution.

Table 3: National participation measures and their distinct survey populations

Country source	Observation	Population and reference basis
Sri Lanka DCS	60.4% used the internet	Persons aged 5-69; use within the preceding twelve months; January-June 2025 survey

Continued on next page

Table 3 (continued)

Country source	Observation	Population and reference basis
United States Census QuickFacts	91.0% had a broadband subscription	Households; broad broadband category; pooled 2020-2024 ACS estimate
Germany Destatis	95% used the internet recently	Persons aged 16-74; preceding three months; 2025 survey

Sources: Sri Lanka DCS, *Computer Literacy Statistics 2025*, first six months, p. 4^[7]; U.S. Census Bureau, QuickFacts, Computer and Internet Use^[8]; Destatis, internet use by age and sex, 2025^[9].

The table is a definition comparison, not a performance ranking. Sri Lanka’s twelve-month measure cannot be spliced into the ITU three-month series. The American household subscription measure cannot be compared directly with German individuals’ use. Different ages and years further restrict interpretation. Apparent disagreements with the international table do not, on their own, establish a statistical error or a subsequent improvement.

Subgroup results instead identify distinct research needs. Sri Lanka’s urban-estate use gap narrowed by 6.4 percentage points between the first-half 2024 and 2025 estimates, but remained 26.3 points. Germany’s 2025 recent-use measure was 98% among those aged 25-44 and 87% among those aged 65-74. These are useful within-source contrasts, without a claim of tested statistical significance or a common cross-country inequality measure. The appropriate next step is to investigate the relevant constraints within each population, rather than assign countries a single digital-inclusion score.

5 Household cost comparisons must preserve the bill

The selected offers show why nominal currency conversion would not produce a defensible affordability ranking. Sri Lanka’s September 2026 Dialog example combines a LKR 1,593 monthly rental with a LKR 6,990 advertised connection price. Its LKR 26,106 first-year illustration assumes no further connection tax because that offer does not specify its tax basis. The comparison with one worker’s gross statutory wage remains distinct from household disposable income. Sri Lanka audit, edition e03/s02, expenditure and calculation notes^[10].

Germany’s selected O2 example gives €309.87 for first-year service and connection, followed by €479.88 in recurring service during the second year. The €789.75 minimum-term subtotal assumes an already-owned compatible router, VAT-inclusive prices and no additional mobile-bundle discount. United States examples include qualifying AutoPay, introductory prices, optional managed WiFi and unresolved taxes or account-dependent

charges. O2 public tariff^[11]; O2 product sheet, June 2026, p. 2^[12]; United States audit and dated offer calculations^[13].

These examples support a comparison of billing mechanisms: entry expenditure, promotion expiry, equipment ownership and conditional discounts. They do not provide equivalent services, nationally representative prices or verified payable amounts. A proper affordability comparison would need a common service requirement, complete charges, comparable household income and local orderability. Exchange rates alone cannot supply those missing conditions.

6 What a stronger comparative study should observe

The crosswalk suggests an address-and-household research design. At each sampled location, record independently controlled network alternatives, whether service can actually be ordered, the complete prospective bill, installation outcomes and subsequent service experience. Link those observations to household resources, devices and participation using an appropriate consented design. Repeated observation could then distinguish a provider switch from first-time access and an introductory bargain from a sustained cost reduction.

Three tests follow. Deployment contributes to usable choice when newly reached addresses gain orderable alternatives. Commercial growth contributes to inclusion when comparable household evidence records broader participation, rather than only redistribution of existing subscriptions. A lower advertised charge improves household value when the complete bill and delivered service support that interpretation. Each proposition can fail despite favourable national headlines.

These tests also explain why the financial evidence remains country-specific. Sector investment, integrated-group earnings and domestic company segments have different boundaries. Combining them would obscure equipment, wholesale and foreign activities as well as calendar and fiscal periods. The present comparison offers no pooled revenue total, profitability ranking or causal claim about regulation.

7 Methods, data and reuse

This is a descriptive comparative synthesis of three separately bounded country audits under Market Audit methods 1.1.0. The common numerical context uses nine ITU/WDI observations for 2022-2024. Percentage-point changes equal the 2024 value minus the 2022 value. Remaining quantities retain their national or company definitions; no common transnational telecom market is assumed. Evidence cut-off dates do not replace source observation periods.

The common contextual dataset is available as nine annual observations, with a measurement dictionary, change calculations and source metadata.

The country evidence is available through the Sri Lanka e03/s02 manuscript and monthly traffic CSV; the United States e01/s00 observations and calculations; and the Germany e01/s00 observations and calculations.

ITU/WDI metadata specifies CC BY 4.0 for the internet-use series and requests ITU attribution. This permission does not extend automatically to national or corporate publications. The comparison reuses attributed observations and original arithmetic, without redistributing source reports. The principal unresolved inputs are national age and observation-status detail behind the harmonised series, matched household costs and incomes, representative address-level service evidence and longitudinal switching. These gaps limit explanation and ranking; they do not erase the useful distinction between infrastructure expansion, commercial growth and participation.

Corrections can be submitted through the correction form.

8 Funding and competing interests

Funding: No report-specific funding declaration is recorded.

Competing interests: No report-specific declaration is recorded.

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