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International Telecommunication Union
Development Sector

Measuring digital development

The ICT Development Index 2023

Measuring digital development

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Foreword

In 2009, ITU introduced the first IDI, which became an important tool for policymakers in charge of the digital agenda. After a six-year hiatus, we resume its publication based on new methodology, which has been developed through an inclusive and iterative process.

We have come a long way since the first mobile phone call fifty years ago and the birth of the Internet a decade later. The Internet has become an indispensable part of our daily lives, ushering in new forms of communication, entertainment, expression, and collaboration.

Today, there are more mobile phone subscriptions than people on the planet, and two-thirds of the global population uses the Internet, yet divides across and within countries continue to exacerbate social and economic inequalities.

I am pleased to note that the new ICT Development Index (IDI) presented here puts universal and meaningful connectivity at its heart. Ensuring that everyone has a safe, satisfying, enriching and productive online experience at an affordable cost is an imperative for this decade and one of our strategic goals.

Measurement is critical for achieving universal and meaningful connectivity. Data help us understand where we have been, where we are, and where we need to go. Data enable us to identify priorities, design effective interventions, monitor progress, and hold ourselves accountable. To this end, ITU has been collecting, disseminating, and analysing ICT data for decades.

The results of the IDI 2023 reveal significant progress in embracing and investing in connectivity, with a global average score of 73 out of 100. However, it is crucial to look beyond group averages and recognize that many countries are still struggling. The IDI confirms the very close relationship between overall development and digital development and exposes the deep divides that persist between rich and poor countries.

While the IDI provides a valuable snapshot of connectivity around the world, its development process has exposed the limitations of our current knowledge. There is a pressing need for countries to invest in their statistical capabilities and improve the availability of ICT indicators.

To support countries in measuring connectivity, ITU will continue to provide guidelines, data collection tools, capacity and skills development activities, and technical assistance.

I want to express my deep gratitude to the Member States and to the members and the Chairs of the Expert Group on Household ICT Indicators (EGH) and of the Expert Group on Telecommunication/ICT Indicators (EGTI) for contributing to the development of the new IDI methodology. I am also thankful to the Joint Research Centre of the European Commission for their *pro bono* statistical audit of the IDI methodology.

The journey towards a fully and meaningfully connected world is far from over, but armed with the right data, tools, and commitment, we can make significant strides in ensuring that everyone can reap the benefits of digital connectivity and contribute to a more inclusive and sustainable future.

Cosmas Luckyson Zavazava
Director, ITU Telecommunication Development Bureau

Table of contents

Foreword iii

1 Introducing the ICT Development Index 1

Conceptual framework 4

Composition and computation of the IDI 5

Statistical audit 8

2 ICT Development Index 2023: Results 10

Results by region 13

Results by pillar 14

Results by indicator 15

3 Conclusions 19

Annex 1: Indicator values and scores 20

Annex 2: Indicator values and scores by groups 30

Annex 3: Indicator definitions 31

List of boxes, figures and tables

Boxes

Box 1: A brief history of the IDI since 2009 3
Box 2: Example of IDI score calculation 9
Box 3: Interpreting and using the IDI results 11

Figures

Figure 1: Universal and meaningful connectivity framework 4
Figure 2: Structure of the ICT Development Index 6
Figure 3: Weighting and aggregation 8
Figure 4: Distribution of IDI 2023 scores and pillar scores 10
Figure 5: IDI performance and income 13
Figure 6: Distribution of IDI scores by income group 13
Figure 7: IDI performance and selected indicators 14
Figure 8: IDI scores by region 14
Figure 9: Universal and meaningful connectivity pillar scores, by region and income group 15
Figure 10: Internet use and IDI performance 16
Figure 11: Average normalized indicator scores by income group 16
Figure 12: Average distance to the goalposts by component indicator 18

Tables

Table 1: Benefits, limitations and risks of composite indicators 2
Table 2: Goalposts, thresholds, and outlier treatment 7
Table 3: IDI 2023 scores 12
Table 4: Descriptive statistics by component indicator 17

1 Introducing the ICT Development Index

In 1973 – fifty years ago – on a New York street, the first-ever mobile phone call was placed, from a device that weighed two kilos. Ten years later, the Internet in its current technical configuration was born, though it did not fully enter public consciousness until a user-friendly version, the World Wide Web, emerged in the 1990s.

The advent of mobile telephony and of the Internet have transformed connectivity, and indeed humanity. Today, there are more mobile phone subscriptions than people on the planet. Two-thirds of the world's population use the Internet. The Internet is woven into the entire fabric of our daily lives.

Yet, one-third of the world's population remain offline, and even among the nominally online population, many are not meaningfully connected. Multiple digital divides persist, across and within countries, between men and women, between youth and older persons, between cities and rural areas, and between those who enjoy an ultra-fast fixed-broadband connection and those who struggle on a shaky connection. Some 400 million people are entirely beyond the reach of a mobile-broadband network.[1]

The catalytic and enabling role of connectivity for sustainable development is recognized in the Sustainable Development Goals. The Internet offers significant economic benefits and has the potential to enhance welfare for individuals throughout their lives. It has given rise to new forms of communication, entertainment, expression, and collaboration. Where traditional services are lacking, it gives access to an enormous amount of knowledge, learning resources, and job opportunities. The benefits of connectivity are considerable for everyone, including marginalized and vulnerable groups, though they are often the least connected.

Depriving vast swaths of humanity of the possibilities offered by connectivity and the Internet is unacceptable and costly, as it hinders economic development and deepens inequalities. The COVID-19 pandemic exposed those digital divides and their impacts. For those privileged enough to be connected, the Internet allowed a measure of continuity. For the others, the pandemic exacerbated the cost of digital exclusion.

The pandemic also made it clear that the quality of connectivity mattered. Many applications of connectivity, such as those involving videos, and vast areas of the digital economy, require fast and reliable connections that many Internet users do not have or cannot afford.

In 2021, as part of the Roadmap for Digital Cooperation of the Secretary-General of the United Nations, the International Telecommunication Union (ITU) and the Office of the UN Secretary-General's Envoy on Technology (OSET) introduced a set of targets for universal and meaningful connectivity, to capture both the universality imperative and the quality imperative for connectivity to deliver on its promises.

Universal and meaningful connectivity (UMC) is the possibility for everyone to enjoy a safe, satisfying, enriching and productive online experience at an affordable cost. The concept of UMC has gained considerable traction and is one of the two goals of the ITU strategic plan.

The role of data in achieving UMC is crucial and yet too often underestimated. Data tell where we were, where we are and where we ought to be. They help us identify priorities, design efficient interventions, monitor progress, and hold us accountable. Data can also be a powerful tool for advocacy. For decades, ITU has been collecting, disseminating, and analysing ICT data, recognizing the importance of data in fulfilling the organization mission of connecting the world.

[1] All figures cited in this section are sourced or derived from ITU's *Facts and Figures 2023*.

In 2009, as part of those efforts, ITU introduced the first ICT Development Index (IDI). The benefits of using an index have led to their proliferation over the past two decades, despite some limitations (see Table 1).

Over the years, the original IDI became a reference tool for policy-makers in charge of the ICT agenda. However, the IDI was discontinued in 2018, as attempts to update the methodology were unsuccessful. In October 2022, the ITU Plenipotentiary Conference adopted a revised version of Resolution 131. The text provided fresh guidance for developing a new IDI methodology, which was approved by Members States in November 2023 (see Box 1). The present iteration of the IDI thus resumes after a six-year hiatus.

In addition to the general limitations of composite indicators, the development of the new IDI presented some specific challenges:

- Limited data availability imposed constraints on the choice of indicators included in the IDI and forced trade-offs between the depth, completeness, and timeliness of the assessment on the one hand and country coverage on the other (as per Resolution 131, the IDI must "cover a majority of Member States"). For several enablers of UMC, indicators do not exist; for others, they exist, but the supporting data is unusable, either due to inadequate availability, quality or comparability, or because it is only available from non-official sources. ITU is committed to helping countries addresses the challenge of data availability and quality as well as developing new indicators for some of the missing concepts, through EGTI and EGH.
- The consultative and inclusive process for developing the IDI involved many stakeholders, including representatives from national ICT regulation authorities, ministries, statistical offices, business associations, academia, the private sector and civil society. During the first expert consultation in February 2023, over 200 EGTI and EGH members joined the online discussion forum dedicated to the IDI and almost 100 comments on the methodology were received. In September 2023, 347 participants from 105 countries attended the second meeting on the IDI methodology. Some of the methodological choices are the result of compromises between diverse, diverging or even opposing views. For fixed-broadband penetration,

Table 1: Benefits, limitations and risks of composite indicators

Benefits: an index...	Risks and limitations: an index...
• serves as an entry point for complex, multi-dimensional issues. • through successive aggregations, reduces the size of a set of indicators without dropping the underlying information. • enables benchmarking over time and across units of analysis (e.g., countries, cities, companies), thus allowing for the purpose of monitoring progress, evaluating impact, setting priorities, identifying good practices, enhancing accountability, etc. • can support advocacy efforts and help communicate with a broader, non-expert audience. • enables users to compare complex dimensions effectively.	• may fail to capture the idiosyncrasies of each unit. • may conceal disparities within units. • may promote unhealthy competition among units instead of fostering collaboration. • may undermine the quality and integrity of data if data providers' if focus is on improving performance in the index. • may lead to misguided policies, if poorly constructed and/or misinterpreted. • may be a source of bias if constructed only to produce the desired results, serve a specific agenda, or favour one or several units. • may lead to misguided policies if methodological limitations or time lags are not taken into consideration. • may hamper meaningful change if interventions are designed only to improve performance in the index.

Box 1: A brief history of the IDI since 2009

Created to measure the level of development of the information and communication technology sector (ICT), the ICT Development Index (IDI) is a composite indicator first published in 2009 by ITU. Publication was discontinued after 2017, owing to issues of data availability and quality.

In March 2017 an extraordinary meeting of the Expert Group on ICT Household Indicators (EGH) and Expert Group on Telecommunication/ICT Indicators (EGTI) adopted a revised set of indicators to be included in the IDI. The increase in the number of indicators from 11 to 14 created an additional challenge for many countries in collecting and submitting quality data, which would have required estimating 58 per cent of the data points when computing the 14-indicator IDI. There were further issues with the comparability and quality of the data submitted, and with the methodology used to compute the redefined indicators. Consequently, the new IDI based on 14 indicators was not released.

Attempts were made in 2019 and 2020 to address the issues with the new IDI, but the proposals for an entirely new index did not achieve consensus among the ITU Member States. In October 2022, the ITU Plenipotentiary Conference in Bucharest adopted a revised text of Resolution 131. This new text defined, *inter alia*, the process for developing and adopting a new methodology for the IDI and some features of the IDI itself.

