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International Telecommunication Union
Development Sector

Measuring digital development

Facts and Figures: Focus on Landlocked Developing Countries

July 2025

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Please consider the environment before printing this report.

Foreword

I am pleased to present *Facts and Figures: Focus on Landlocked Developing Countries*, a comprehensive assessment of digital connectivity progress and challenges in LLDCs. This updated edition builds on the version released in early 2024.

Digital technology provides LLDCs with pathways to overcome physical barriers, facilitating access to education, healthcare, and trade. It serves as a catalyst for resilience, empowering these countries to effectively respond to crises and to engage more fully in the global economy. Therefore, it must be a priority on the development agenda for any nation. Against this backdrop, *Facts and Figures* aims to offer insights that inform decisions to enhance digital connectivity.

The challenge of connectivity has intensified over the past decade. It is no longer sufficient to simply connect everyone. Universal and meaningful connectivity (UMC), which we define as the opportunity for everyone to have a safe, satisfying, enriching, and productive online experience at an affordable cost, has emerged as the new imperative.

Our data indicates that LLDCs are at various stages in their journey toward UMC, yet they share common obstacles and can benefit from mutual learning. Infrastructure development is part of the solution, but robust policy frameworks that promote investment, adoption, and innovation in ICTs are equally vital. Achieving UMC will not happen overnight, but decisive and focused interventions, including regulatory improvements, can lead to rapid and substantial gains.

As we strive to assess state of connectivity around the world, we are faced with persistent data shortages that affect the accuracy and granularity of measurement. Increased investment in data infrastructure and statistical capacity is essential, enabling more effective and more targeted interventions.

I would like to express my gratitude to UNCTAD for their contributed section, which illustrates the symbiotic relationship between digital infrastructure and digital trade.

This publication is a testament to ITU efforts to assist LLDCs in leveraging the benefits of connectivity and digital technologies. It also serves as a call to action for everyone to maintain their commitment to ensuring that no landlocked nation is left behind in the digital era.

Dr Cosmas Luckyson Zavazava
Director of the Telecommunication Development Bureau
International Telecommunication Union

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Introduction[1]

Landlocked Developing Countries (LLDCs) face unique development challenges. Higher transportation costs, trade barriers, and limited connectivity impede economic integration. LLDCs rely on neighbouring countries for access to trade routes, resulting in delays and higher costs. These countries also tend to lag in investment, limiting resources available for infrastructure and human capital development. Together, these factors undermine competitiveness and slow development.

Digital technologies offer transformative potential for LLDCs. Information and communication technologies (ICTs) can mitigate physical barriers by enabling access to global markets, improving logistics and public services, and expanding education and entrepreneurship opportunities. When combined with enabling policies and investment, they can accelerate structural transformation.

Universal and meaningful connectivity (UMC) is a policy imperative. UMC is essential to realizing the full benefits of digital transformation. It is defined as enabling everyone to enjoy a safe, enriching, and productive online experience at an affordable cost. UMC does not mean being connected all the time, but rather being able to access the Internet optimally and affordably whenever and wherever needed. This objective must be at the core of digital policy to ensure that all can contribute to and benefit from digital transformation.

Digital development across LLDCs is highly uneven. LLDCs display wide differences in infrastructure, income levels, and institutional capacity. Internet penetration ranges from just 11 per cent to nearly 95 per cent of the population. Countries that are both landlocked and least developed face the most severe challenges, with limited connectivity and low digital adoption across key indicators.

Access and use of the Internet remain limited. Internet access is not yet universal, with 14 per cent of the population not yet covered by a mobile broadband network and only 61 per cent covered by a 4G signal. This lack of infrastructure, combined with other barriers, helps explain the low rates of Internet use – only 39 per cent of individuals in LLDCs used the Internet, well below the global average.

Digital divides persist across geography, gender, and age. Rural populations are far less likely to be online than their urban counterparts, and older adults are significantly less connected than younger people. The gender gap in Internet use shows no sign of narrowing, with women consistently less likely to be online than men in most LLDCs – reflecting broader social and economic inequalities.

Affordability continues to be a major obstacle to digital inclusion. Mobile broadband services remain unaffordable in half of LLDCs, where the price of a basic 2 GB monthly plan exceeds 2 per cent of gross national income (GNI) per capita – the commonly used affordability threshold. Fixed broadband is even less accessible, with prices exceeding this threshold in most LLDCs.

[1] This publication was originally prepared for the third United Nations Conference on Landlocked Developing Countries, initially scheduled for 2024. Although the conference was postponed, the original *Facts and Figures: Focus on Landlocked Developing Countries* publication was released in April 2024, and drew primarily on 2023 estimates. The present version has been updated with more recent data, drawing mainly on 2024 estimates, ahead of the rescheduled conference in August 2025.

Regulatory maturity is improving, but more progress is needed to support UMC. The number of LLDCs with advanced ICT regulation (Generation 3 or 4) has more than doubled since 2014. Yet over half remain at early stages of regulatory development, limiting their ability to foster competition, attract investment, and adapt to emerging technologies. Implementation gaps are common, even where policies exist.

E-commerce offers new opportunities for LLDCs but remains underdeveloped. While some progress has been made, most LLDCs face persistent challenges in building inclusive digital economies. Trade in ICT goods and services remains limited. ICT goods exports account for only one per cent of LLDCs goods exports. And the group accounts for just 0.3 per cent of global exports of digitally deliverable services. Weak infrastructure, low Internet use, and underdeveloped legal and regulatory frameworks continue to constrain growth. Improved data collection and stronger statistical capacity are needed to support evidence-based e-commerce strategies.

Most LLDCs lack up-to-date, disaggregated data on digital access, skills, and usage. Without reliable statistics, governments struggle to design targeted policies, monitor progress, or identify those left behind. Greater investment in statistical capacity is essential to support evidence-based digital transformation.

Accelerating digital development in LLDCs requires bold and coordinated action. Connectivity alone is not enough. Targeted investments in infrastructure, affordable services, institutional capacity, and data systems are all essential. Only through integrated and sustained efforts can LLDCs close digital divides and realize the full potential of digital transformation.

ICT regulation and digital policy frameworks

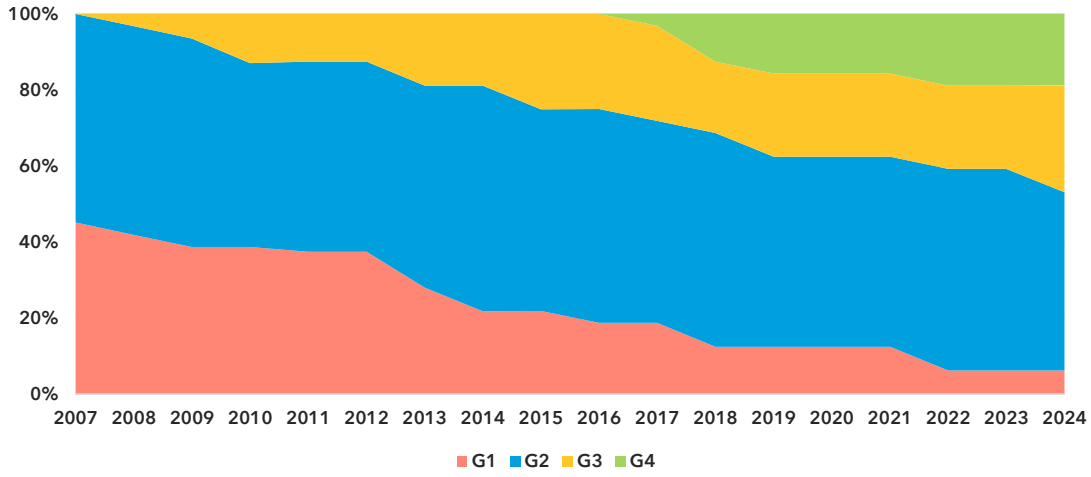
ICT regulation and digital policies are key enablers of universal and meaningful connectivity and digital transformation. Such policies facilitate investment and ensure fair competition in both ICT and digital markets. This section provides insights into the trends, patterns and current state of ICT regulation and digital policies in LLDCs.

Evolution of ICT regulation in LLDCs is gaining momentum

Since the adoption of the Vienna Programme of Action for LLDCs in 2014, digital connectivity and services have transformed societies, economies and governance systems. Countries around the world have been grappling with shifting priorities for policymakers and regulators, markets and users. While some LLDCs have fast-tracked ICT regulatory reform over the past decade, most have been moving at a slower pace.

The number of LLDCs at an advanced level of ICT regulation (G3 or G4) has more than doubled, from 19 per cent in 2014 to 47 per cent in 2024. In 2018, only one LLDC, Uganda, was among the 55 countries in the fourth generation of ICT regulation, G4, the most advanced stage of regulation. By 2024, Armenia, Malawi, Moldova, North Macedonia and Rwanda had also joined the G4 group, which now comprises 72 countries worldwide.

Evolution of the generations of ICT regulation in LLDCs



Note: The generations of ICT regulation provide a high-level conceptual framework for assessing the overall development of national legal instruments, policies and governance for the ICT and digital sectors. Generations 1 through 4 are based on ICT Regulatory Tracker scores:
G1 – Command and control approach: score between 0 and 40
G2 – Early open markets: score between 40 and 70
G3 – Enabling investment and access: score between 70 and 85
G4 – Integrated telecommunication regulation: score between 85 and 100
Data for 2021 and 2023 are unavailable; 2020 and 2022 data are used as a proxy.
Source: ITU

The level of ICT regulatory maturity varies significantly among LLDCs, as reflected in the 82-point gap between the two countries in this group with the most and least advanced level of ICT regulation. The majority of LLDCs, 53 per cent, remain in the less advanced stages of ICT regulation (G1 and G2). Their policy and regulatory frameworks require further action to create an enabling environment for universal and meaningful connectivity.

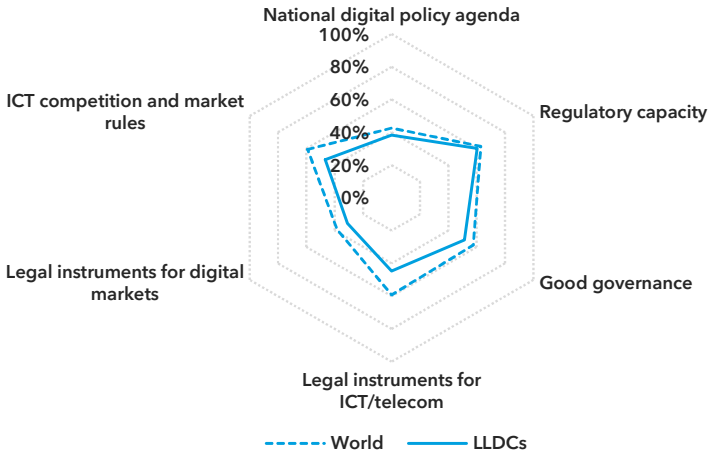
Readiness of national frameworks for digital transformation: LLDCs approaching world averages

According to ITU benchmarks, LLDCs perform in line with world averages in key areas such as national digital policy agendas and regulatory capacity. LLDCs are 6 to 8 percentage points behind the rest of the world on legal instruments for telecommunication and digital markets and on the good governance benchmark. The gap is much wider, at 12 percentage points, for ICT competition and market rules. LLDCs achieve 43 per cent of the overall benchmark for the readiness of national legal, policy and governance frameworks for digital transformation, below the world average of 51 per cent, in 2023.

Further market reform in both ICT and digital markets regulation stands out as a common priority for most LLDCs. What's more, well-developed competition frameworks for ICT and digital markets can provide predictability for infrastructure rollout, foster innovation, enhance consumer choice and drive down prices. Such frameworks will also promote market efficiency and encourage investment in new technologies and services, giving LLDCs an advantage in the global digital economy.

Overall, the development of policy and regulatory instruments in LLDCs is in line with world averages. However, to truly advance, LLDCs need to focus on effective implementation.

Benchmarks for the readiness of national frameworks for digital transformation in key areas, 2023



Note: The six thematic benchmarks (national digital policy agenda, regulatory capacity, good governance, legal instruments for ICT/telecommunications and digital markets, and ICT competition and market rules) each comprise a sub-set of indicators, as part of the ITU Unified Framework for the readiness of national policy, legal and governance frameworks for digital transformation. The percentage of achievement on each benchmark indicates the proportion of met versus unmet indicators.
Source: ITU

Connectivity policies to support structural transformation in LLDCs: boosting digital agendas and implementation is essential

Structural impediments constitute one of the major barriers to sustainable development in LLDCs. Policy measures that enable the development of digital infrastructure can allow LLDCs to take full advantage of the opportunities created by the digital transformation of society and the economy.

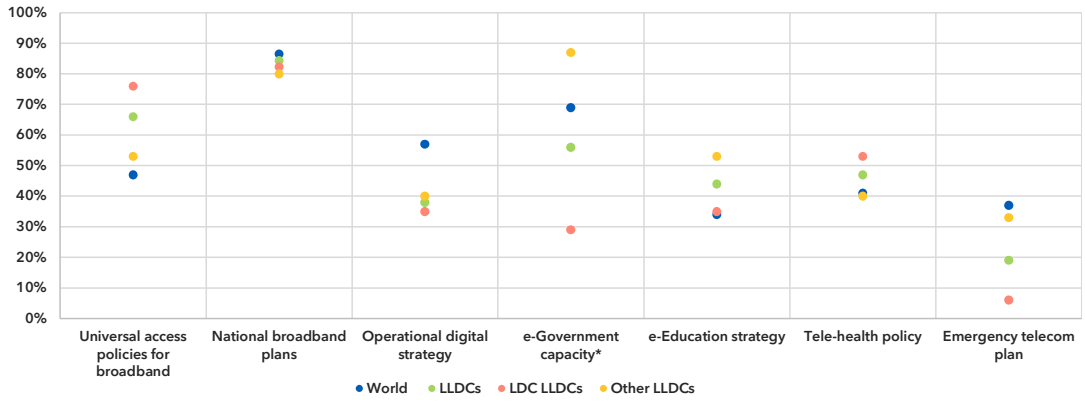
The level of adoption of key connectivity policies varies significantly within the LLDC group of countries. While they perform well above the world average with 66 per cent having a universal service or access policy in place, only 38 per cent have an operationalized digital strategy – one having implementation mechanisms and operational objectives – compared to the world average of 57 per cent. The lag in developing national digital connectivity frameworks that are built on sound telecommunication policy requires urgent attention, as digital connectivity is an enabler of bridging not only digital divides but also general structural gaps across geographies and demographic groups.

In the public sector, digitalization policies exist in less than half of LLDCs, although as a group, they perform slightly better than world averages. Around 45 per cent of LLDCs have ICT in education and tele-health policies.

Differing policy patterns occur among LLDCs

With regards to e-government capacity, a significant gap persists among LLDCs which are in the group of least developed countries (LDCs) and those which are not. Less than a third of LDCs have a high e-government capacity, while close to 90 per cent of non-LDCs have achieved this level. Strengthening institutions is paramount for public sector development and digital transformation and should be an important focus of future government action.

Connectivity and digital society instruments, 2022



* e-Government capacities equivalent to very high and high E-Government Development Index (EGDI) scores are included.
Source: ITU, UNDESA (for EGDI)

Emergency telecommunication plans, such as in the event of natural disasters or pandemics are critical for LLDCs. To help mitigate challenges unique to LLDCs, the majority of countries in this group need to further build their capabilities and frameworks to minimize the impact of climate change and disasters. As of 2023, only 19 per cent of countries had adopted such a plan.

Enhancing complementary connectivity policies alongside implementation of concrete policy initiatives can accelerate progress towards universal and meaningful connectivity.

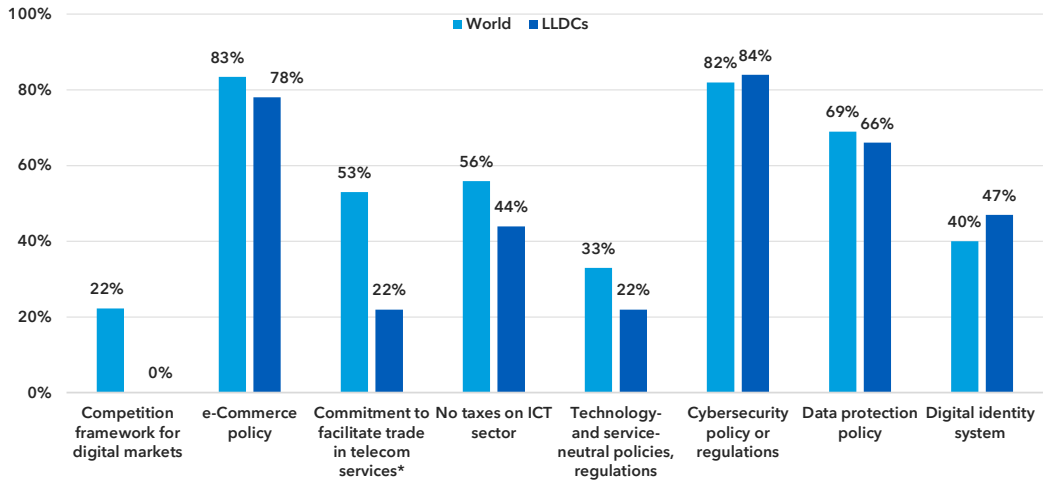
LLDCs need to fast-track policies to support digital economies

Sound digital economy policy instruments drive economic growth and enhance competitiveness. They reinforce the performance of both the public and private sectors and accelerate the achievement of sustainable development policy goals.

The level of development of policies that support the creation of digital economies in LLDCs is uneven. While almost 80 per cent of LLDCs have an e-commerce policy, only around 20 per cent have made a commitment to facilitate trade in telecommunication services under the General Agreement on Trade in Services of the World Trade Organization (WTO). With trade policies shaping the regulatory environment for cross-border digital transactions and e-commerce influencing the dynamics of international trade, disparities in the level of adoption can result in missed opportunities to boost digital economies.

Data governance policies and systems are part of the foundational digital economy stack. While data protection frameworks are in place in two thirds of LLDCs, digital identity systems have been established in less than half of LLDCs. Over 80 per cent of LLDCs had a cybersecurity policy in place in 2023, slightly exceeding the world average.

Key digital economy policy instruments, 2023



Notes: The values for each indicator reflect the proportion of countries adopting policy or legal instruments in the respective areas. * Under the General Agreement on Trade in Services of the World Trade Organization (WTO).
Source: ITU, UNCTAD, WTO

Many LLDCs are lagging behind in key digital economy policy areas. No LLDC has adopted a competition policy framework for digital markets and only 22 per cent have technology and service neutral policies and regulations, which are key instruments for levelling the playing field in digital markets. In addition, such instruments need to be complemented by sound enforcement mechanisms and effective regulatory oversight. More than half of LLDCs still apply ICT sector-specific taxes to market players, which may hinder the development of digital services and the entry of new market players.

The implementation of policy and legal frameworks in all cross-cutting areas such as data protection and market entry of new and emerging technologies needs to be further strengthened and institutional capacities reinforced to ensure a solid foundation of digital economies in LLDCs.

Creating an enabling environment for emerging technologies and digital innovation can unleash transformative sustainable development in LLDCs

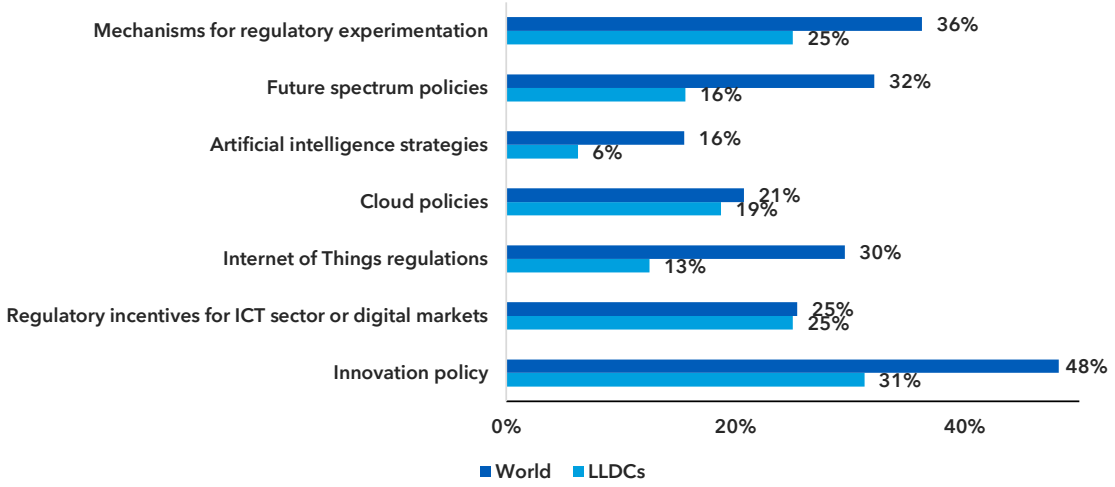
Emerging digital technologies and innovation can contribute to sustainable development in LLDCs through productivity gains and diversification. However, their successful integration and

deployment require agile and anticipatory regulatory frameworks that also minimize the risks of new and emerging technologies.

LLDCs are less likely to have these frameworks in place. Close to a third of LLDCs have adopted innovation policies and a quarter of LLDCs have introduced market mechanisms that enable new and innovative digital services and technologies to reach markets, such as regulatory experimentation spaces and regulatory incentives for ICT and digital market players.

Policies that frame future spectrum technologies, including 5G, fixed wireless access, satellite and space technologies, or a mix of technologies for mobile broadband, are needed to achieve universal and meaningful connectivity but such policies are present in only 16 per cent of LLDCs. A key enabler of environment and climate sensing systems, Internet of Things regulations have been adopted by 13 per cent of LLDCs. Artificial intelligence policy instruments are in place in only two countries, Mongolia and Rwanda.

Policy instruments enabling emerging technologies, 2023



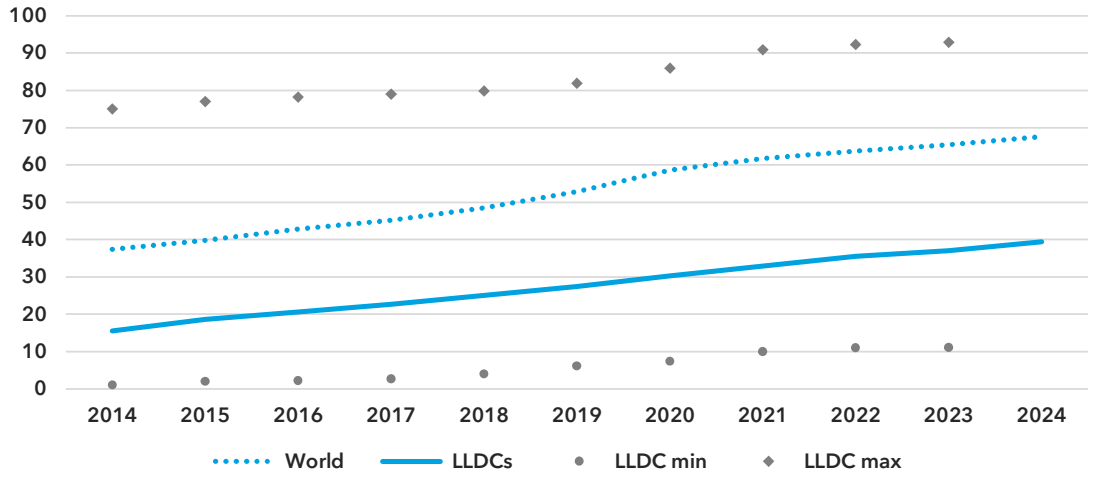
Source: ITU

Adopting emerging technology and innovation policies will be a cornerstone of LLDC efforts to create a conducive and fit-for-future environment for structural transformation and economic resilience. Countries need to continue to advance digital transformation and universal and meaningful connectivity policy agendas to achieve national priorities and sustainable development goals (SDGs).