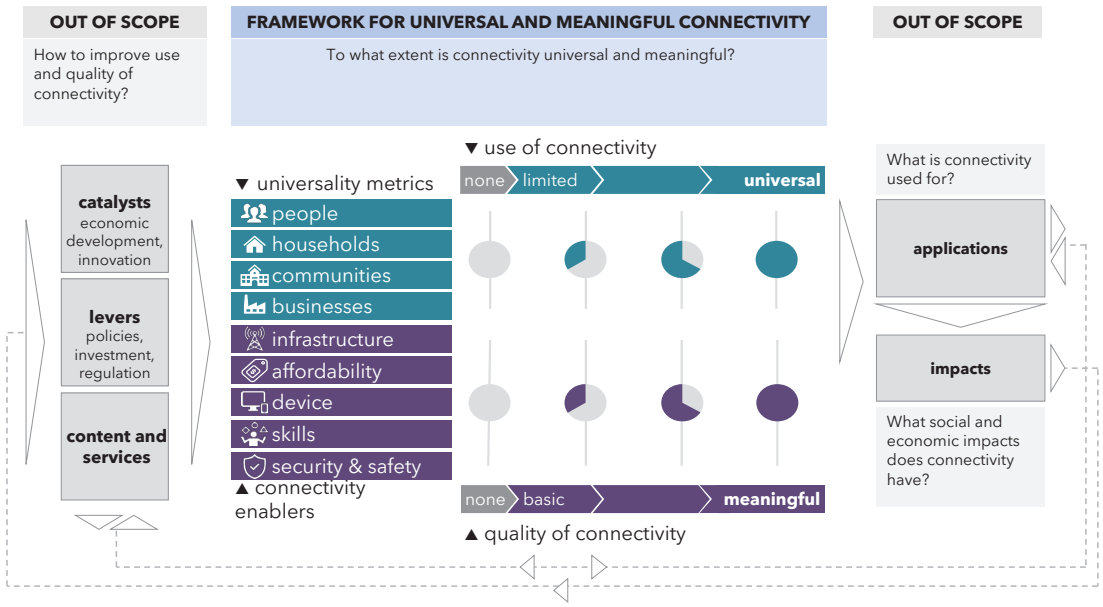
The new IDI methodology was developed by the ITU Secretariat and the two expert groups, EGTI and EGH, in close consultation with Member States. In October 2023 the new IDI methodology was approved by the Member States and therefore adopted. The methodology will be valid for a period of four years (see history of the IDI for more information).

the participants decided in favour of scaling the number of fixed broadband subscriptions by households, rather than *per capita*, which has traditionally been used. However, internationally comparable data on the number of households is not available, and consequently fixed-broadband penetration is not included in the IDI.

For these reasons, the new IDI only provides a partial assessment of a country's state of connectivity. Hundreds of otherwise valid and valuable ICT indicators, including dozens that are collected by ITU, do not meet the criteria for inclusion. Stakeholders and users of the IDI who are concerned with the connectivity agenda must therefore complement their analysis of the IDI results with additional data, information and evidence. Those additional resources include ITU data tools such as the ITU DataHub, the Dashboard for Universal and Meaningful Connectivity, the ICT Regulatory Tracker, the Digital Regulation Platform, and the Global Cybersecurity Index; publications, including the Measuring Digital Development and the Global Digital Regulatory Outlook series; and guidelines, such as the ITU Manual for Measuring ICT Access and Use by Households and Individuals, the ITU Handbook for the Collection of Administrative Data on Telecommunications/ICT, and the Digital Regulation Handbook.

The rest of this section introduces the main aspects of the methodology of the ICT. For more detailed information about the

Figure 1: Universal and meaningful connectivity framework



development of the IDI methodology and its various iterations, including in terms of indicator selection, see "Methodology of the ICT Development Index: Version 3.1".

Conceptual framework

The first step in constructing a composite indicator consists in identifying a conceptual framework that will define the objective of the index and guide the selection of indicators. Given its relevance and centrality to the ITU mission (see above), the concept of universal and meaningful connectivity was put at the heart of the conceptual framework that would guide the development of the new IDI. The objective of the IDI is thus *to assess the extent to which a country's connectivity is universal and meaningful*. Figure 1 depicts the analytical framework that guided the development of the IDI.

Achieving *universal connectivity* implies that people, households, communities, and businesses, are connected. Universal connectivity for the people means anyone can connect regardless of their urban or rural location, gender, level of education, etc. Universal connectivity for households, communities and businesses means that the places where people live, work, learn and interact are connected.

Meaningful connectivity depends on several factors, called "connectivity enablers": infrastructure, affordability, device, skills, and safety and security. Each of these enablers play an important role in making connectivity meaningful:

- Meaningful connectivity requires high-quality infrastructure that is not only in place and functioning but allows for a fast and reliable connection. The framework adopts a technology-neutral approach. Satellite connectivity and fixed and mobile terrestrial networks all can contribute to connecting people to the Internet.
- Affordable devices and ICT services are essential for enabling people to go online. Affordability is a relative concept that depends on people's social and economic conditions.
- Access to an Internet-enabled device is required to go online. This can be a mobile phone or a desktop computer; a basic-model phone is cheaper, while a computer allows for a richer experience. For mobile phones, it is important to distinguish between use and ownership: merely having access to a device that one does not actually own imposes

constraints, including when and for how long one can be online.

- An important barrier keeping people from going online or fully benefiting when they are online is a lack of skills. Meaningful use of the Internet requires that people are digitally literate.
- A safe and secure Internet is important for people to have the trust to go online.

The analytical framework defines the scope, but also sets the boundaries of the exercise. The following aspects of connectivity are outside the scope of the framework:

- **Levers.** Enablers of connectivity representing areas where policymakers and other stakeholders can intervene using tools such as investment, policies, and regulation. They are not included in the framework as it is deliberately agnostic about the means to improve on the various factors: there is no single pathway and no one-size-fits-all policy mix that can be prescribed to all countries.
- **Catalysts.** Broader factors and trends, such as economic development and technological innovation, that contribute to improving the quality enablers.
- **Content and services.** These are treated as a lever: the more content and services are available, accessible, and relevant, the more likely people are to connect. Content and services are an enabler of connectivity, but they do not directly influence the quality of connectivity, which is what the frameworks aims to assess.
- **Applications.** The framework is deliberately agnostic about what people do with connectivity. The exercise is about measuring the use and quality of connectivity, rather than assessing what people do online.
- **Impacts.** By extension, the societal, environmental, and economic impacts of connectivity and its applications are well beyond the scope of the exercise.

The fact that these aspects are beyond the scope of the IDI does not mean that they are not important. They are and need to be studied in conjunction with the IDI for a fuller picture.

Composition and computation of the IDI

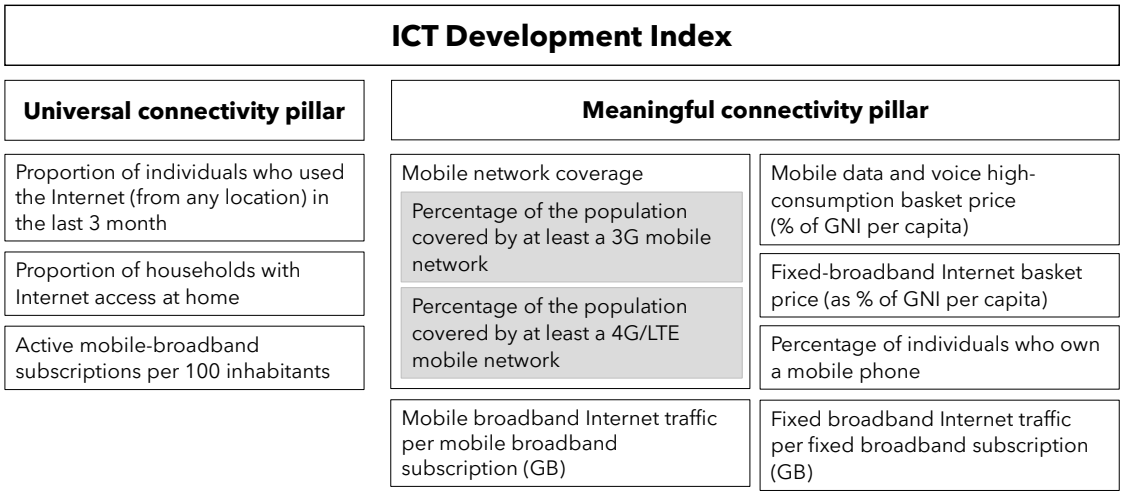
For the structure of the index, the conceptual framework naturally suggests two main components – or pillars – that take into account the two dimensions of connectivity: that it should be meaningful *and* universal. The selection of indicators to populate each component was based on six criteria:

1. Measuring one aspect of universal and meaningful connectivity and having policy relevance.
2. Easy to interpret, with a clear impact on universal and meaningful connectivity.
3. Relying primarily on official data provided by Member States, based on internationally recognized and transparent methodologies.
4. Collected coherently by countries according to the harmonized methodology developed by ITU expert groups EGTI/EGH or by another international organization.
5. Having a sufficiently high variation to distinguish country performance and signal progress over time.
6. Availability of recent data for as many of the 196 considered economies as possible, to ensure the broadest coverage possible and reduce reliance on estimates.

The *universal connectivity* pillar would ideally include indicators on individuals, households, communities, and businesses, covering the main places where people can connect, namely at home, in schools and community centres, and at work. However, the IDI uses only indicators on households and individuals, owing to limited data availability.

The *meaningful connectivity* pillar would ideally contain indicators that capture the five enablers of connectivity: infrastructure, affordability, device, skills, and safety and security. However, limited data availability and the constraint of using primarily official data, allow to assess three of the five enablers: infrastructure, affordability and device. And even for these three enablers, assessment is

Figure 2: Structure of the ICT Development Index



Note: The indicators Percentage of the population covered by at least a 3G mobile network and Percentage of the population covered by at least a 4G/LTE mobile network have been combined into one indicator. See Annex 3 for indicator definitions.

only partial. Figure 2 shows the composition and structure of the IDI.

Data sources and reference period

The reference period for computing the IDI released in year *y* is always *y-2*. The present, 2023 edition therefore covers the reference year 2021. Where an official data point is not available for 2021 but is available for 2020, the 2020 value has been used. For inclusion in IDI 2023, official data for 2020 or 2021 have to be available for at least five of the 10 indicators.

A value is estimated or imputed only if no official value is available for 2021 or 2020. The instructions of Resolution 131 are to rely primarily on official data, and to use other sources or estimates only as a last resort. Detailed documentation on estimation and imputation methods is available on the IDI 2023 webpage. A country can reject values estimated by ITU, in which case it is excluded from the IDI since computing the IDI score requires a full dataset. Finally, Resolution 131 stipulates that a country can opt out of any edition of the IDI.

Based on these criteria, 169 economies are included in the IDI 2023. The IDI 2023 data set consists of 1 690 data points (169 economies and 10 indicators), out of which 325 rely on estimates (19 per cent).

Outlier treatment and normalization

The indicator values include missing data points and outliers. To ensure that IDI scores can be computed based on a statistically robust dataset, outliers need to be treated. It was possible to deal with most of the outliers simply by setting thresholds and goalposts. The right-most column of Table 2 reports additional treatment for residual outliers, if any was required. Specifically for the two traffic indicators, a logarithmic transformation was applied which corrects for the very skewed distribution.[2]

The indicators are measured on different scales and expressed in different units. Normalization is applied to bring all indicators on a common scale. The most common and intuitive method has been applied. This is the min-max approach, which rescales indicators onto an identical range of 0 to 100 by subtracting the threshold value for the given indicator across all economies from each value and dividing by the difference between goalpost

[2] Applying the natural logarithm using the formula *ln(x+1)*, where adding a value of 1 ensures valid results even for 0 without influencing the scores.