Internet use

Only 39 per cent of the population in LLDCs is online

Percentage of individuals using the Internet



Note: The chart indicates both *LLDC min* and *LLDC max,* which represent the LLDC with the lowest and highest value in any given year.
Source: ITU

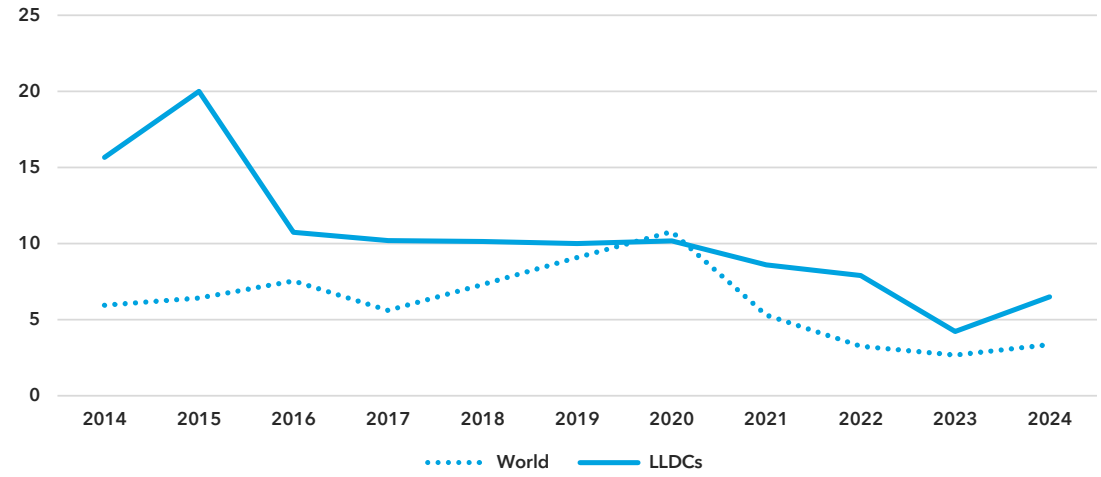
In 2024, about 234 million people in LLDCs were using the Internet. This accounts for 39 per cent of the population of these countries, compared with 68 per cent of the world's population using the Internet. The remaining 359 million people still offline in LLDCs is equal to 14 per cent of the world's offline population, even though the LLDC population accounts for only 7 per cent of the world's population.

Such overall percentages conceal significant disparities in the group of 32 LLDCs. For example, in 2023, Internet use ranged from 11 per cent of the population in Burundi to 93 per cent in Kazakhstan, which is on a par with the Internet use in many advanced economies (see *Disparity between LLDCs* section). In 2024, Internet use stood at 66 per cent in the 12 LLDCs in Asia, while in the 16 LLDCs in Africa the average was 25 per cent.[2]

Since the second UN Conference on Landlocked Developing Countries in 2014, Internet use in LLDCs has more than doubled, increasing from 16 per cent to 39 per cent of the population. This corresponds to a compound annual growth rate of 9.8 per cent, much higher than the 6.1 per cent growth rate worldwide.[3] The COVID-19 pandemic did not accelerate growth in Internet use in LLDCs, with a growth rate that was slightly lower in 2020 than the preceding and following years. In more advanced economies, the growth rate in 2020 typically was twice the growth rate in 2019.

[2] See Annex 1 for the composition of the subregions.
[3] All growth rates in this publication are computed as compound annual growth rate – or CAGR.

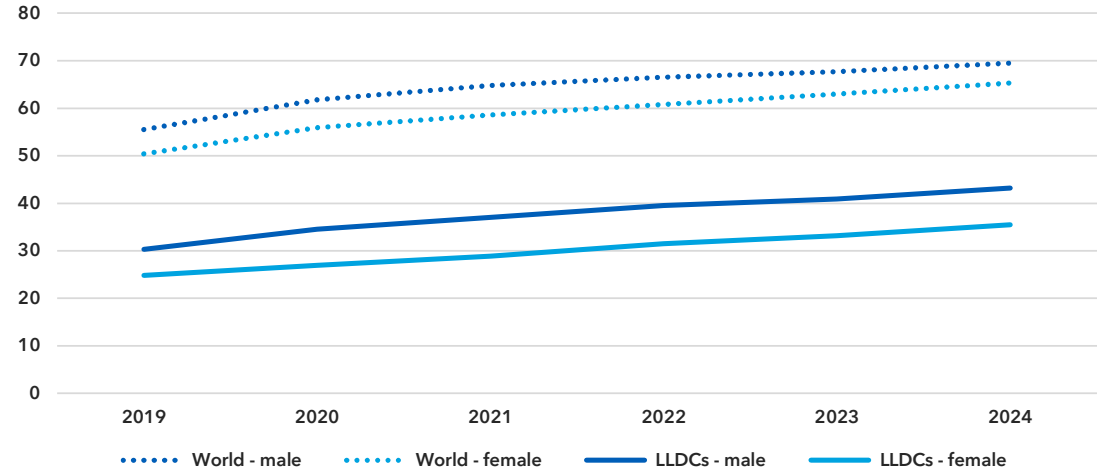
Annual growth rates of Internet use



Source: ITU

The gender gap in Internet use shows no sign of narrowing in LLDCs

Percentage of individuals using the Internet, by gender

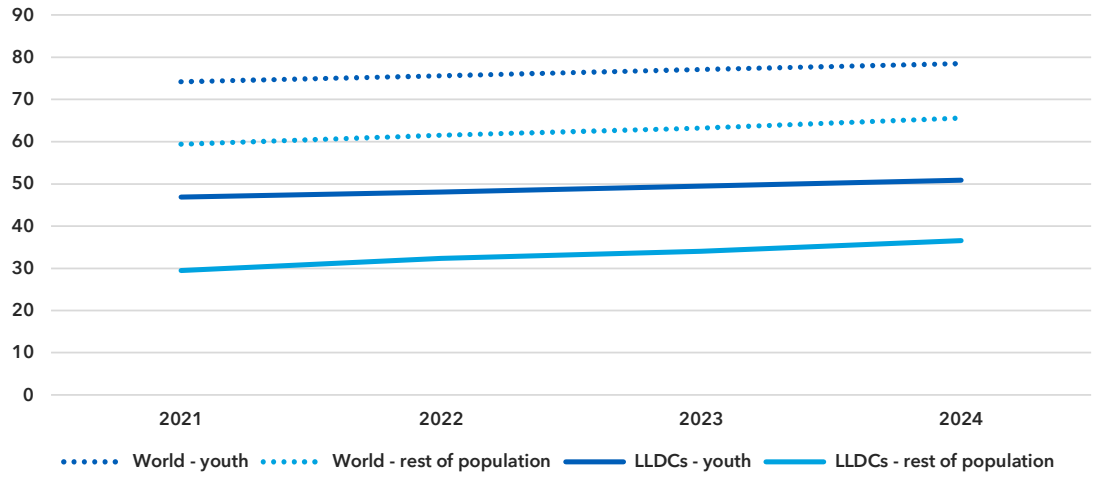


Source: ITU

When expressed in terms of Internet use, the digital gender gap in LLDCs remains significant with no sign of narrowing. In 2024, 43 per cent of the male population in LLDCs was online, up from 30 per cent in 2019. That is 8 percentage points more than the share among the female population (36 per cent), an *increase* of 3 percentage points since 2019. This translates into a gender parity score – the percentage of females using the Internet divided by the percentage of men using the Internet – of 0.82, almost unchanged since 2019. In contrast, the world as a whole, with a score of 0. 94, is getting closer to gender parity, defined as a score between 0.98 and 1.02.

The young are leading the way in Internet use

Percentage of individuals aged between 15 and 24 years using the Internet

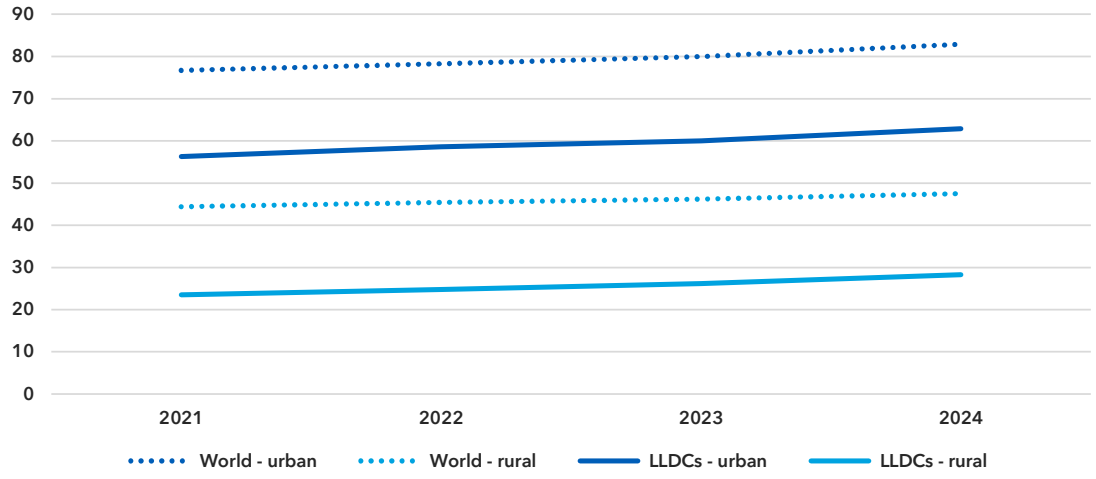


Source: ITU

In 2024, more than half of 15- to 24-year-olds in LLDCs were online (51per cent), 14 percentage points more than the rest of the population in LLDCs. Despite narrowing over the last four years, this gap in Internet use in LLDCs is wider than it is in the rest of the world, both in relative and absolute terms.

Internet use in rural areas is far behind, but growing faster than in urban areas

Percentage of individuals using the Internet, by location



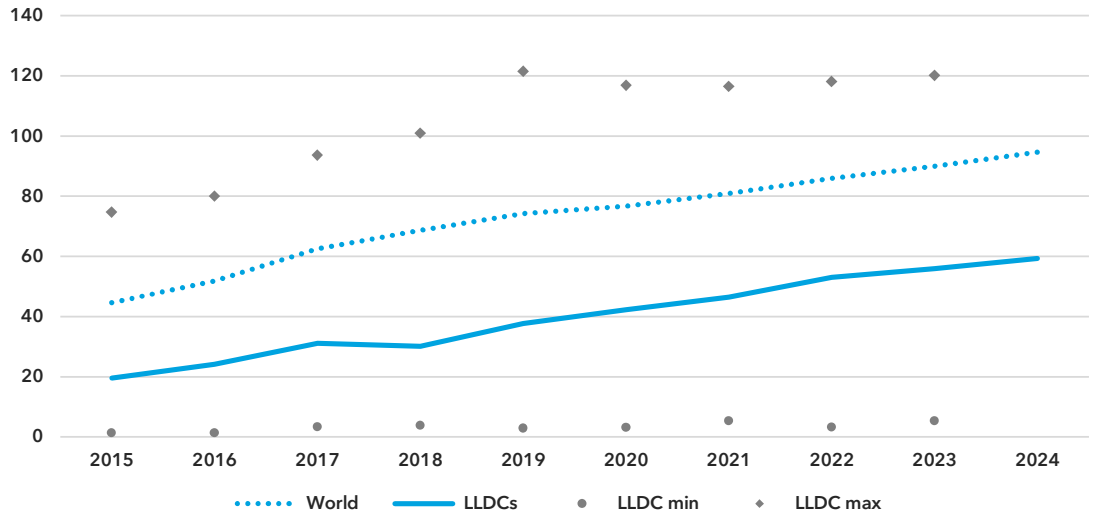
Source: ITU

In LLDCs, 28 per cent of the population in rural areas was online in 2024, compared with 63 per cent of the population in urban areas. This represents a gap of 35 percentage points, slightly smaller than the global gap of 35 percentage points. Between 2021 and 2024, the urban-to-rural ratio in LLDCs narrowed from 2.4 to 2.2, as rural areas recorded 'catch-up' growth of 6.4 per cent annually, almost double the rate in urban areas (3.8 per cent).

Broadband subscriptions

Despite a decade of strong growth, mobile broadband is far from ubiquitous

Active mobile broadband subscriptions per 100 inhabitants

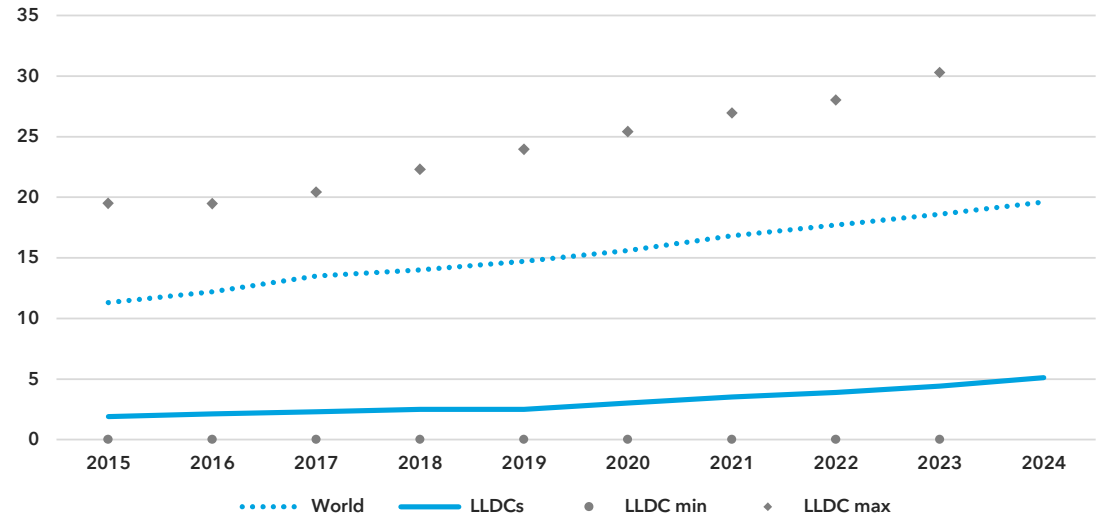


Note: The chart indicates both *LLDC min* and *LLDC max,* which represent the LLDC with the lowest and highest value in any given year.
Source: ITU

The number of mobile broadband subscriptions in LLDCs grew from 20 per 100 inhabitants in 2015 to 59 per 100 inhabitants in 2024. Despite this strong growth – an average of 13.2 per cent *per annum* – the penetration rate remains well below the world average of 95 active mobile-broadband subscriptions per 100 inhabitants. Significant regional disparities exist in the group of LLDCs: penetration in LLDCs in Asia (86 subscriptions per 100 inhabitants) is almost double the rate in LLDCs in Africa (45 subscriptions per 100 inhabitants). Country-level disparities in 2023 ranged from only 5 subscriptions per 100 inhabitants in the Central African Republic to 120 subscriptions per 100 inhabitants in Eswatini and in Mongolia.

Fixed broadband plays a much smaller role in LLDCs, which seem to be caught in a vicious cycle of high costs and low demand, with only 5 fixed-broadband subscriptions per 100 inhabitants in 2024, compared with the world average of 20. The situation is better in LLDCs in Asia, with 13 subscriptions per 100 inhabitants, than in LLDCs in Africa, with only 0.5 subscriptions per 100 inhabitants. At the country level, fixed broadband penetration rates varied from almost zero subscriptions per 100 inhabitants in some LLDCs to 30 subscriptions per 100 inhabitants in Uzbekistan. Fixed-broadband networks are unavailable in many parts of LLDCs, especially in rural areas, and if they are available, they are often prohibitively expensive (see *Affordability* section).

Fixed broadband subscriptions per 100 inhabitants



Note: The chart indicates both *LLDC min* and *LLDC max,* which represent the LLDC with the lowest and highest value in any given year.
Source: ITU

E-commerce and the digital economy

Digital trade in LLDCs: an opportunity to overcome geography

This section was prepared by UNCTAD in collaboration with the United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (UN-OHRLLS).

The digitalization of economic activities could facilitate the participation of LLDCs in international trade by helping to overcome traditional trade barriers and to move more commerce online. UNCTAD has assessed the readiness of LLDCs to engage in digital trade based on their connectivity, legal/regulatory frameworks, e-payment systems, financing, logistics, and skills[4], but statistics are still lacking on the size of e-commerce and the digital economy.[5] Such statistics can improve the readiness of LLDCs to seize opportunities from digitalization by improving the awareness of e-commerce opportunities and market information to support investment in e-commerce startups. LLDCs can refer to UNCTAD methodology to include digital economy measurement in regular business surveys and produce core indicators that are internationally comparable.[6]

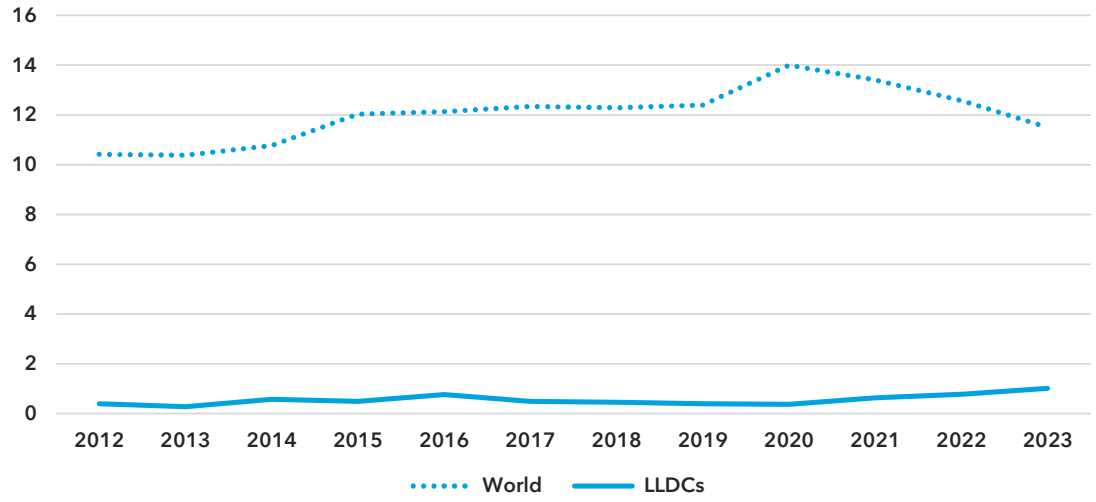
Core indicators on the digital economy, including e-commerce, are needed to track progress towards international connectivity and development targets.[7] They are also key inputs to national and regional e-commerce strategies and digital economy policy. In the meantime, data on the enabling environment for e-commerce and the digital economy, as well as data on international trade in ICT goods, ICT services, and digitally-deliverable services, can provide a partial picture of digital development in LLDCs. The indicators on international trade can be compiled from existing databases on exports and imports.

Exports of ICT goods

After the COVID-19 pandemic, global exports of ICT goods grew from USD 2.3 trillion in 2020 to almost USD 2.9 trillion in 2022, followed by a drop to USD 2.5 trillion in 2023.[8] The share of ICT goods in total goods exports from LLDCs has been low over the last decade, reaching one per cent in 2023. The reliance of LLDCs on ICT goods imports underscores the need to ensure the affordability of such goods to facilitate the participation of these countries in the digital economy.

4 https://unctad.org/system/files/official-document/dtlstictmisc2019d8_en.pdf
5 See the UNCTAD Data Center for available data at https://unctadstat.unctad.org/datacentre/. The last update of the digital economy tables by UNCTAD was in May 2025.
6 See https://unctad.org/publication/manual-production-statistics-digital-economy-2020 for methodological guidance.
7 https://www.itu.int/en/ITU-D/Statistics/Documents/intlcoop/partnership/Thematic_ICT_indicators_for_the_SDGs.pdf
8 https://unctadstat.unctad.org/datacentre/dataviewer/US.IctGoodsValue

Share of ICT goods exports as a percentage of total goods exports

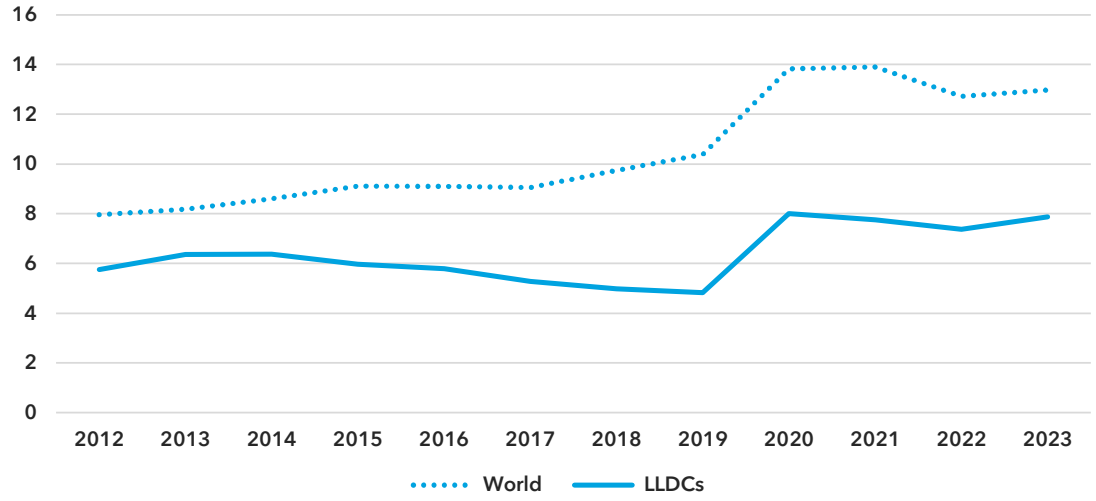


Source: UNCTAD

Exports of ICT services

Although there is a high entry barrier for developing countries, including LLDCs, to engage in ICT goods production and exports, the competitive domestic production of ICT services may hold more opportunities for countries to create and capture value in the digital economy. Although ICT services exports from LLDCs as a share of total services exports have historically lagged those of developing countries overall, UNCTAD published figures for 27 LLDCs in 2022 and 19 LLDCs in 2023, showing a diversified market. Within LLDCs and over the last decade, there are large differences and fluctuations in ICT services exports, but in LLDCs the share of ICT services grew from 5.8 per cent of total trade in services in 2012 to 7.9 per cent in 2023.