Table 2: Goalposts, thresholds, and outlier treatment

Indicator	Threshold	Goalpost	Additional treatment
Universal connectivity indicators			
Individuals using the Internet (%)	0%	95%	Not needed
Households with Internet access at home (%)	0%	95%	Not needed
Mobile-broadband subscriptions per 100 inhabitants	0	95th percentile	Not needed
Meaningful connectivity indicators			
Population covered by at least a 3G mobile network (%)	0%	100%	Not needed for the two coverage indicators combined
Population covered by at least a 4G/LTE mobile network (%)	0%	100%	
Mobile broadband Internet traffic per subscription (GB)	0	95th percentile, projected	Log transformation applied
Fixed broadband Internet traffic per subscription (GB)	0	95th percentile, projected	Log transformation applied
Mobile data and voice high-consumption basket price (% GNI p.c.)*	95th percentile	1%	Not needed
Fixed-broadband Internet basket price (as % GNI p.c.)*	95th percentile	1%	Not needed
Individuals owning a mobile phone (%)	0%	95%	Not needed

* The direction of the affordability indicators is reversed, hence a score of 100 is assigned for values *below* the goalpost and a score of zero for values *above* the threshold. See Table 4 for the actual value of the goalposts defined based on percentiles of the distribution. Gross national income per capita (GNI p.c.). Gigabyte (GB).

and threshold values of the indicator. Table 2 above reports the values of the goalposts and thresholds. Formally, we have:

$$\text{score}_{i,c} = \frac{\text{value}_{i,c} - \text{threshold}_i}{\text{goalpost}_i - \text{threshold}_i} \times 100$$

where $score_{i,c}$ is the normalized score of country c's value for indicator i,

$value_{i,c}$ is the value of the data point from country c on indicator i,

$threshold_i$ is the minimum value for indicator i, and

$goalpost_i$ is the target value for indicator i.

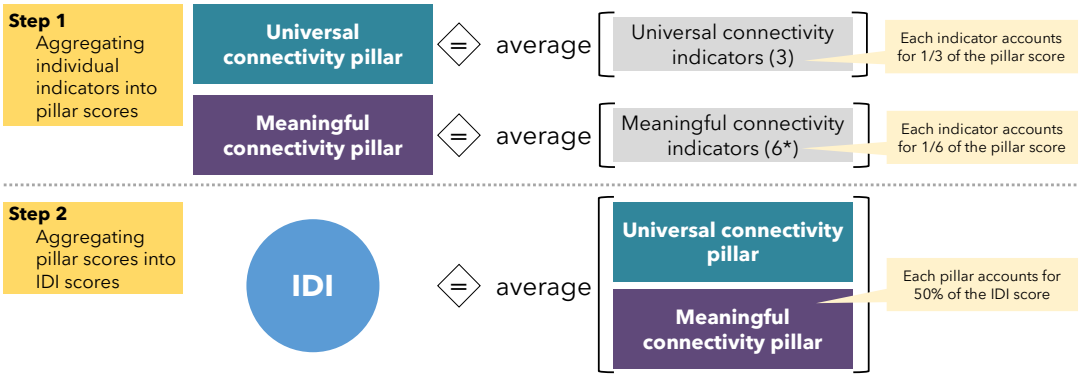
For any value at or below the threshold value, $score_{i,c}$ is 0; for any value at or above the goalpost, $score_{i,c}$ is 100. In the case of the two affordability indicators, where lower values indicate stronger performance, the directionality is reversed:

$$\text{score}_{i,c} = \frac{\text{goalpost}_i - \text{value}_{i,c}}{\text{threshold}_i - \text{goalpost}_i} \times 100$$

Aggregation and weighting

Aggregation consists in combining the different components of the IDI, starting with the individual indicators, to produce the overall IDI score. In the case of the IDI, aggregation is done in two steps: 1) aggregation of individual indicator scores into pillar scores; and 2) aggregation of the pillar scores into the overall IDI score (Figure 3).

Figure 3: Weighting and aggregation



* Six indicators, including *mobile network coverage*, which is composed of two sub-indicators (see Figure 2).

In the absence of clear conceptual and statistical justifications, the neutral approach, consisting of applying equal weights at each level of aggregation, has been preferred.

The *universal connectivity* pillar consists of three indicators. The pillar score is the mean of the normalized scores for these three indicators.

The *meaningful connectivity* pillar comprises seven indicators, two of which – *percentage of the population covered by at least a 3G mobile network* and *percentage of the population covered by at least a 4G/LTE mobile network* – are combined into a single *mobile broadband coverage* indicator by taking a weighted average, 0.4 for the 3G score and 0.6 for the 4G/LTE score. The overall score under the *meaningful connectivity* pillar is then computed as the mean of six scores: the combined *mobile broadband coverage* score and the scores for the five remaining indicators for that pillar.

In a second step of aggregation, the IDI scores are computed as the arithmetic mean of the meaningful and universal connectivity scores. Box 2 shows how to compute the IDI score for a country.

Statistical audit

In August 2023, at the request of ITU, the Joint Research Centre (JRC) of the European Union conducted a *pro bono* preliminary statistical audit of the IDI. The audit looked at the IDI methodology then under development (Version 3), using the data available at the time, with two objectives: to check the characteristics of the data and any potential limitations due to missing data and outliers; and to examine the statistical impact that aggregating indicators into the two pillars and into the overall IDI would have. JRC concluded that the IDI was statistically sound and robust. That conclusion was borne out when JRC conducted another audit using the final IDI methodology (Version 3.1) and data in November 2023. The full JRC audit report is available on the IDI 2023 webpage.

Box 2: Example of IDI score calculation

This table shows how to calculate the IDI score, assuming fictive, but plausible values for the 10 indicators.

Indicator *More information:*	Value *Annex 2*	Threshold *Table 2*	Goalpost *Table 2*	Formula *Outlier treatment and normalization' section*	Score *0-100*	Ref.
Universal connectivity pillar						
Individuals using the Internet (%)	87.4	0	95	min-max	92.0	*u_1*
Households with Internet access at home (%)	89.3	0	95	min-max	94.0	*u_2*
Mobile-broadband subscriptions per 100 inhabitants	105.7	0	150	min-max	70.5	*u_3*
Pillar score				***(u_1 + u_2 + u_3)/3***	**85.5**	***u***
Meaningful connectivity pillar						
Population covered by at least a 3G mobile network (%)	99.2					*m_1_a*
Population covered by at least a 4G/LTE mobile network (%)	98.5					*m_1_b*
Coverage		0	100	0.4 x *m_1_a* + 0.6 x *m_1_b*	98.8	*m_1*
Mobile broadband Internet traffic per subscription (GB)	123.3	0	500	log transformation and min-max: ln(*m_2* + 1) -ln(1)) / (ln(*m_2* + 1) - ln(1)) x 100	77.6	*m_2*
Fixed broadband Internet traffic per subscription (GB)	2908.6	0	10000	log transformation and min-max: ln(*m_3* + 1) -ln(1)) / (ln(*m_3* + 1) - ln(1)) x 100	86.6	*m_3*
Mobile data and voice high-consumption basket price (% GNI p.c.)	1.0	21.33	1	min-max (reversed)	100	*m_4*
Fixed-broadband Internet basket price (as % GNI p.c.)	1.4	33.30	1	min-max (reversed)	98.8	*m_5*
Individuals owning a mobile phone (%)	93.8	0	95	min-max	98.8	*m_6*
Pillar score				***(m_1 + m_2 + m_3 + m_4 + m_5 + m_6)/6***	**93.4**	***m***
IDI score				***(u + m)/2***	**89.5**	

2 ICT Development Index 2023: Results

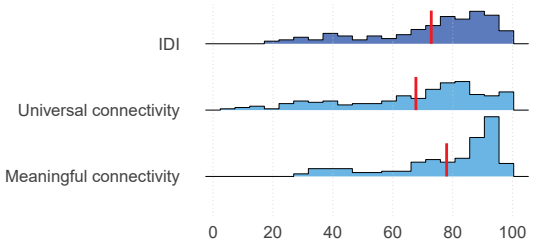
The 2023 edition of the ICT Development Index includes 169 economies. Table 3 reports the scores for the overall ICT Development Index 2023, the *universal connectivity* pillar, and the *meaningful connectivity* pillar. For each economy, the averages of the corresponding ITU region and income group are reported as benchmarks. Box 3 provides guidance on interpreting and using the IDI results. Annex 1 gives a comprehensive report of country values and scores for all the indicators of the IDI. Additional data and notes are available for download on the IDI 2023 webpage.

In accordance with Resolution 131, only scores are reported. Economies are not ranked. This approach focuses on what matters: how close are individual countries and groups to universal and meaningful connectivity, and how much progress have they achieved? It allows meaningful comparison with relevant benchmarks related to income groups and regions. It reflects the fact that connectivity is neither a competition among countries nor a zero-sum game: progress is not achieved at the expense of other countries; all countries can achieve UMC. A ranking-based approach would automatically designate one country as number one, with unhelpful and misleading implications. For instance, even if all countries in a given group were scored at 95 out of 100 or higher, there would still be a country ranked first and another ranked last, despite the minimal gap between them in terms of achieving UMC.

The average IDI score for the world is 72.8 out of 100.[3] The 100 mark corresponds to a situation where a country or group has reached the goalpost value on every indicator of the IDI. A score of zero corresponds to the hypothetical situation where there is no connectivity at all: nobody uses the Internet; nobody is covered by a mobile-broadband network; there are no mobile-broadband subscriptions; no data traffic is generated, etc.

The lowest score in IDI 2023 is 20.0, the highest 98.2 out of 100. Figure 4 shows the distribution of countries along the 0-100 scale for the overall IDI and its two pillars. Thirty-three countries have an IDI score between 90 and 100. Another 47 countries have a score between 80 and 90. At the other end of the scale, 30 countries score below 50, and a further 9 lie between 50 and 60. These results suggest that the world has made significant progress towards UMC, with half of the countries almost at or past the 80-point mark (median of 78.7). Still, half of countries are spread across a 60-point range, with a few scoring in the low 20s. Additionally, as mentioned above, the IDI does not capture all the aspects of the UMC framework, such as fixed broadband penetration, Internet speed, ICT skills, or safety.

Figure 4: Distribution of IDI 2023 scores and pillar scores



Note: The horizontal axis shows the pillar and IDI scores, the height of the bars indicates the frequency. The red dotted lines indicate the average scores.

The IDI results can be used to show the strong correlation between digital development and overall development. Figure 5 shows a logarithmic plot of the IDI 2023 results against gross national income per capita (GNI p.c.), a proxy for development. The relationship is not strictly linear: at low levels of income, small income differences are typically associated with very large IDI score differences.

The average IDI score of low-income countries is 31.5, while for lower-middle-income countries it is 62.0, a 30-point difference (see

[3] Unless mentioned otherwise, all group aggregate scores are simple, unweighted means of the IDI score of the countries composing the group.

Box 3: Interpreting and using the IDI results

The results of the IDI should be interpreted and used with caution. They must always be complemented and corroborated by additional information and evidence for the following reasons:

A partial picture. Important dimensions of UMC are missing from the IDI (see above). Consequently, a robust performance in the IDI does not necessarily mean that UMC has been achieved, because performance could be lacking in dimensions of UMC that are not included in the IDI.