Share of ICT services exports as a percentage of total trade in services



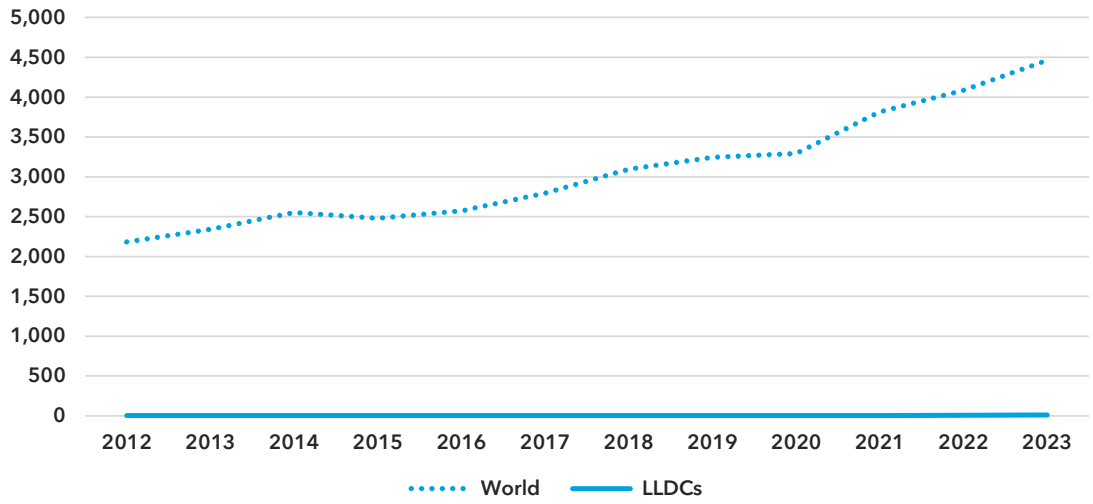
Source: UNCTAD

Exports of digitally-deliverable services[9]

Beyond ICT services, the digital transformation of the global economy has led to other services being increasingly tradeable and delivered remotely. The offshoring of business services represents an opportunity for LLDCs to become part of digital value chains by producing and exporting such services. Exports in digitally-deliverable services were also resilient following the global trade slowdown due to the COVID-19 pandemic, experiencing exceptional growth of 15.8 per cent in 2021, followed by more moderate growth of 7 per cent in 2022 and 9.3 per cent in 2023.

Despite continued growth in all regions, developed economies still dominated the market with 75.6 per cent of digitally deliverable services exports in 2023.[10] LLDCs accounted for merely 0.3 per cent of digitally-deliverable services exports. In the last decade, the exports of digitally-deliverable services from LLDCs grew from USD 6.1 billion in 2012 to USD 13.5 billion in 2023.

Exports of digitally deliverable services, USD billions at current prices

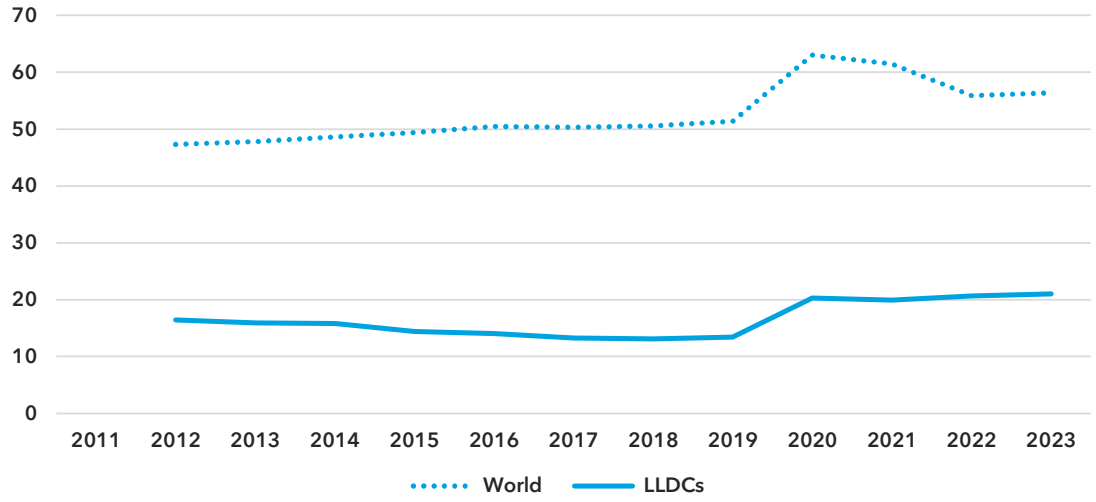


Source: UNCTAD

Concerning the significance of digitally-deliverable services exports in terms of their own total trade in services, LLDCs have shown a fluctuating but generally growing trends over the last decade. The share of digitally-deliverable services exports as a percentage of total trade in services for LLDCs overall has grown from 16.5 per cent in 2012 to 21 per cent in 2023.[11]

[9] Digitally-deliverable services are services that can be delivered remotely over computer networks.
[10] https://unctad.org/news/developing-economies-surpass-1-trillion-mark-digitally-deliverable-services-exports
[11] See also https://unctadstat.unctad.org/insights/theme/231#indicator-48

Share of digitally deliverable services exports as a percentage of total trade in services



Source: UNCTAD

Data gaps related to e-commerce and the digital economy

LLDCs need more and better data on e-commerce and the digital economy, particularly on the use of ICTs by enterprises. As digitalization progresses, LLDCs will also need to know the extent businesses are using the Internet and adopting e-commerce, the value of e-commerce transactions, and the barriers to adoption that policy could address. The UNCTAD eTrade readiness assessments of LLDCs recommend that indicators to monitor e-commerce activities and volumes of transactions, as well as gender disaggregated data (share of women entrepreneurs involved in digital economy activities), are included as part of national e-commerce strategies.

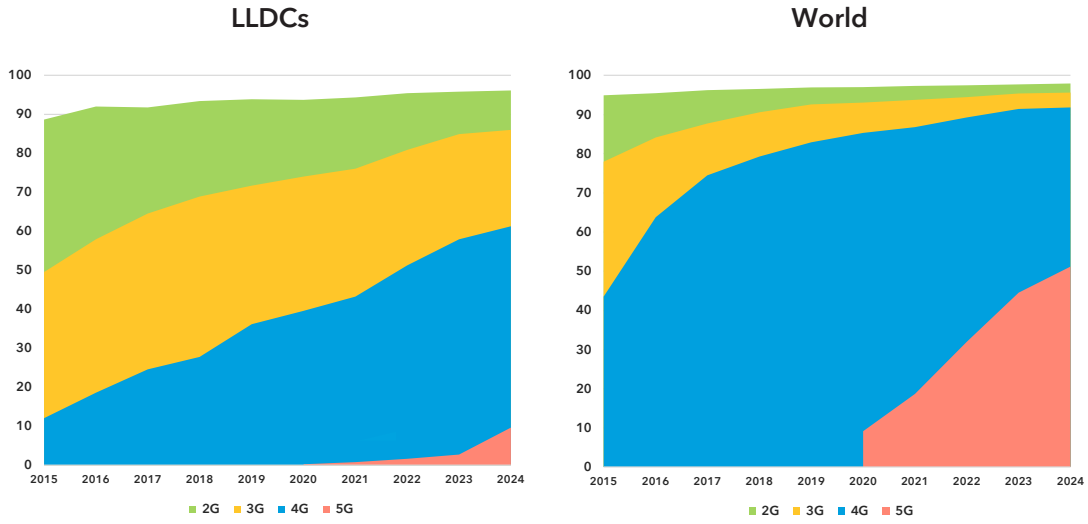
While exports of digitally deliverable services measure one dimension of digital trade, there are few statistics on the use or value of digitally ordered trade (international e-commerce) in developing countries. Measurement is also needed for domestic e-commerce, which tends to be more significant than international e-commerce.[12] Building the capacity of national statistical offices to measure e-commerce and other aspects of the digital economy is key to enabling evidence-based policymaking on these issues. Guidelines on the measurement of e-commerce values are being developed by the UNCTAD Working Group on Measuring E-commerce and the Digital Economy.[13]

[12] https://unctad.org/system/files/official-document/dtlecde2023d3_en.pdf
[13] https://unctad.org/topic/ecommerce-and-digital-economy/measuring-ecommerce-digital-economy/task-group-tg-ecom

Mobile network coverage

Universal broadband coverage still elusive in LLDCs

Percentage of population covered by type of mobile network



Note: The values for 2G, 3G and 4G networks show the incremental percentage of the population that is not covered by a more advanced technology network (e.g. in 2024, 96 per cent of the world population is covered by at least a 3G or above network, that is 4 per cent + 41 per cent + 51 per cent). There is insufficient data to produce estimates for 5G coverage prior to 2020.
Source: ITU

In LLDCs, and most developing countries, mobile broadband (3G or above) is the main way – and often the only way – to connect to the Internet. And yet, only 86 per cent of the LLDC total population is covered by a mobile broadband signal, compared with 96 per cent of the world's population. For LLDCs, this leaves an *access gap* of 14 per cent of the population who cannot access the Internet: 4 per cent have no mobile signal at all, while 10 per cent are only covered by a narrowband (2G) cellular signal that does not connect to the Internet. The access gap in LLDCs is more than three times larger than the global access gap of 4 per cent, made up of 2 per cent of the population without mobile signal and 2 per cent with only a 2G signal. Similar to other connectivity measures, performance varies across LLDCs. For instance, the access gap is 10 per cent in LLDCs in Asia, but 16 per cent in LLDCs in Africa.

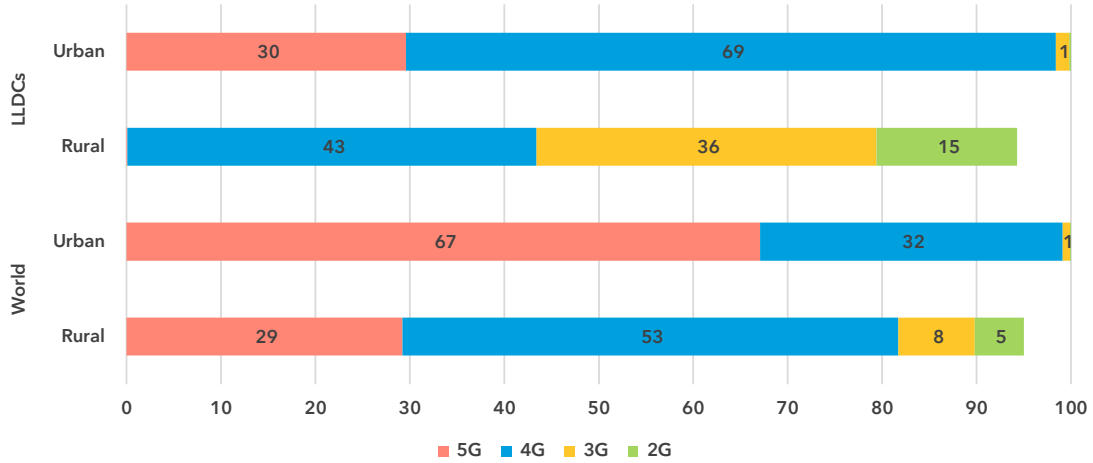
These results show that as a group, LLDCs are far from reaching the Sustainable Development Goals Target 9.c of universal mobile broadband coverage despite having passed the deadline to meet that target five years ago ("to significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020").

Network connection and access are pre-requisites for using the Internet: while 14 per cent of the population in LLDCs cannot access the Internet, another 47 per cent has access to it but does not use it. This *usage gap* is a reminder that there are other barriers besides access that stand in the way of Internet use.[14]

[14] For a discussion of the usage gap and the barriers to connectivity, see The Global Connectivity Report 2022 published by ITU.

Virtually all urban areas in LLDCs are covered by a mobile broadband network, 98 per cent of those to a 4G network. However, in the rural areas of LLDCs, 6 per cent of the population has no mobile signal at all and another 15 per cent only has access to a 2G network, meaning that 21 per cent cannot access the Internet. Thirty-six per cent can only rely on a 3G network. This means that 43 per cent of the rural population of LLDCs is covered by a much faster 4G network, whereas 5G is almost completely unavailable.

Population coverage by type of mobile network and location, 2024

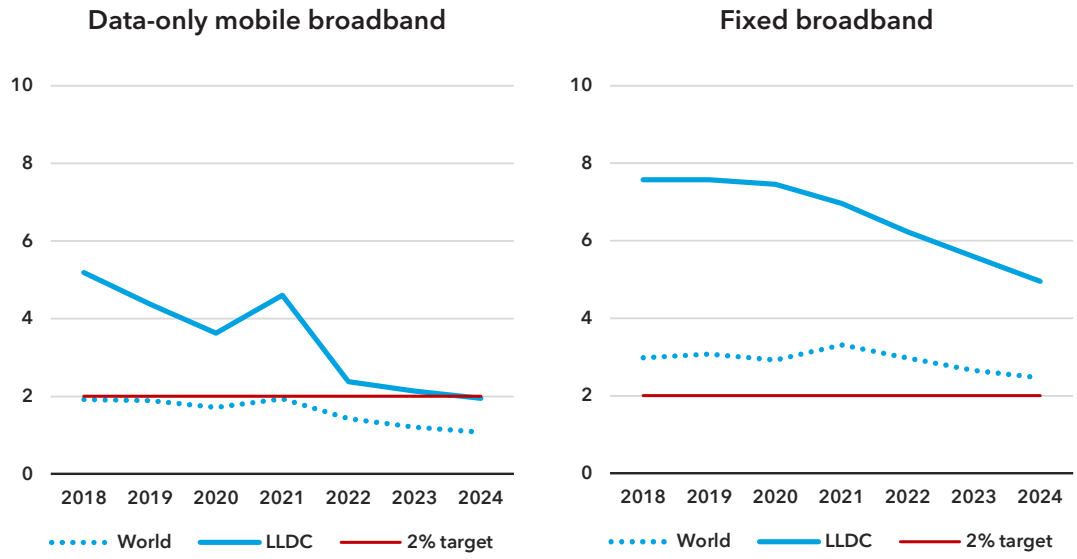


Note: The values for 2G and 3G networks show the incremental percentage of the population that is not covered by a more advanced technology network (e.g. 89 per cent of the world's rural population is covered by a 3G and above network, that is 80 per cent + 9 per cent). It Is not yet possible to estimate 5G coverage in urban and rural areas.
Source: ITU

Affordability

Despite rapid falls in mobile-broadband prices, affordability targets remain elusive

Price of broadband services as a percentage of gross national income per capita



Note: Data-only mobile broadband refers to a basket of services including 2 GB monthly data allowance at 3G or higher technology. Fixed broadband services include 5 GB monthly allowance at 256 kbit/s or higher speeds. To eliminate the effect of annual changes in data availability on price trends, median values shown here were calculated based on a comparable set of countries for which data is available for each year from 2018 to 2024 (30 LLDCs for the mobile-broadband basket and 25 for the fixed-broadband basket).
Source: ITU

Affordability is one of the main barriers to universal and meaningful connectivity. In most LLDCs, prices are typically higher than the world medians. But the level of affordability varies across countries and types of service (fixed or mobile broadband).

For instance, the price of the entry-level mobile-broadband basket expressed in per cent of monthly gross national income (GNI) per capita varied in 2024, from 0.6 per cent in Moldova and Azerbaijan to 26.7 per cent in the Central African Republic. The differences are also significant across regions: in LLDCs in Africa, the median price of this basket was 5.0 per cent of GNI per capita, more than four times the price (1.2 per cent) in LLDCs in Asia, which is close to the world median (1.1 per cent).

In LLDCs, the price gap between mobile and fixed broadband is wider than elsewhere in the world. The fixed broadband basket typically costs more than twice the global median in LLDCs in general. In addition, fixed broadband affordability differs significantly between LLDCs in Asia and Africa, as the median price in Africa, at 10.6 per cent of GNI per capita, was three times that in Asia and more than four times the world median.

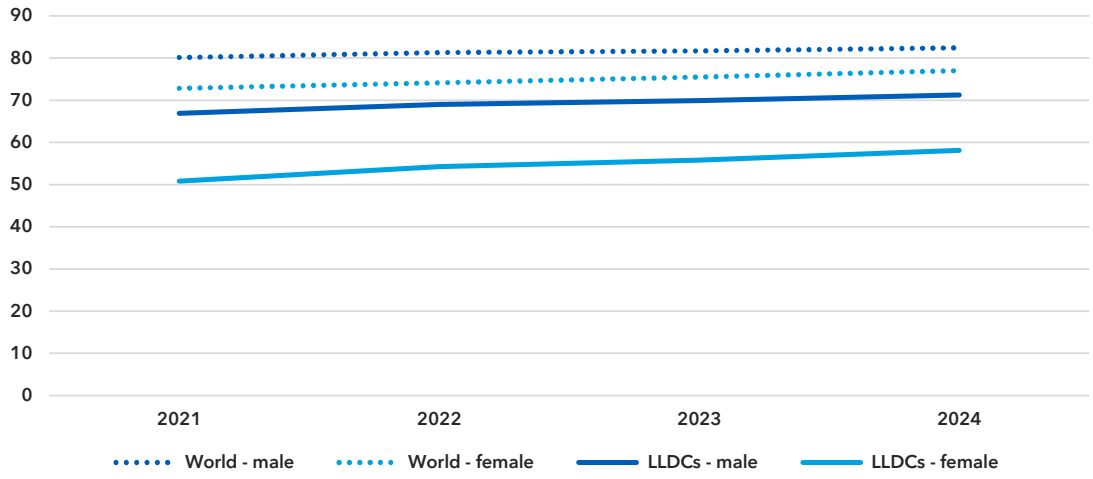
The United Nations Broadband Commission has set as target that the price of an entry-level broadband subscription should not exceed 2 per cent of GNI per capita. In 2024, only 16 of the 32 countries for which data is available met this affordability target. There were a further 6 LLDCs where mobile broadband services cost less than 5 per cent of monthly GNI per capita.

The affordability of broadband services in LLDCs improved faster than in the rest of the world. The median price for a data-only mobile subscription dropped from 5.2 per cent of monthly GNI per capita in 2018 to 1.9 per cent in 2024. The rate of decline was similar in LLDCs in Africa and in Asia. In contrast, during the same period, the price of the fixed-broadband basket *increased* in LLDCs in Asia, with higher retail prices triggered by investments in network deployment and technology upgrades.

Mobile phone ownership and subscriptions

Amidst high mobile phone ownership, the gender divide remains wide

Percentage of individuals owning a mobile phone, by gender

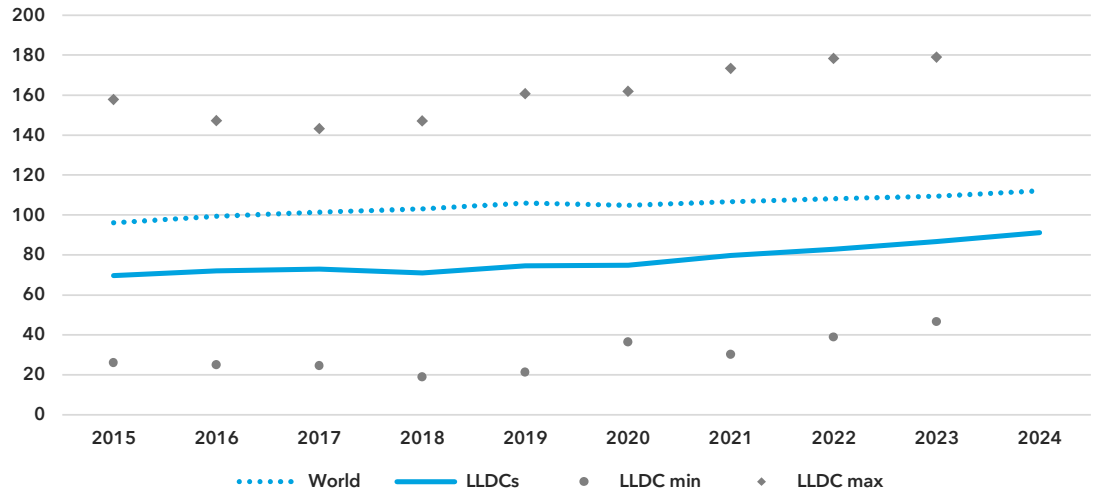


Note: Individuals aged 10 or older
Source: ITU

In 2023, thirteen out of twenty people owned a mobile phone in LLDCs (65 per cent), which is closer to the global average (80 per cent) than observed for other indicators such as Internet use where the gap is 28 percentage points. Not surprisingly, this was also the case for mobile cellular subscriptions: the LLDC average of 91 subscriptions per 100 inhabitants is relatively close to the world average of 112. The gap in mobile broadband is much wider: 59 subscriptions per 100 inhabitants in LLDCs compared with 95 for the world. This is partly because of the lack of infrastructure to access a mobile broadband network, but these results also suggest that voice and text remain an important means to communicate in LLDCs.

The gender gap for mobile phone ownership remains wide. In 2024, 71 per cent of the male population (aged ten and above) in LLDCs owned a mobile phone compared with 58 per cent among the female population. This translates into a gender parity score of 0.82, much lower than the global gender parity score of 0.93, but a significant improvement in the last four years.

Mobile cellular subscriptions per 100 inhabitants

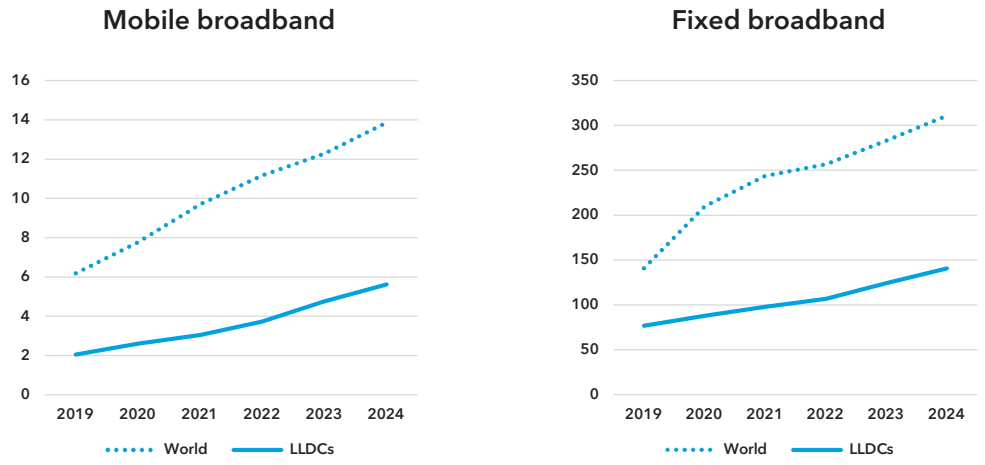


Note: The chart indicates both *LLDC min* and *LLDC max,* which represent the LLDC with the lowest and highest value in any given year.
Source: ITU

Internet traffic and international bandwidth

Despite less availability, fixed broadband is important for heavy Internet usage

Broadband traffic per subscription per month (GB)



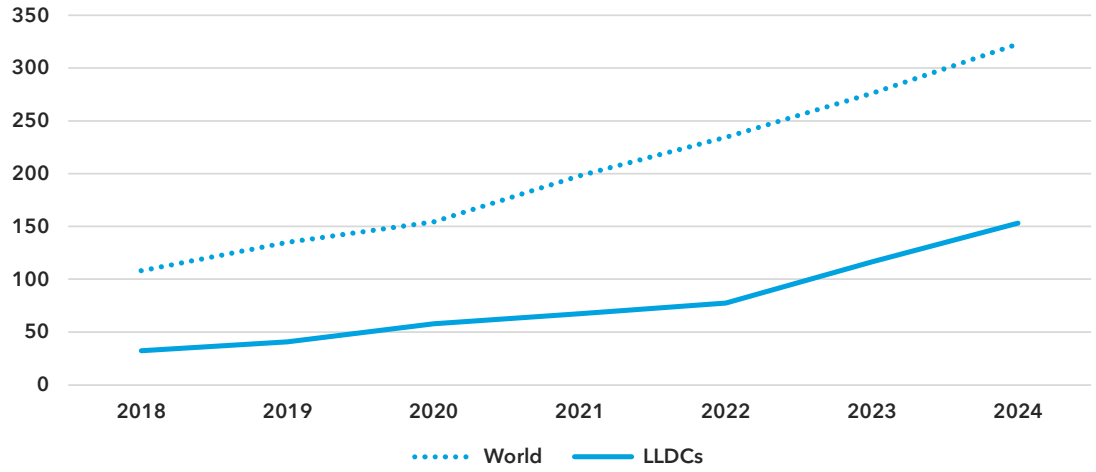
Source: ITU

Globally, fixed broadband accounted for almost five times the Internet traffic of mobile-broadband. In LLDCs, the ratio of fixed-broadband to mobile-broadband traffic stood at 2.1, reflecting much less availability and use of fixed broadband.