Time lag. Because of the lag in the submission, processing and validation of official national data, the assessment in IDI 2023 is based on country data for the year 2021, or, where that was unavailable, for 2020; in some cases, and as a last resort, it reflects estimates for 2021. It should be borne in mind furthermore that 2020 and 2021 were anomalous years due to the COVID-19 pandemic.

No unique recipe. The performance of a peer may not be attainable in the short term. Each country has its own characteristics, faces its own challenges, and must follow its own development path. Although the IDI can help suggest successful practices, these are not necessarily replicable or scalable.

No time comparison. One of the main benefits of an index is tracking progress over time. The present report being the first edition of the new IDI, such a time series is currently not possible. Importantly, the results of the IDI 2023 cannot be compared with previous editions of the IDI (2017 and earlier) because the methodologies are completely different.

Drill down. The analysis of the IDI should obviously not be limited to the overall IDI score. The IDI score is the result of two levels of aggregation (aggregation of indicators into pillars, then pillars into the overall IDI) and can therefore conceal disparities among pillars and individual indicators.

Disparities within countries. Country-level values measure the 'average' situation of a country. They conceal the – sometimes vast – disparities across regions and demographic groups. A good (or bad) result in an indicator, pillar or the overall IDI does not mean that the situation is good (or bad) everywhere and for everyone in the country. To design effective interventions, policy-makers must look beyond national averages and use data disaggregated by location and demographic groups.

Estimations and imputations. Even with the reduced set of indicators in the IDI, 19 per cent of the values are estimated or imputed, and every indicator contains at least one estimated or imputed value. While every effort is made to make them as accurate as possible, estimates and imputed values are not perfect substitutes for real values.

Revised data. Following a first submission, countries sometimes submit corrected data one or even two years later. Resolution 131 prevents ITU from revising the results of the index after publication.

Figure 6 and Table 3 for income classification). There is only a 14-point difference between the average scores of lower-middle-income countries and upper-middle-income countries (76.4). Between the latter group and high-income countries, the difference is also 14 points. Above a GNI p.c. of 20 000 USD at purchasing power parity (PPP$), the curve starts to flatten out: higher income is associated with decreasing improvements in IDI score. Beyond 40 000 PPP$, the relationship no longer holds – a higher income level is not necessarily associated with a better IDI performance. The close relationship between connectivity and income level does not allow to establish causality. In fact, as Figure 1 illustrates, the relationship works both ways: connectivity drives economic development and more development leads to more connectivity, thus creating a virtuous cycle.

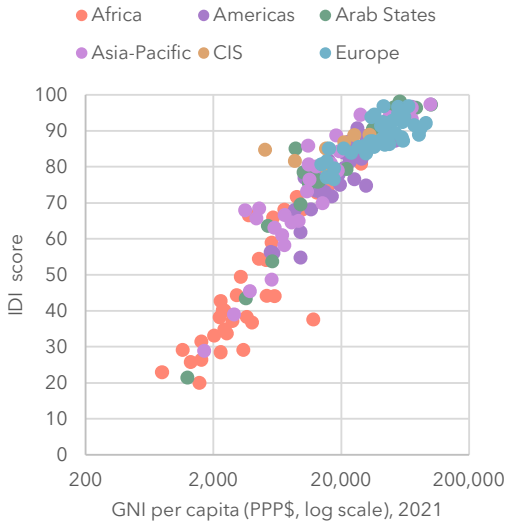
Table 3: IDI 2023 scores

Economy	Region	Income Group	IDI Score	IDI score and group average | Income | Region	Univ. score	M. score
Afghanistan	ASP	LI	28.9		17.7	40.1
Albania	EUR	UMI	81.6		74.8	88.3
Algeria	ARB	LMI	77.8		72.3	83.2
Andorra	EUR	HI	87.2		85.5	88.8
Angola	AFR	LMI	44.1		31.3	56.9
Antigua and Barbuda	AMS	HI	79.7		71.7	87.8
Argentina	AMS	UMI	81.5		78.5	84.5
Armenia	CIS	UMI	85.1		79.3	90.8
Australia	ASP	HI	94.0		93.8	94.2
Austria	EUR	HI	92.5		89.2	95.8
Azerbaijan	CIS	UMI	79.0		75.8	82.1
Bahamas	AMS	HI	88.5		85.1	92.0
Bahrain	ARB	HI	96.5		96.7	96.2
Bangladesh	ASP	LMI	61.1		39.2	83.0
Barbados	AMS	HI	77.3		70.2	84.4
Belarus	CIS	UMI	86.9		82.1	91.7
Belgium	EUR	HI	88.2		85.7	90.8
Benin	AFR	LMI	38.3		33.3	43.4
Bhutan	ASP	LMI	76.5		82.3	70.6
Bolivia (Plurinational State of)	AMS	LMI	68.0		62.4	73.7
Bosnia and Herzegovina	EUR	UMI	76.6		65.5	87.7
Botswana	AFR	UMI	74.0		74.7	73.3
Brazil	AMS	UMI	81.9		78.2	85.5
Brunei Darussalam	ASP	HI	94.8		95.7	94.0
Bulgaria	EUR	UMI	85.6		80.3	90.9
Burkina Faso	AFR	LI	28.5		24.2	32.8
Burundi	AFR	LI	23.0		11.7	34.2
Cabo Verde	AFR	LMI	68.1		68.8	67.4
Cambodia	ASP	LMI	68.5		62.5	74.4
Cameroon	AFR	LMI	36.8		39.8	33.8
Canada	AMS	HI	87.2		83.4	91.1
Chad	AFR	LI	20.0		7.0	33.1
Chile	AMS	HI	90.7		88.0	93.4
China	ASP	UMI	84.4		76.6	92.1
Colombia	AMS	UMI	71.9		62.7	81.0
Comoros	ARB	LMI	43.5		39.5	47.4
Congo (Rep. of the)	AFR	LMI	29.2		28.1	30.2
Costa Rica	AMS	UMI	83.9		78.7	89.1
Côte d'Ivoire	AFR	LMI	59.0		51.6	66.3
Croatia	EUR	HI	87.1		83.1	91.1
Cuba	AMS	UMI	55.3		44.0	66.7
Cyprus	EUR	HI	87.4		82.4	92.4
Czech Republic	EUR	HI	86.1		80.8	91.5
Dem. Rep. of the Congo	AFR	LI	29.1		23.6	34.6
Denmark	EUR	HI	96.9		98.2	95.6
Djibouti	ARB	LMI	63.6		53.6	73.6
Dominica	AMS	UMI	76.9		71.0	82.7
Dominican Rep.	AMS	UMI	75.0		60.9	89.1
Ecuador	AMS	UMI	68.2		56.1	80.3
Egypt	ARB	LMI	75.8		64.5	87.1
El Salvador	AMS	UMI	61.9		46.0	77.8
Equatorial Guinea	AFR	UMI	37.6		37.2	38.0
Estonia	EUR	HI	96.9		97.5	96.4
Eswatini	AFR	LMI	71.7		66.8	76.6
Ethiopia	AFR	LI	33.8		16.5	51.0
Fiji	ASP	UMI	73.2		72.5	73.9
Finland	EUR	HI	96.7		98.1	95.2
France	EUR	HI	89.4		84.2	94.6
Gabon	AFR	UMI	72.9		73.7	72.0
Georgia	EUR	UMI	85.1		79.2	90.9
Germany	EUR	HI	87.3		85.3	89.2
Ghana	AFR	LMI	65.9		58.3	73.6
Greece	EUR	HI	83.7		78.4	89.1
Grenada	AMS	UMI	73.4		70.0	76.9
Guatemala	AMS	UMI	54.8		32.2	77.5
Guinea-Bissau	AFR	LI	33.1		28.4	37.7
Honduras	AMS	LMI	56.3		42.6	70.0
Hong Kong, China	ASP	HI	96.5		99.1	93.8
Hungary	EUR	HI	86.8		81.2	92.3
Iceland	EUR	HI	94.8		93.2	96.4
Indonesia	ASP	UMI	80.1		76.1	84.2
Iran (Islamic Republic of)	ASP	LMI	80.9		78.7	83.1
Iraq	ARB	UMI	69.5		61.4	77.7
Ireland	EUR	HI	88.9		88.7	89.1
Israel	EUR	HI	91.1		88.3	94.0
Italy	EUR	HI	86.4		78.8	94.0
Jamaica	AMS	UMI	77.0		69.0	85.0
Japan	ASP	HI	92.0		93.4	90.7
Jordan	ARB	LMI	78.5		76.3	80.7
Kazakhstan	CIS	UMI	88.9		85.9	91.9
Kenya	AFR	LMI	54.2		41.0	67.3
Kiribati	ASP	LMI	45.5		49.2	41.8
Korea (Rep. of)	ASP	HI	93.8		92.7	94.9
Kuwait	ARB	HI	98.2		97.0	99.3
Kyrgyzstan	CIS	LMI	84.7		83.6	85.9
Lao P.D.R.	ASP	LMI	64.6		59.6	69.6
Latvia	EUR	HI	93.8		90.2	97.5
Lebanon	ARB	LMI	76.1		74.5	77.7
Lesotho	AFR	LMI	44.3		30.7	57.9
Libya	ARB	UMI	79.4		85.1	73.7
Liechtenstein	EUR	HI	91.9		93.6	90.2
Lithuania	EUR	HI	92.4		88.1	96.8
Luxembourg	EUR	HI	92.1		92.2	92.0
Macao, China	ASP	HI	93.3		95.9	90.7
Madagascar	AFR	LI	26.4		14.9	37.9
Malawi	AFR	LI	31.5		23.3	39.7
Malaysia	ASP	UMI	94.5		94.5	94.5
Maldives	ASP	UMI	79.0		69.4	88.6
Mali	AFR	LI	38.2		33.5	42.9
Malta	EUR	HI	87.0		80.0	94.0
Mauritania	ARB	LMI	53.7		51.7	55.8
Mauritius	AFR	UMI	81.7		75.2	88.2
Mexico	AMS	UMI	78.0		69.0	86.9
Moldova	EUR	UMI	77.1		64.2	90.1
Mongolia	ASP	LMI	85.9		82.5	89.3
Montenegro	EUR	UMI	83.9		77.1	90.7
Morocco	ARB	LMI	85.1		79.5	90.7
Mozambique	AFR	LI	25.8		16.3	35.3
Myanmar	ASP	LMI	65.7		67.1	64.2
Namibia	AFR	UMI	68.1		60.4	75.8
Netherlands (Kingdom of the)	EUR	HI	93.5		96.5	90.5
New Zealand	ASP	HI	89.5		87.4	91.6
Nicaragua	AMS	LMI	56.1		47.7	64.5
Nigeria	AFR	LMI	44.2		31.6	56.7
North Macedonia	EUR	UMI	79.6		71.6	87.7
Norway	EUR	HI	90.9		88.6	93.1
Oman	ARB	HI	90.5		91.5	89.6
Pakistan	ASP	LMI	48.7		28.5	68.8
Palestine	ARB	UMI	67.3		63.9	70.7
Panama	AMS	HI	74.8		75.3	74.4
Paraguay	AMS	UMI	71.7		58.4	85.0
Peru	AMS	UMI	73.4		59.9	86.9
Philippines	ASP	LMI	65.0		49.4	80.5
Poland	EUR	HI	94.6		95.7	93.4
Portugal	EUR	HI	85.6		79.2	92.0
Qatar	ARB	HI	97.3		98.7	96.0
Romania	EUR	HI	87.0		81.8	92.2
Russian Federation	CIS	UMI	88.9		84.5	93.4
Rwanda	AFR	LI	40.1		25.4	54.9
Saint Kitts and Nevis	AMS	HI	82.3		76.5	88.0
Saint Lucia	AMS	UMI	73.3		66.7	79.9
Saint Vincent and the Grenadines	AMS	UMI	73.0		75.0	71.0
Samoa	ASP	LMI	63.1		56.1	70.1
Sao Tome and Principe	AFR	LMI	54.5		49.9	59.1
Saudi Arabia	ARB	HI	94.9		93.2	96.5
Senegal	AFR	LMI	66.5		61.4	71.6
Serbia	EUR	UMI	85.1		80.4	89.9
Seychelles	AFR	HI	80.9		75.8	86.0
Singapore	ASP	HI	97.4		99.4	95.4
Slovakia	EUR	HI	87.1		82.6	91.6
Slovenia	EUR	HI	88.4		84.0	92.7
Somalia	ARB	LI	21.4		11.7	31.1
South Africa	AFR	UMI	80.5		78.9	82.1
Spain	EUR	HI	91.4		90.1	92.7
Sri Lanka	ASP	LMI	69.9		56.6	83.2
Suriname	AMS	UMI	76.8		81.7	71.8
Sweden	EUR	HI	93.9		93.2	94.6
Switzerland	EUR	HI	91.6		89.1	94.1
Syrian Arab Republic	ARB	LI	49.6		36.9	62.3
Tanzania	AFR	LMI	37.2		25.4	48.9
Thailand	ASP	UMI	88.7		85.9	91.6
Timor-Leste	ASP	LMI	39.0		36.1	42.0
Togo	AFR	LI	40.2		34.8	45.6
Tonga	ASP	UMI	58.2		45.5	71.0
Trinidad and Tobago	AMS	HI	76.6		65.0	88.1
Tunisia	ARB	LMI	75.4		62.7	88.1
Türkiye	EUR	UMI	85.8		79.2	92.5
Uganda	AFR	LI	34.8		31.0	38.7
Ukraine	EUR	LMI	80.8		74.6	87.0
United Arab Emirates	ARB	HI	96.4		100.0	92.8
United Kingdom	EUR	HI	92.8		91.8	93.8
United States	AMS	HI	96.6		99.1	94.1
Uruguay	AMS	HI	87.1		84.2	90.1
Uzbekistan	CIS	LMI	81.7		83.6	79.7
Vanuatu	ASP	LMI	67.9		81.5	54.4
Venezuela	AMS	n.a.	64.2		58.1	70.4
Viet Nam	ASP	LMI	80.6		74.0	87.3
Zambia	AFR	LMI	49.5		36.1	62.8
Zimbabwe	AFR	LMI	42.7		40.8	44.6