Nevertheless, when available, fixed broadband is the network of choice for heavy data usage, even in LLDCs. While the average monthly consumption of mobile data stood at 5.6 GB per mobile subscription in LLDCs in 2024, fixed broadband subscriptions averaged 141 GB. Mobile broadband Internet traffic per subscription in LLDCs increased at a rate above that observed globally. However, the gap between LLDCs and the rest of the world widened by 9 percentage points between 2019 and 2024 for fixed broadband data usage.

Insufficient international connectivity infrastructure is one of the key connectivity barriers in LLDCs. At 153 kbit/s on average, an Internet user in an LLDC can use less than half of the international bandwidth compared to the world average.

International bandwidth per Internet user (kbit/s)



Source: ITU

Disparity between LLDCs

Averages conceal vast disparities in connectivity performance among LLDCs

Landlocked developing countries are often analysed as a single group but there are significant variations. For example, in terms of income levels, GNI per capita in 2023 ranged from less than USD 500 in some LLDCs to over USD 10 000 in Kazakhstan. And while all countries in this group are landlocked – by definition –, their terrain varies from mountainous to desert to tropical grasslands.

Given these differences, it is useful to group LLDCs based on elements of connectivity performance. Specifically, countries can be grouped according to indicators of Internet use, mobile phone ownership, mobile and fixed subscription levels, affordability of entry-level mobile and fixed broadband, and gender equality. This 'cluster analysis' yields five distinct groups of LLDCs, whose respective members share similar ICT profiles.

The first group, made up of Azerbaijan, Kazakhstan, Moldova, Mongolia, North Macedonia, and Uzbekistan is characterized by levels of ICT usage and ownership generally above the world average. Affordability is also in line with world averages with the median price of a data-only mobile broadband basket well below the Broadband Commission target of 2 per cent of monthly GNI per capita or lower. It is also the only group among LLDCs with substantial fixed broadband penetration (23 subscriptions per 100 inhabitants), whereas the average penetration rate in several of the other groups is almost zero. While this group has mostly positive indicators of connectivity, challenges remain in bridging digital divides as the relative gender gap for Internet use is wider than global averages.

The next group of LLDCs – consisting of Armenia, Bhutan, Bolivia, Botswana, Eswatini, Kyrgyzstan, Lao P.D.R., Lesotho, Nepal, Paraguay, and Turkmenistan – has levels of connectivity that are in line with world averages. The gender gap in this group is another strong point as this gap has been nearly closed in this group on average. Fixed broadband remains a challenge for this group as fixed broadband subscriptions are low (5 subscriptions per 100 inhabitants) and fixed broadband prices are well above the 2 per cent target. While the relative level of connectivity of these countries is higher than of most other LLDCs, the general level of development of some remains low. Bhutan, Lao P.D.R, and Nepal are also classified as Least Developed Countries (LDCs) making their classification in this more advanced group notable.

By contrast, the third group of LLDCs – consisting of Afghanistan, Niger, Tajikistan, and Zambia – has much lower levels of mobile and fixed subscriptions, Internet use, and mobile phone ownership compared to the first two groups. The group also has much higher prices relative to GNI per capita. The digital gender gap is also extremely wide in these countries. Among these countries, all but Tajikistan are LDCs.

The fourth group, consisting of Burkina Faso, Ethiopia, Malawi, Mali, Rwanda, Uganda, and Zimbabwe, is like the third group with slightly lower average shares of Internet use, mobile phone ownership and broadband subscriptions. Data-only mobile broadband prices are slightly lower than for the third group while fixed broadband prices are much higher. A major distinction between this group and the third group is in gender equality – the relative gender gap in Internet use is much narrower (though challenges remain). Like the previous group, all countries in this group are LDCs except for Zimbabwe.

The fifth and final group is characterized by the lowest levels of ICT use and ownership, lowest subscription levels and poorest affordability measures of these groups. This demonstrates the development challenges present in these countries – Burundi, Central African Republic, Chad, and South Sudan. In this group, the average share of individuals using the Internet remains below 20 per cent. In addition, these countries are characterized by especially challenging affordability issues with the median country's data-only mobile broadband plan priced at over 20 per cent of monthly GNI per capita. Each country in this group is also an LDC.

The diversity of these groups of countries underlines the need for flexibility in approaching the varied challenges of bringing universal and meaningful connectivity to people living in LLDCs. The underlying conditions in each country must be fully understood to develop truly impactful policies.

Average of key ICT indicators by group of similar LLDCs, 2024

	Group					
Indicator (units)	1 (6 LLDCs)	2 (11 LLDCs)	3 (4 LLDCs)	4 (7 LLDCs)	5 (4 LLDCs)	World average
Share of individuals using the Internet (%)	86.9	71.2	32.7	25.6	12.8	**64**
Gender equality – Internet use (relative gap)	0.83	0.98	0.56	0.83	0.75	**0.88**
Share of individuals owning mobile phones (%)	89.2	83.0	62.5	59.7	34.8	**76**
Mobile broadband subscriptions (per 100 inhabitants)	97.3	87.3	47.2	54.8	7.0	**85**
Fixed broadband subscriptions (per 100 inhabitants)	22.8	4.6	0.5	0.3	0.0	**18**
Data-only mobile broadband prices (as a % of GNI per capita)	2.2	5.6	12.7	30.7	30.8	**1.5**
Fixed broadband prices (as a % of GNI per capita)	0.7	1.7	5.8	4.8	29.9	**3.2**

Note: Countries were assigned to groups using hierarchical clustering (detailed explanation available at https://uc-r.github.io/hc_clustering). Missing data were imputed based on overall ranked performance of countries for available indicators. Averages shown are not population-weighted as clustering was performed under the assumption of equal weight per country. *Relative gap* is calculated as the geometric mean of the gender gap for individuals using the Internet and those not using the Internet. *Data-only mobile broadband* refers to a basket of services including 2 GB monthly data allowance at 3G or higher technology. *Fixed broadband* includes 5 GB monthly allowance at 256 kbit/s or higher speeds. Affordability data (*Data-only mobile broadband* and *Fixed broadband*) are group medians to account for outliers.
Source: ITU

Annex 1: Regional composition

For the purpose of this publication, the 32 LLDCs were grouped according to the following classification:

Africa (16 countries): Botswana, Burkina Faso, Burundi, Central African Republic, Chad, Eswatini, Ethiopia, Lesotho, Malawi, Mali, Niger, Rwanda, South Sudan, Uganda, Zambia, and Zimbabwe.

Asia (12 countries): Afghanistan, Armenia, Azerbaijan, Bhutan, Kazakhstan, Kyrgyzstan, Lao P.D.R., Mongolia, Nepal, Tajikistan, Turkmenistan, and Uzbekistan.

The other four countries (Bolivia (Plurinational State of), Moldova, North Macedonia, and Paraguay) have not been assigned to a group, because the group sizes would be too small. Refer to Tables A.2.2 and A.2.3 of Annex 2 for country values.

Annex 2: Group aggregates and country values for selected connectivity indicators

This annex reports aggregates for the world, LLDCs and LLDCs by subregion in Table A2.1 (LLDCs-Africa and LLDCs-Asia). Values for individual LLDCs are given in Tables A2.2 and A2.3 for selected connectivity indicators. More data is available on the ITU DataHub.

Table A2.1: World aggregates and LLDC aggregates

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Mobile-cellular telephone subscriptions per 100 inhabitants										
World	96.1	99.3	101.4	103.1	105.9	104.9	106.7	108.1	109.4	112.1
LLDCs	69.7	72.1	72.9	71.0	74.5	74.9	79.8	82.8	86.7	91.2
LLDCs Africa	56.0	57.8	56.5	55.5	58.2	61.1	68.6	72.1	77.7	84.2
LLDCs Asia	91.7	95.9	101.1	97.5	103.5	99.0	99.0	101.0	102.3	103.5
Fixed-telephone subscriptions per 100 inhabitants										
World	14.1	13.4	13.0	12.4	11.9	11.5	11.2	10.9	10.5	10.3
LLDCs	3.8	3.9	3.7	3.5	3.8	3.5	3.4	3.3	3.2	3.2
LLDCs Africa	0.8	0.9	0.8	0.7	0.7	0.6	0.5	0.5	0.5	0.5
LLDCs Asia	8.5	8.7	8.3	8.2	9.2	8.8	8.7	8.4	8.4	8.5
Active mobile-broadband subscriptions per 100 inhabitants										
World	44.6	51.8	62.5	68.6	74.2	76.7	80.9	85.9	89.9	94.6
LLDCs	19.5	24.1	31.1	30.1	37.6	42.3	46.4	53.0	55.9	59.3
LLDCs Africa	11.5	14.2	20.6	18.2	25.3	30.4	33.4	38.3	41.5	45.2
LLDCs Asia	31.8	39.2	47.0	48.3	57.5	62.1	68.6	79.7	82.4	85.8
Fixed-broadband subscriptions per 100 inhabitants										
World	11.3	12.2	13.5	14.0	14.7	15.6	16.8	17.7	18.6	19.6
LLDCs	1.9	2.1	2.3	2.5	2.5	3.0	3.5	3.9	4.4	5.1
LLDCs Africa	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.5
LLDCs Asia	4.6	5.1	5.8	6.4	6.2	7.5	8.8	10.0	11.5	13.4
Population covered by a mobile-cellular network (%)										
World	94.9	95.5	96.2	96.5	96.9	97.0	97.3	97.5	97.7	97.9
LLDCs	88.7	92.0	91.8	93.4	93.9	93.7	94.3	95.4	95.8	96.1
LLDCs Africa	86.8	90.5	89.8	92.2	92.9	92.6	93.4	94.3	95.0	95.1
LLDCs Asia	90.9	94.6	94.7	94.7	95.1	95.2	95.4	97.1	97.2	97.9

(continued)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Population covered by at least a 3G mobile network (%)										
World	78.0	84.2	87.7	90.6	92.6	93.1	93.8	94.5	95.4	95.6
LLDCs	49.6	58.0	64.6	68.9	71.7	74.1	76.1	80.9	84.9	86.0
LLDCs Africa	46.9	56.1	60.3	65.7	68.9	71.6	73.8	79.6	82.5	83.8
LLDCs Asia	54.1	57.6	69.5	72.2	74.1	76.6	78.5	81.7	88.4	89.6
Population covered by at least an LTE/WiMAX mobile network (%)										
World	43.5	63.8	74.5	79.3	82.9	85.3	86.8	89.3	91.4	91.8
LLDCs	12.1	18.6	24.6	27.8	36.2	39.6	43.3	51.3	58.0	61.3
LLDCs Africa	7.9	11.7	15.7	18.3	26.1	27.5	31.9	41.3	47.4	52.0
LLDCs Asia	17.7	25.8	35.0	39.4	49.7	58.2	61.3	67.5	75.9	77.3
Population covered by at least a 5G mobile network										
World	N/A	N/A	N/A	N/A	N/A	9.2	18.7	32.0	44.5	51.2
LLDCs	N/A	N/A	N/A	N/A	N/A	0.3	0.8	1.7	2.8	9.7
LLDCs Africa	N/A	N/A	N/A	N/A	N/A	0.0	0.0	0.3	0.9	5.7
LLDCs Asia	N/A	N/A	N/A	N/A	N/A	0.8	2.6	4.2	6.3	17.5
International bandwidth usage per Internet user (kbit/s)										
World	52.4	67.0	84.7	108.1	134.9	154.3	198.0	234.5	276.1	322.8
LLDCs	23.9	27.1	25.0	32.5	40.7	58.0	67.5	77.5	116.4	153.3
Mobile-broadband traffic per subscription (GB)										
World	N/A	N/A	N/A	N/A	74.2	93.1	116.4	134.0	147.4	166.3
LLDCs	N/A	N/A	N/A	N/A	24.5	31.1	36.6	44.7	57.0	67.4
Fixed-broadband traffic per subscription (GB)										
World	N/A	N/A	N/A	N/A	1 690.3	2 517.8	2 926.5	3 079.6	3 395.1	3 731.9
LLDCs	N/A	N/A	N/A	N/A	919.7	1 053.3	1 172.9	1 279.6	1 489.6	1 686.2
Individuals using the Internet (%)										
World	39.8	42.8	45.2	48.5	52.9	58.6	61.7	63.7	65.4	67.6
LLDCs	18.6	20.6	22.7	25.0	27.5	30.3	32.9	35.5	37.0	39.4
LLDCs Africa	9.9	11.2	12.7	13.8	15.6	17.4	18.7	20.9	22.4	24.8
LLDCs Asia	32.0	35.3	37.9	43.2	47.5	51.9	57.2	61.0	63.2	65.9