Notes: Univ. score = universal connectivity pillar score; M. score = meaningful connectivity pillar score. Regions: AFR = Africa; AMS = Americas; ARB = Arab States; ASP = Asia-Pacific; CIS = Commonwealth of Independent States; EUR = Europe. Income groups: LI = low-income; LMI = lower-middle-income; UMI = upper-middle-income; HI = high-income.

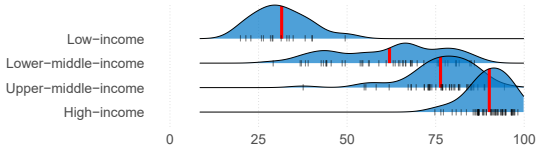
There is a strong, positive correlation between IDI performance and income levels, approximated with GNI per capita (see Figure 5). Income scales exponentially, but IDI performance follows a linear progression: as income increases, a given increase in income is associated with ever smaller increases in IDI score. Several factors likely contribute to this result. Part of it is driven by the selection and transformation of indicators. The IDI components were selected based on relevance and availability for countries across the development ladder to cover the most countries possible. At the same time, some aspects of UMC are not covered in the IDI (e.g., high-speed fixed broadband, 5G network coverage, ICT skills) that may better distinguish the performance of high-income economies. In addition, a logarithmic transformation is applied to fixed and mobile Internet traffic per subscription, the only two indicators that appear to scale exponentially, to better align with the scale of the other indicators. Finally, the observed relationship between IDI performance and income levels also suggests that richer countries have more mature digital ecosystems where there is simply less room for growth.

Figure 5: IDI performance and income



Source: World Bank for GNI.

Figure 6: Distribution of IDI scores by income group



Note: The horizontal axis shows the IDI scores, with each black tick representing an individual country score. The vertical axis indicates the distribution density. The red lines mark the group average values.

There are speculations that it would be easier to connect smaller areas or more densely-populated areas. Figure 7 shows that this is not the case. The correlation between the IDI 2023 scores on the one hand and population, population density and land area on the other is zero (with population) or almost zero (with the other two indicators).

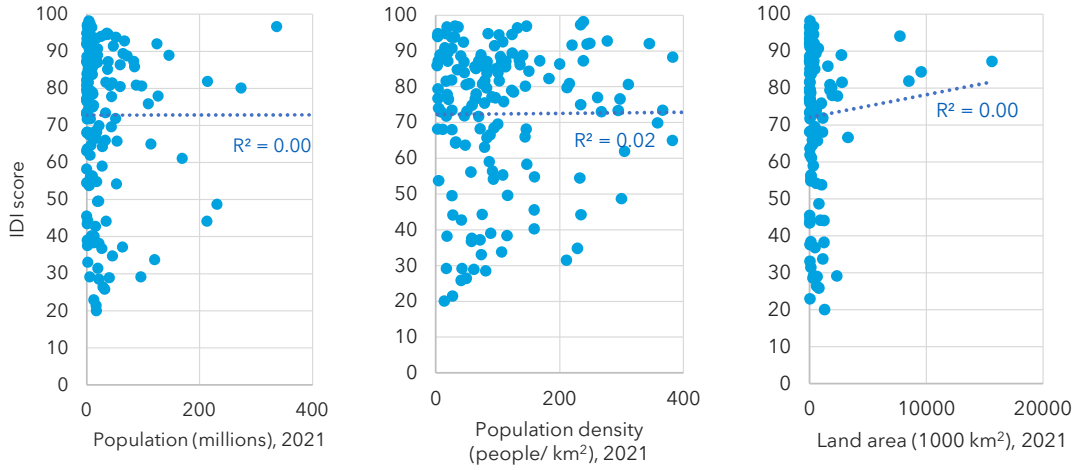
Results by region

A benchmarking tool like the IDI allows for meaningful comparisons among peers and against relevant group averages. Figure 8 shows the distribution of IDI scores by region and by selected group of interest: least developed countries (LDCs), landlocked developing countries (LLDCs) and small island developing States (SIDS).[4] For each group (and region), the red line corresponds to the group average IDI score. Wave crests indicate denser concentrations of countries. The more numerous, flatter and longer the waves are, the more heterogeneity there is within a group.

Indeed, when it comes to connectivity, geography is a very poor predictor of IDI performance. Among the 10 economies with an IDI score above 95, four are from the Arab States, three are from Europe, two are from Asia-Pacific, and one is from the Americas. Among the six regions, Europe and the Commonwealth of Independent States (CIS) group achieve the best group performance (red line furthest right) and are also the most

[4] The composition of the LDCs, LLDCs, and SIDS categories is available at https://www.un.org/ohrlls/.

Figure 7: IDI performance and selected indicators

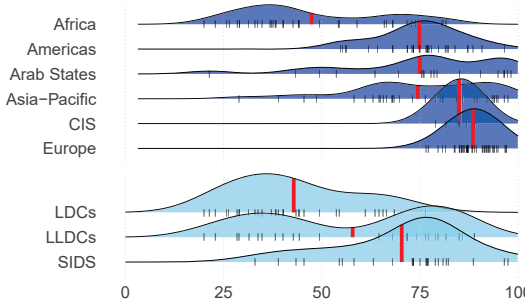


Note: For readability, China (population 1.4 billion, IDI score 84.4) is not shown on the first panel.
Sources: Food and Agriculture Organization (FAO) and World Bank estimates for land area and population density.

homogeneous regions (tall, narrow wave). Asia-Pacific (74.6), the Americas (74.8) and the Arab States (74.5) achieve almost the same average score. But this result conceals extreme disparities among the Arab States, for example: this grouping includes countries with the highest (98.2) and second-lowest IDI score (21.4) among the 169 economies studied. Likewise, in the Asia-Pacific grouping there is a 69-point gap between the best (98.4) and worst-performing (28.9) country. Africa's average IDI score (47.4) is the lowest among the regions. Twenty-five of the 33 African economies included in the IDI score below the 50-point mark. Eight of the ten economies scoring below 30 are from Africa. But even in this region, there is still a 60-point difference between the region's best (81.7) and worst-performing (20.0) country.

IDI scores are widely distributed within the LDC group, ranging from the global minimum of 20.0 to 76.5, just above the global average. LLDCs appear to form two distinct groups as indicated by the twin waves, with a lower-performing group of 12 countries having scores that range between 20 and 49.5 with an average of 34.6, and a second group of 14 countries with scores between 64.6 and 88.9 and an average of 77.7. SIDS are also a very heterogeneous group of countries, with some of the lowest (33.1) and highest (97.1) IDI scores.

Figure 8: IDI scores by region

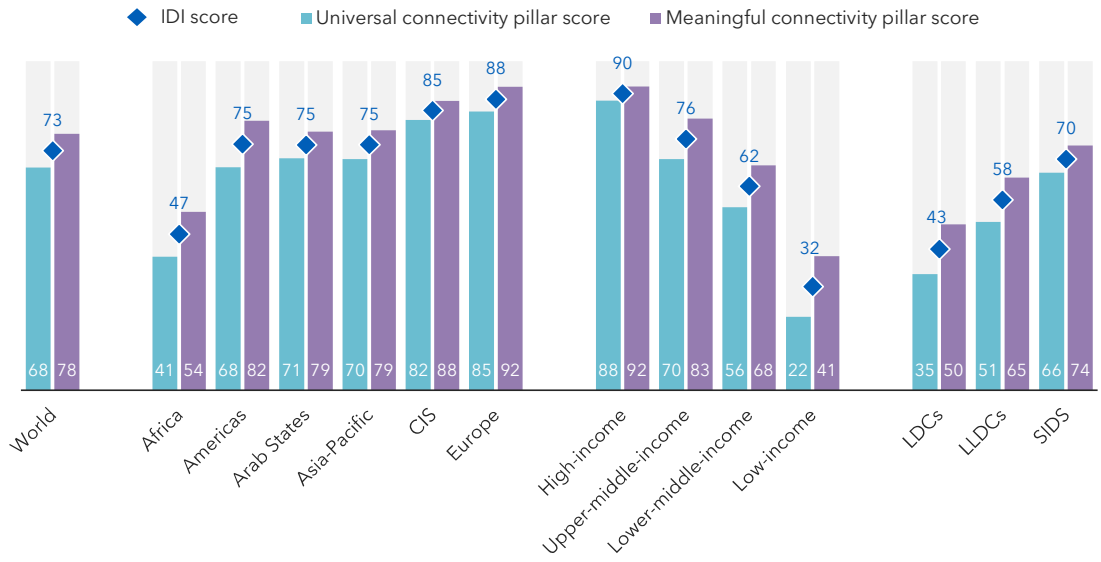


Note: The horizontal axis shows the IDI scores, with each black tick marks indicating a country scores. The height of the blue waves indicates the distribution density. The red vertical lines mark the group average values.

Results by pillar

The IDI is made up of two main components mirroring the two UMC dimensions. On the *universal connectivity* pillar, the scores range from 7.0 to 100 with an average of 67.7, 10 points below the average score of the *meaningful connectivity* pillar (77.9), where country scores range from 30.2 to 99.3 (Figure 4). Indeed, 82 per cent of the countries perform better on the *meaningful connectivity* pillar. Differences in performance between the two pillars is much smaller in high-income countries (4 points) than in low-income

Figure 9: Universal and meaningful connectivity pillar scores, by region and income group



countries (17 points), where the usage gap is much larger (Figure 9).

Individual indicators are important to understand this result (Figure 11). In the *meaningful connectivity* pillar, *mobile network coverage*, which combines 3G and 4G/LTE coverage (with 4G/LTE given more weight), achieves the highest score among all indicators for the world (average of 86.7), most regions, and most countries, reflecting the fact that 95 per cent of the world's population has the *possibility* of connecting to the Internet via a mobile-broadband network.

Global performance on *mobile phone ownership*, another indicator of the *meaningful connectivity* pillar, is the second highest among all indicators (world average of 84.2). However, data availability prevents distinguishing feature phones from Internet-enabled phones (smartphones).

The fact that this pillar does not include some enablers of meaningful connectivity, such as 5G coverage, Internet speed, ICT skills, and safety, also explains the high scores for this pillar.

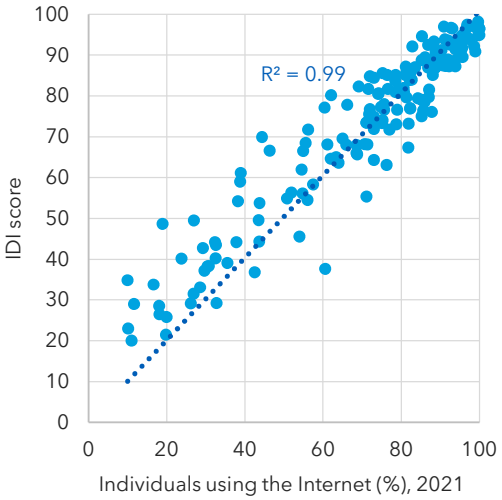
Furthermore, the *universal connectivity* pillar is made up of *usage* indicators. The fact that most countries achieve lower scores for this pillar reflects the well-documented *usage gap,* which corresponds to the difference between the share of people having the *possibility* of connecting to the Internet and the share of people *using* the Internet. Where connectivity exists, and even where it is affordable, many people still do not use the Internet due to other barriers, such as lack of skills, awareness, need, or appropriate device.[5]

Results by indicator

There is a strong, positive correlation between the overall IDI and the individual indicators composing it. The relationship is the strongest with the percentage of Internet users (R^2 of 0.99), making this indicator the best single predictor of overall IDI performance (Figure 10). The weakest correlation is with fixed broadband traffic per subscription. Although the IDI provides a good summary of the 10 underlying indicators, looking at these in detail can provide additional insights.

[5] For more on the usage gap, see the *Facts and Figures* series and the *Global Connectivity Report 2022*.

Figure 10: Internet use and IDI performance

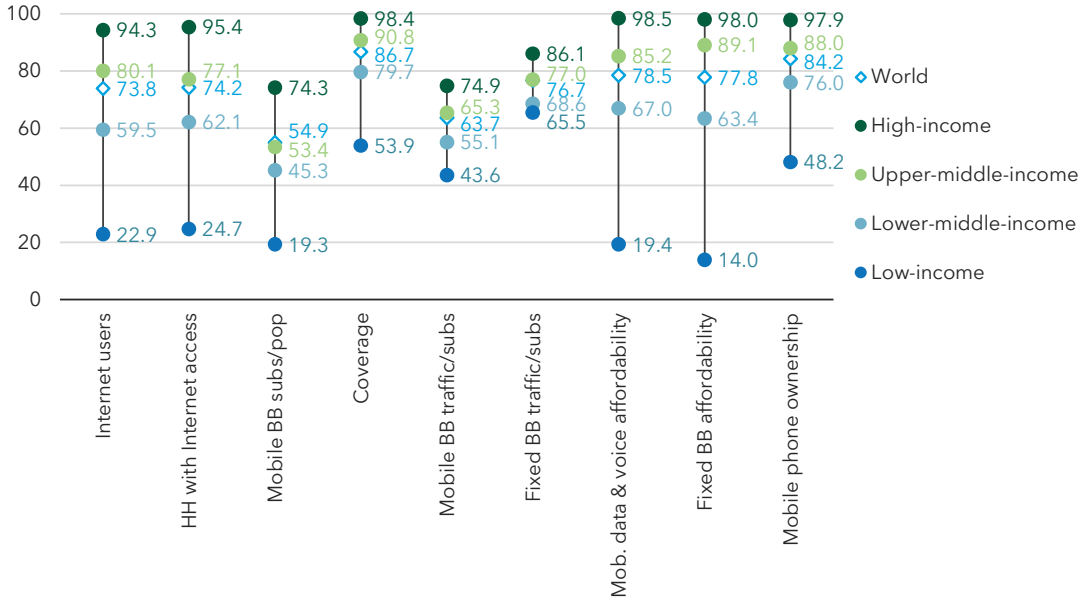


Every indicator is strongly and positively correlated with income level (Figure 11), which by construction implies the overall IDI scores correlate with income level. While the *order* of the four income groups is the same across the 10 indicators (that is, high-, upper-middle-, lower-middle, low-income countries), the distance between the groups' average normalized scores varies significantly. When considering the share of individuals using the Internet, the average score of high-income economies (94.3) is over four times that of low-income economies (22.9). The ratio drops to 1.3 when considering fixed broadband traffic per subscription.

Based on the average scores, all of the income groups have opportunities to improve their performance in at least some of the indicators in order to improve their IDI scores. Overall, mobile network coverage (the weighted average for 3G and 4G/LTE) and mobile phone ownership globally show the strongest performance across the indicators covered in the IDI. Low-income economies should focus on improving Internet accessibility for individuals and households, along with mobile-broadband penetration and affordability. Middle-income and high-income economies show relatively weaker performance in terms of mobile-broadband penetration and mobile-broadband traffic per subscription. Internet use, affordability, and mobile phone ownership are absolute strengths of high-income economies.

Table 4 provide descriptive statistics for the IDI 2023 raw dataset provided in Annex 1, as well as the actual threshold and goalpost values

Figure 11: Average normalized indicator scores by income group



Note: Indicator names are abbreviated for readability. See Annex 3 for indicator definitions.

Table 4: Descriptive statistics by component indicator

Indicators	World			Low-income	Lower-middle-income	Upper-middle-income	High-income	Thres-hold	Goal-post
	min	average	max	average	average	average	average		
Individuals using the Internet (%)	10.0	70.5	100.0	21.7	56.5	76.1	90.5	0	95
Households with Internet access at home (%)	3.3	70.8	100.0	23.5	59.0	73.2	91.5	0	95
Mobile-broadband subscriptions per 100 inhabitants	0.7	85.1	285.1	29.0	70.8	80.1	116.9	0	150
Population covered by at least a 3G mobile network (%)	25.8	92.5	100.0	72.2	89.0	94.8	99.2	0	95*
Population covered by at least a 4G/LTE mobile network (%)	0.0	82.9	100.0	41.7	73.5	88.2	97.8	0	95*
Mobile broadband Internet traffic per subscription (GB)	0.2	89.9	681.2	18.0	48.4	92.2	142.4	0	500
Fixed broadband Internet traffic per subscription (GB)	0.0	2'234.1	10'484.5	1'088.3	1'107.0	2'288.7	3'431.9	0	10'000
Mobile data and voice high-consumption basket price (% GNI p.c.)	0.1	6.0	56.9	22.2	8.0	4.6	1.0	21.3	1
Fixed-broadband Internet basket price (% GNI p.c.)	0.3	13.5	666.7	86.0	12.8	4.5	1.6	33.3	1
Individuals owning a mobile phone (%)	18.9	80.7	100.0	45.8	72.3	83.8	94.6	0	95

*The goalpost for the two mobile network coverage indicators is applied on the weighted average.

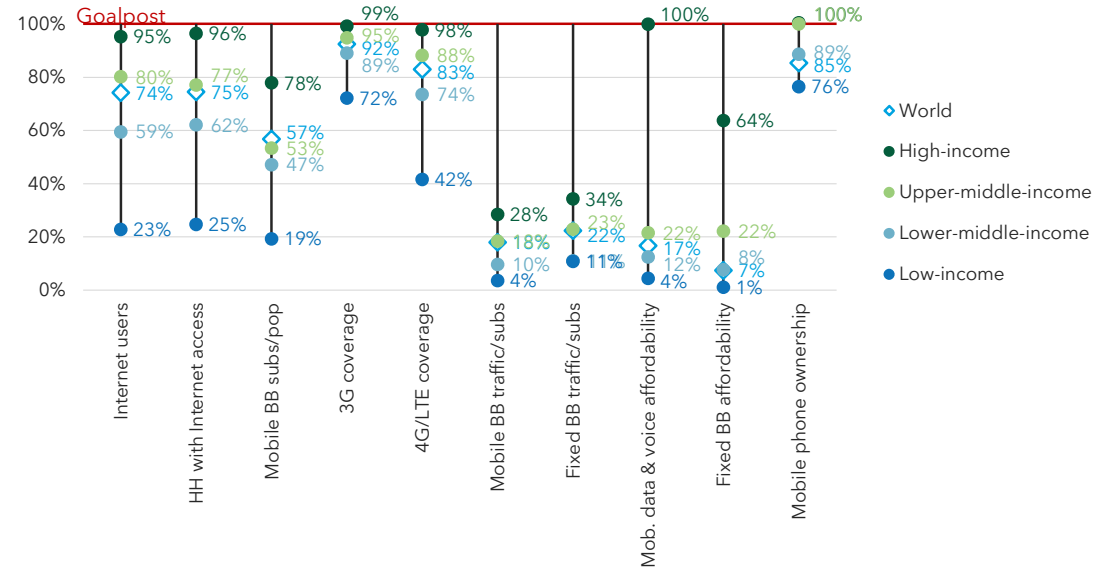
used to compute the indicator scores.[6] The minimum and maximum values (first column) reveal the very large ranges of values for each indicator.

Country values for several indicators are unevenly distributed.[7] It is therefore important for countries to consider the distance between a score and the goalpost when assessing priorities and resource allocation. Figure 12 provides an overview of the average distance to the goalpost for each of the income groups by indicator. The distance is calculated as the ratio of the normalized score to the span between threshold and goalpost. This way

[6] The goalpost for the indicator *Mobile-broadband subscriptions per 100 inhabitants* was defined based on the 95th percentile of the distribution of values observed, rounded to the nearest 10. The goalpost for the two traffic indicators was defined considering both the figures obtained for 2021 and the double-digit growth trends projected for subsequent years, rounded for easier interpretation.