(continued)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Individuals owning a mobile phone* (%)										
World	N/A	N/A	N/A	N/A	70.9	74.2	76.4	77.7	78.6	79.7
LLDCs	N/A	N/A	N/A	N/A	54.6	56.3	58.7	61.5	62.7	64.6
LLDCs Africa	N/A	N/A	N/A	N/A	47.2	48.9	51.1	53.4	54.5	N/A
LLDCs Asia	N/A	N/A	N/A	N/A	65.9	66.9	70.1	74.2	75.7	N/A
Data-only mobile broadband basket price as a % of GNI per capita**										
World	N/A	N/A	N/A	1.9	1.9	1.7	1.9	1.4	1.2	1.1
LLDCs	N/A	N/A	N/A	5.2	4.4	3.6	4.6	2.4	2.1	1.9
LLDCs Africa	N/A	N/A	N/A	11.8	11.8	9.0	9.1	6.3	5.8	5.0
LLDCs Asia	N/A	N/A	N/A	2.9	2.8	2.3	2.2	1.3	1.1	1.2
Fixed broadband basket price as a % of GNI per capita**										
World	N/A	N/A	N/A	3.0	3.1	2.9	3.3	3.0	2.6	2.5
LLDCs	N/A	N/A	N/A	7.6	7.6	7.5	7.0	6.2	5.6	5.0
LLDCs Africa	N/A	N/A	N/A	25.8	25.8	23.4	20.5	16.3	12.6	10.6
LLDCs Asia	N/A	N/A	N/A	2.9	2.9	3.1	3.2	4.4	4.5	3.5

Note: * Individuals aged 10 or older. ** To eliminate the effect of annual changes in data availability on price trends, median values shown here were calculated based on a comparable set of countries for which data is available for each year from 2018 to 2024 (30 LLDCs for the mobile-broadband and 25 for the fixed-broadband basket). All data are ITU estimates. N/A: Not available. For the composition of the regional classification of LLDCs, see Annex 1.
Source: ITU

Table A2.2: Selected connectivity indicators for LLDCs (Part 1)

Values are for 2023 unless otherwise specified.

	% indiv. using the Internet	Mob.-cell. subs. per 100 inhab.	Fixed-tele-phone subs. per 100 inhab.	Mobile-broad-band subs. per 100 inhab.	Fixed-broad-band subs. per 100 inhab.
World (2024)	**67.6**	**112.1**	**10.3**	**94.6**	**19.6**
LLDCs (2024)	**39.4**	**91.2**	**3.2**	**59.3**	**5.1**
Afghanistan	*17.7*	55.5	0.4	55.5	0.1
Armenia	80.0	134.5	11.2	103.2	18.5
Azerbaijan	89.0	107.7	15.8	85.4	20.9
Bhutan	*88.4*	95.6	2.3	96.8	1.3
Bolivia (Plurinational State of)	*70.2*	101.6[-1]	3.9[-1]	91.8	11.0[-1]
Botswana	*81.4*	179.0	3.6	111.9	3.4
Burkina Faso	*17.0*	119.5[-1]	0.3[-1]	85.4	0.1[-1]

(continued)

	% indiv. using the Internet	Mob.-cell. subs. per 100 inhab.	Fixed-tele-phone subs. per 100 inhab.	Mobile-broad-band subs. per 100 inhab.	Fixed-broad-band subs. per 100 inhab.
Burundi	*11.1*	63.2	0.1	10.3	0.0
Central African Republic	*13.2*	38.8[-1]	0.0[-1]	5.3	0.0[-1]
Chad	*13.2*	70.2	0.0	5.8	0
Eswatini	*57.6*	128.4	3.4	120.1	2.8
Ethiopia	*21.0*	57.0[-1]	0.7[-1]	32.2	0.5[-1]
Kazakhstan	92.9	127.1	13.2	91.6	14.3
Kyrgyzstan	*88.5*	108.6	2.6	92.1	6.4
Lao P.D.R.	*63.6*	64.8	16.1	64.8	2.7
Lesotho	*48.0*	69.4	0.3	61.0	0.4
Malawi	18.0	61.1	0.0	40.2	0.1
Mali	*35.1*	112.1[-1]	1.3[-1]	59.1	0.8[-1]
Moldova	*80.2*	130.8	27.6	94.6	27.4
Mongolia	*83.0*	141.1	14.0	120.1	14.6
Nepal (Republic of)	*55.8*	133.3[-1]	2.5[-1]	94.5	4.8[-1]
Niger	*23.2*	65.7	0.7	32.4	0.1
North Macedonia	*87.2*	104.8	23.8[-1]	85.3	29.2
Paraguay	78.1	126.6	3.0	75.0	12.9
Rwanda	*34.2*	91.5	0.1	66.5	0.4
South Sudan	*13.8*	46.6	0.0	6.6	0.0
Tajikistan	*56.8*	76.2	2.2	40.8	1.0
Turkmenistan	*71.7*	88.2[-2]	10.2[-1]	49.2	5.2[-1]
Uganda	*15.3*	76.3	0.3	32.8	0.1
Uzbekistan	89.0	106.9	17.2	106.5	30.3
Zambia	*33.0*	102.1	0.4	60.0	0.7
Zimbabwe	*38.4*	91.6	1.9	67.1	1.6

[-1]: 2022. [-2]: 2021
Note: Estimates appear in italics.
Source: ITU

Table A2.3: Selected connectivity indicators for LLDCs (Part 2)

Values are for 2023 unless otherwise specified.

	% pop. covered by a mobile-cellular network	% pop. covered by at least a 3G mobile network	% pop. covered by at least a 4G mobile network	% pop. covered by at least a 5G mobile network	Mobile broadb. basket as a % of GNI p.c. (2024)	Fixed broadb. basket as a % of GNI p.c. (2024)	Mobile broadb. traffic per subs. (GB)	Fixed-broadb. traffic per subs. (GB)	Intern. bandw. per Internet user (kbit/s)
World (2024)	**97.9**	**95.6**	**91.8**	**51.2**	**1.2**	**2.7**	**166.3**	**3 732**	**322.8**
LLDCs (2024)	**96.1**	**86.0**	**61.3**	**9.7**	**2.3**	**6.1**	**67.4**	**1 686**	**153.3**
Afghanistan	92.3	67.0	34.0	0[-2]	8.4	3.0	9.7	N/A	31.4
Armenia	100.0	100.0	100.0	11.1	0.7	2.5	118.5	5 019	194.9
Azerbaijan	100.0	100.0	100.0	0.0	0.6	1.3	46.6	6 126	264.0
Bhutan	98.0	97.0	97.0	40.0	0.7	2.2	205.6	72	56.1
Bolivia (Plurinational State of)	*100*[-1]	*92.0*	*87.0*	*0*[-2]	1.4	8.1	N/A	N/A	68.5[-2]
Botswana	99.0	98.0	91.0	23.0	0.9	5.7	67.8	922	325.7[-1]
Burkina Faso	*92.6*[-1]	*63.3*	*42.4*	*0*[-2]	5.0	29.5	1.3[-2]	N/A	N/A
Burundi	96.8	53.2	32.2	0.0	10.4	N/A	65.4	1,982	14.6
Central African Republic	59.6	*59.6*	*0.3*	*0*[-2]	26.7	N/A	N/A	N/A	N/A
Chad	86.9	75.4	44.3	0.0	8.4	N/A	34.5[-2]	N/A	24.3
Eswatini	99.1	99.1	87.0	0.0	3.5	1.7	17.7	828	51.8
Ethiopia	99.1[-1]	98.5	35.0	0[-1]	1.8	10.6	19.8[-1]	1 401[-1]	21.1[-1]
Kazakhstan	99.0	97.7	89.2	38.2	1.1	0.9	312.5	3 146	145.1
Kyrgyzstan	99.6	99.5	99.3	0.0	1.3	5.5	292.0	1 845	144.9
Lao P.D.R.	97.0	85.0	76.0	17.0	1.4	5.8	42.0[-2]	533[-2]	26.2[-2]
Lesotho	95.8	95.8	85.1	0.0	5.1	6.3	9.8	742	8.5
Malawi	89.1	88.7	74.9	0.0	8.8	46.9	23.8	336	29.7
Mali	100.0	*81.0*	*81.0*	0[-1]	9.2	22.9	N/A	N/A	20.7[-1]
Moldova	100.0	99.9	99.3	0[-2]	0.6	1.2	112.7	N/A	610.2
Mongolia	100.0	100.0	99.0	0[-2]	1.2	2.1	160.4	2,112	136.9
Nepal (Republic of)	98.3[-1]	*90.0*	*88.0*	*0*[-2]	2.0	7.2	N/A	N/A	N/A
Niger	*92*[-1]	*44.0*	*40.0*	*0*[-2]	8.3	61.14	N/A	N/A	N/A
North Macedonia	99.9	99.9	99.9	66.2	0.7	2.5	131.0	2 479	28.2
Paraguay	99.8	99.6	96.9	0.0	1.9	3.8	N/A	N/A	N/A
Rwanda	99.1	99.1	98.8	0.0	2.1	26.4	17.3	5 688	31.6

(continued)

	% pop. covered by a mobile-cellular network	% pop. covered by at least a 3G mobile network	% pop. covered by at least a 4G mobile network	% pop. covered by at least a 5G mobile network	Mobile broadb. basket as a % of GNI p.c. (2024)	Fixed broadb. basket as a % of GNI p.c. (2024)	Mobile broadb. traffic per subs. (GB)	Fixed-broadb. traffic per subs. (GB)	Intern. bandw. per Internet user (kbit/s)
South Sudan	65.3	18.0	15.0	0.0	13.2	N/A	N/A	N/A	0.5
Tajikistan	*94.3*[-1]	*94.3*	*80.0*	N/A	2.9	5.9	N/A	N/A	N/A
Turkmenistan	98[-1]	*90.0*	*80.0*	*0*[-2]	1.7	5.0	N/A	N/A	22.8[-2]
Uganda	98.0	86.0	40.0	0[-1]	3.2	36.0	35.4	1 066	383.2
Uzbekistan	99.5	96.0	92.0	18.0	0.6	4.1	76.6	556	223.4
Zambia	97.1	95.5	91.2	0.0	2.2	4.5	39.0	2 990	38.4
Zimbabwe	93.8	86.8	44.7	2.7	8.8	9.7	15.6	2 416	58.5

[-1]: 2022. [-2]: 2021.
Notes: Estimates appear in italics; ICT price basket country data refer to 2024, world and LLDC median values are based on a pool of economies with data available for both 2023 and 2024.
Source: ITU

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