[7] During the development process of the IDI, this skewness was identified and treated to ensure more robust composite indicator scores.

Figure 12: Average distance to the goalposts by component indicator



Note: Average distance is expressed in terms of percentage points, computed as the average (non-normalized or raw) value by income group for an indicator divided by the value of the goalpost set for the given indicator. For instance, the average for *Individuals using the Internet (%)* in low-income economies is 21.7 per cent and the goalpost is 95 per cent (Table 4). Dividing the former by the latter yields a distance score of 23 per cent. The ratio is reciprocated in the case of the two affordability indicators where lower raw values correspond to higher scores. Indicator names are abbreviated for readability. See Annex 3 for indicator definitions. HH refers to Households; BB refers to broadband.

of measuring shows that mobile network coverage and mobile phone ownership are the indicators where performance tends to be best. The worst performance in terms of distance from the goalposts is seen on the two traffic indicators.

Analysing the average performance of each income group reveals a deep affordability gap between high-income countries, which have reached the goalpost, and middle- and low-income countries, which are bunched at less than a quarter of the distance between threshold and goalpost. The differences in the distance to the goalposts are also striking on the three universality indicators.

3 Conclusions

After a six-year hiatus, the IDI 2023 responds to a demand from the ITU membership for a tool that can help them assess the level of digital development at the national level. The new methodology is the result of an inclusive and iterative process guided by Resolution 131, which involved EGTI and EGH members and Member States. Limited availability and quality of data constrained the selection of indicators included in the index, while the nature of the process imposed making compromises.

Considering the policy relevance of universal and meaningful connectivity, the concept was put at the heart of the new framework for the methodology. The IDI therefore aims to measure the extent to which connectivity is universal and meaningful. The index comprises 10 indicators organized in two pillars, capturing the two dimensions of UMC. The IDI therefore lends itself to use as an advocacy tool that will contribute to making UMC a policy priority at the country level.

The IDI provides a high-level, partial view of the state of meaningful connectivity. It does not capture all the specificities and circumstances of individual countries. The IDI results must therefore be interpreted with caution; they must be contextualized and complemented with additional data and qualitative information.

The results of the IDI show that most countries are embracing and investing in connectivity. The global average score is 72.8 out of 100, an indication that significant progress has already been made; but one must look beyond averages and realize that many countries remain at a very early stage of digital development: the lowest IDI 2023 score is 20.0.

Connectivity remains tightly linked to development, and the results on every single dimension of the IDI reveal deep divides between the rich and the poor countries. In contrast, the IDI results also suggest that neither population size nor country size affect performance in the IDI. Similarly, there is no regional determinism: within regions, IDI scores vary enormously. Finally, it should be noted that the 2023 edition is a snapshot. Subsequent editions will make possible time series analysis, which will provide additional insights.

The IDI provides a synthetic measure of *what we know* about the state of connectivity around the world. But the development of the IDI process exposed once more *how little* we know. Countries must invest in their statistical capabilities and improve the availability of ICT indicators. ITU data questionnaires – not the IDI indicators – continue to be the reference as to what countries ought to collect in terms of ICT data. Without more and better data, any future iteration of the IDI methodology is bound to suffer from the same limitations as the 2023 version. The index will continue to exclude critical connectivity enablers such as ICT skills, security, and Internet speed. And it will not be possible to increase the country coverage either: 27 Member States were left out of the IDI 2023 owing to a lack of data, even with the reduced set of indicators used.

If the pool of candidate indicators can be increased, the next iteration of the methodology can be used to draw a more complete and more accurate picture of connectivity around the world. ITU will continue to assist countries in measuring connectivity through its guidelines, data collection tools, capacity-building activities, and technical assistance.

Annex 1: Indicator values and scores

This annex reports the values and scores for all indicators and economies included in the IDI. The reference year is 2021 unless indicated by (‡). Estimates are indicated with (†). Imputed values for traffic and provisional estimates are not published. These values were only used for calculating the pillar and IDI scores and are not meant for making comparisons at the individual indicator level. The IDI dataset, enriched with data sources and notes, is available for download on the IDI 2023 webpage. Annex 2 provides average values and scores for the world, regions, income groups, the LDCs, LLDCs and SIDS. See Annex 3 for indicator definitions.

	Indicator values										Normalized Progress Scores (0-100)								
Economy	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile-broadband subscriptions per 100 inhabitants	Population covered by at least a 3G mobile network (%)	Population covered by at least a 4G/LTE mobile network (%)	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p. c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile broadband subscriptions per 100 inhabitants	3G and 4G/LTE network coverage	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p.c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)
Afghanistan	n.a.	n.a.	19.0‡	57.0‡	26.0‡	24.9‡	135.5‡	21.5	15.2	n.a.	n.a.	n.a.	12.7	38.4	52.4	53.4	0.0	56.0	n.a.
Albania	79.3	88.3	72.0	99.2	98.9	75.7	1702.0	3.5	1.5	89.3†	83.5	92.9	48.0	99.0	69.8	80.8	87.9	98.4	94.0
Algeria	66.2†	78.3†	97.1	98.2	79.9	58.7	1518.8	2.9	4.7	83.3†	69.7	82.4	64.8	87.2	65.8	79.5	90.5	88.6	87.7
Andorra	93.9†	99.1†	86.7	99.5	93.0	23.1	2813.9	0.6	0.9	96.0†	98.8	100.0	57.8	95.6	51.2	86.2	100.0	100.0	100.0
Angola	37.8†	37.9†	21.2	87.2	33.0	12.2	722.9	5.9	16.1	42.7†	39.8	39.9	14.2	54.7	41.5	71.5	75.7	53.3	44.9
Antigua and Barbuda	87.1†	84.4†	51.8‡	99.0‡	99.0‡	n.a.	n.a.	3.1	5.0	94.3†	91.7	88.8	34.5	99.0	n.a.	n.a.	89.5	87.6	99.3
Argentina	87.2	90.4	72.9	98.5	97.7	38.2	n.a.	4.0	4.8	88.1	91.7	95.2	48.6	98.0	59.0	n.a.	85.2	88.2	92.7
Armenia	78.6	90.1	90.6	100.0	100.0	83.1	4586.2	1.1	3.5	85.5†	82.7	94.8	60.4	100.0	71.3	91.5	99.8	92.2	90.0
Australia	95.0†	97.3†	122.2	99.5	99.5	121.3	3750.3	0.5	1.3	97.3†	100.0	100.0	81.4	99.5	77.3	89.4	100.0	99.2	100.0
Austria	92.5	95.0	105.3	98.0	98.0	349.0	2024.3	0.2	0.8	96.9†	97.4	100.0	70.2	98.0	94.2	82.7	100.0	100.0	100.0
Azerbaijan	86.0	86.5	68.8	99.5	94.0	27.5	316.2	2.3	1.7	84.0	90.5	91.1	45.9	96.2	53.9	62.5	93.7	97.9	88.4
Bahamas	93.8†	87.2†	97.3	98.0	95.0	n.a.	n.a.	1.4	1.7	95.6†	98.7	91.8	64.9	96.2	n.a.	n.a.	98.1	98.0	100.0
Bahrain	100.0	100.0	135.2	100.0	100.0	294.5	4773.3	1.4	2.4	100.0	100.0	100.0	90.1	100.0	91.5	92.0	98.2	95.6	100.0
Bangladesh	38.9	38.1	54.7	98.2	98.2	62.9	1031.7	2.0	2.0	61.8	41.0	40.1	36.5	98.2	66.9	75.3	95.3	97.0	65.1

Notes: †) ITU estimate; ‡) lagged value from 2020; n.a. = data not available, estimate used for calculating aggregate score not published.

(continued)

	Indicator values										Normalized Progress Scores (0-100)								
Economy	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile-broadband subscriptions per 100 inhabitants	Population covered by at least a 3G mobile network (%)	Population covered by at least a 4G/LTE mobile network (%)	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p. c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile broadband subscriptions per 100 inhabitants	3G and 4G/LTE network coverage	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p.c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)
Barbados	74.9†	82.4†	67.4	100.0	99.0	38.1	n.a.	3.9	4.1	83.5†	78.8	86.7	44.9	99.4	59.0	n.a.	85.7	90.5	87.8
Belarus	86.9	87.2	94.5	99.9	97.4	118.6	1462.3	1.9	0.8	97.1	91.5	91.8	63.0	98.4	77.0	79.1	95.5	100.0	100.0
Belgium	92.8	92.3	93.2	100.0	100.0	52.3	2825.6	0.7	0.8	90.0	97.7	97.2	62.1	100.0	64.0	86.3	100.0	100.0	94.8
Benin	30.7†	43.0†	33.4	80.0	46.0	32.0	24.2	14.7	26.1	51.8†	32.4	45.2	22.2	59.6	56.2	35.0	32.7	22.3	54.5
Bhutan	85.6	94.3	86.2	95.0	80.0	0.2‡	n.a.	2.2	2.8	87.2	90.1	99.3	57.5	86.0	3.1	n.a.	94.3	94.3	91.7
Bolivia (Plurinational State of)	66.0	56.9	86.7	87.8	74.5‡	n.a.	n.a.	7.9	8.9	73.2‡	69.4	59.9	57.8	79.8	n.a.	n.a.	66.1	75.5	77.1
Bosnia and Herzegovina	75.7	75.5	56.1	97.0	93.0	46.9	3308.6‡	2.5	2.3	88.2†	79.7	79.5	37.4	94.6	62.2	88.0	92.4	96.0	92.9
Botswana	75.2†	78.1†	93.9	98.0	88.0	19.3	26.8	3.5	7.4	90.5†	79.2	82.2	62.6	92.0	48.5	36.1	87.8	80.2	95.3
Brazil	80.7	81.5	95.9	90.2	88.3	37.5	1550.7	1.1	3.5	88.8	84.9	85.8	63.9	89.0	58.7	79.8	99.8	92.3	93.5
Brunei Darussalam	95.6†	91.0†	136.8	96.6	96.6	610.0	508.5	0.6	1.1	96.3†	100.0	95.8	91.2	96.6	100.0	67.7	100.0	99.8	100.0
Bulgaria	75.3	83.5	110.4	100.0	99.9	63.4	3151.0	1.5	1.7	90.7†	79.2	87.9	73.6	99.9	67.0	87.5	97.5	97.8	95.5
Burkina Faso	18.1†	12.2†	60.9	53.2	36.6	1.3	n.a.	19.3	32.7	56.6†	19.1	12.9	40.6	43.2	13.5	n.a.	10.2	1.9	59.6
Burundi	10.2†	17.9‡	8.2	50.6	32.2	37.4	1396.2	56.9	n.a.	26.9†	10.7	18.9	5.5	39.5	58.7	78.6	0.0	n.a.	28.4
Cabo Verde	71.4†	76.3†	76.3	93.8	80.0	47.6	1490.1	21.9	3.1	79.5†	75.1	80.3	50.9	85.5	62.5	79.3	0.0	93.5	83.7
Cambodia	55.6†	55.7†	105.7	92.1	92.1	159.4	n.a.	11.7	12.1	77.4†	58.5	58.6	70.5	92.1	81.7	n.a.	47.3	65.7	81.5
Cameroon	42.5†	46.7†	38.2	25.8	13.5	3.4	222.0	21.2	21.0	60.0†	44.8	49.1	25.4	18.4	23.7	58.7	0.8	38.0	63.2
Canada	92.3‡	94.2‡	80.9	99.7	99.4	48.9	4005.8	1.9	1.2	94.1†	97.2	99.2	53.9	99.5	62.9	90.1	95.5	99.4	99.0
Chad	11.0†	4.2†	7.3	59.0	22.0	26.1	n.a.	41.3	n.a.	38.1†	11.6	4.5	4.9	36.8	53.0	n.a.	0.0	n.a.	40.1

Notes: †) ITU estimate; ‡) lagged value from 2020; n.a. = data not available, estimate used for calculating aggregate score not published.

(continued)

	Indicator values										Normalized Progress Scores (0-100)								
Economy	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile-broadband subscriptions per 100 inhabitants	Population covered by at least a 3G mobile network (%)	Population covered by at least a 4G/LTE mobile network (%)	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p. c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile broadband subscriptions per 100 inhabitants	3G and 4G/LTE network coverage	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p.c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)
Chile	88.8†	91.9†	110.8	95.0	88.0	177.7	5228.3	0.7	2.5	93.2†	93.5	96.7	73.9	90.8	83.4	93.0	100.0	95.3	98.1
China	73.1	80.9†	101.6	99.9	99.9	153.3	2874.8	1.1	0.5	81.5†	76.9	85.2	67.8	99.9	81.1	86.5	99.5	100.0	85.8
Colombia	73.0	60.5	71.4	100.0	99.5	52.8	182.9	1.9	4.4	76.3	76.9	63.7	47.6	99.7	64.1	56.6	95.8	89.4	80.3
Comoros	n.a.	n.a.	42.0	87.0	85.0	28.7	17.1	14.3	29.6	n.a.	n.a.	n.a.	28.0	85.8	54.6	31.4	34.5	11.4	n.a.
Congo (Rep. of the)	32.7†	n.a.	15.8	87.0	85.0	0.2	0.0	15.6	30.9	53.2†	34.5	n.a.	10.5	85.8	3.6	0.2	28.2	7.5	56.0
Costa Rica	82.7	81.3	95.2	94.0	93.0	54.8	2956.3	1.7	1.8	90.8†	87.1	85.6	63.4	93.4	64.7	86.8	96.6	97.6	95.6
Côte d'Ivoire	38.8†	58.2†	79.3	96.4	64.5	24.6	1173.0	6.9	15.7	63.2†	40.8	61.3	52.9	77.3	52.1	76.7	70.9	54.5	66.5
Croatia	81.3	86.3	109.6	100.0	99.5	197.2	2641.6	0.7	0.6	72.6‡	85.5	90.9	73.0	99.7	85.1	85.5	100.0	100.0	76.4
Cuba	71.1	33.3‡	33.1	73.0	49.2	45.8	491.6	8.4‡	6.8‡	63.0‡	74.9	35.1	22.1	58.7	61.9	67.3	63.6	82.1	66.3
Cyprus	90.8	93.4	80.2	99.9	99.9	68.4	2977.3	1.1	1.0	98.3†	95.5	98.3	53.5	99.9	68.2	86.8	99.7	100.0	100.0
Czech Republic	82.7	83.0	101.9	99.8	99.8	50.2	3094.0	1.2	1.2	98.8†	87.0	87.4	67.9	99.8	63.3	87.3	99.2	99.5	100.0
Dem. Rep. of the Congo	26.2†	25.9†	24.1	55.0	40.0	11.2	n.a.	32.7	n.a.	48.6†	27.5	27.3	16.1	46.0	40.2	n.a.	0.0	n.a.	51.2
Denmark	98.9	96.1	141.8	100.0	100.0	176.8	4132.5	0.5	0.8	96.3†	100.0	100.0	94.5	100.0	83.3	90.4	100.0	100.0	100.0
Djibouti	64.0†	65.9†	35.9	90.0	90.0	63.0	1016.3	10.1	8.6	74.3†	67.4	69.4	24.0	90.0	66.9	75.2	55.0	76.5	78.2
Dominica	82.4†	77.1†	67.8	100.0	100.0	18.5‡	n.a.	5.3	6.3	87.9†	86.7	81.2	45.2	100.0	47.7	n.a.	78.9	83.7	92.5
Dominican Rep.	85.2	46.1	66.7	99.5	97.6	218.6	6091.5	4.4	3.2	74.4	89.7	48.5	44.5	98.4	86.7	94.6	83.4	93.3	78.4
Ecuador	70.7‡	53.2‡	56.7	94.8	92.9	47.6	2053.2	3.2	5.1	62.9‡	74.4	56.0	37.8	93.7	62.5	82.8	89.2	87.4	66.2
Egypt	71.9‡	73.0‡	61.6	99.5	98.0	32.1	1335.4	1.9	3.0	99.4‡	75.7	76.9	41.1	98.6	56.3	78.1	95.7	93.9	100.0

Notes: †) ITU estimate; ‡) lagged value from 2020; n.a. = data not available, estimate used for calculating aggregate score not published.

(continued)

	Indicator values										Normalized Progress Scores (0-100)								
Economy	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile-broadband subscriptions per 100 inhabitants	Population covered by at least a 3G mobile network (%)	Population covered by at least a 4G/LTE mobile network (%)	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p. c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile broadband subscriptions per 100 inhabitants	3G and 4G/LTE network coverage	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p.c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)
El Salvador	54.6‡	27.6‡	77.0	92.0	76.0	n.a.	n.a.	6.3	9.9	77.1†	57.5	29.1	51.4	82.4	n.a.	n.a.	73.9	72.6	81.1
Equatorial Guinea	60.6†	45.1†	0.7	65.0	0.0	208.3	1.5	n.a.	20.6	63.3†	63.7	47.4	0.5	26.0	86.0	9.8	n.a.	39.3	66.7
Estonia	91.0	91.8	180.1	100.0	99.0	222.8	n.a.	0.5	1.0	98.2†	95.8	96.6	100.0	99.4	87.0	n.a.	100.0	100.0	100.0
Eswatini	56.2†	61.6†	114.5	99.1	80.4	51.5	n.a.	5.6	14.1	87.4†	59.2	64.8	76.3	87.9	63.7	n.a.	77.2	59.4	92.0
Ethiopia	16.7	16.7†	21.7	85.0	10.0	n.a.	n.a.	7.3	20.5	42.1†	17.6	17.6	14.5	40.0	n.a.	n.a.	68.9	39.6	44.3
Fiji	81.9†	76.3†	76.4‡	96.0‡	80.0‡	n.a.	n.a.	10.4	4.7	85.0†	86.2	80.3	50.9	86.4	n.a.	n.a.	53.6	88.5	89.4
Finland	92.8	91.7	157.2	99.9	99.9	398.9	1013.9	0.7	1.0	98.2†	97.7	96.5	100.0	99.9	96.4	75.2	100.0	100.0	100.0
France	86.1	87.2	105.2	99.0	99.0	127.7	n.a.	0.7	1.3	95.5	90.6	91.8	70.2	99.0	78.1	n.a.	100.0	99.1	100.0
Gabon	73.1†	76.0†	96.3	98.0	98.0	16.9‡	n.a.	4.0	8.0	83.6†	77.0	80.0	64.2	98.0	46.4	n.a.	85.2	78.3	88.0
Georgia	76.4	86.1	99.8	100.0	99.7	84.0	3368.1	1.9	2.8	91.3	80.5	90.6	66.5	99.8	71.5	88.2	95.6	94.3	96.1
Germany	91.4	91.9	94.4	99.8	99.8	69.3	2711.5	0.3	1.0	77.3†	96.2	96.7	62.9	99.8	68.4	85.8	100.0	99.9	81.4
Ghana	68.6	52.2†	71.5	95.8	67.7	43.0	2029.7	4.7	12.7	69.8	72.2	55.0	47.6	78.9	60.9	82.7	81.8	63.7	73.5
Greece	78.5	85.1	94.5	99.7	98.8	61.9	1723.4	1.6	2.7	91.1†	82.6	89.5	63.0	99.2	66.6	80.9	97.1	94.6	95.9
Grenada	71.1†	79.7†	76.6	98.5	98.5	9.0‡	n.a.	5.6	6.1	79.7†	74.9	83.9	51.1	98.5	37.0	n.a.	77.2	84.2	83.9
Guatemala	50.8	30.0	17.0	95.0	88.0	n.a.	n.a.	6.9	7.2	63.5	53.5	31.6	11.4	90.8	n.a.	n.a.	70.8	80.8	66.9
Guinea-Bissau	28.5†	18.9†	52.9	43.0	23.0	14.7	14.7‡	8.5	71.1	54.8†	30.0	19.9	35.3	31.0	44.3	29.9	63.4	0.0	57.7
Honduras	52.0†	39.4†	47.6	82.1	78.5	123.4	1328.7	10.5	15.3	72.0†	54.7	41.4	31.7	79.9	77.6	78.1	53.1	55.8	75.8
Hong Kong, China	93.1	94.4	160.3	99.0	99.0	99.1	3853.0	0.3	0.5	97.3	98.0	99.4	100.0	99.0	74.1	89.6	100.0	100.0	100.0
Hungary	88.6	90.8	82.2	99.2	99.2	101.3	2101.6	1.3	1.4	94.9†	93.3	95.6	54.8	99.2	74.5	83.1	98.7	98.7	99.9

Notes: †) ITU estimate; ‡) lagged value from 2020; n.a. = data not available, estimate used for calculating aggregate score not published.

(continued)

	Indicator values										Normalized Progress Scores (0-100)								
Economy	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile-broadband subscriptions per 100 inhabitants	Population covered by at least a 3G mobile network (%)	Population covered by at least a 4G/LTE mobile network (%)	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p. c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile broadband subscriptions per 100 inhabitants	3G and 4G/LTE network coverage	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p.c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)
Iceland	99.7	98.4	119.5	100.0	100.0	232.8	4793.0	0.4	1.5	98.4†	100.0	100.0	79.6	100.0	87.7	92.0	100.0	98.6	100.0
Indonesia	62.1	82.1	114.8	96.2	96.2	92.2	5925.3	2.5	7.6	65.9	65.4	86.4	76.5	96.2	72.9	94.3	92.6	79.7	69.3
Iran (Islamic Republic of)	78.6	79.5	104.5	85.0	81.0	111.8	480.6	1.7‡	0.9‡	72.4	82.7	83.7	69.6	82.6	76.0	67.1	96.8	100.0	76.2
Iraq	65.0†	79.8†	47.5	96.9	95.9	9.7	1694.2	5.0	n.a.	75.3†	68.4	84.0	31.7	96.3	38.1	80.7	80.4	n.a.	79.2
Ireland	92.0‡	92.0‡	108.7	95.0	90.0	68.6	1038.4	0.4	1.3	96.5†	96.8	96.8	72.4	92.0	68.2	75.4	100.0	99.1	100.0
Israel	90.3	83.0	123.6	99.0	97.0	118.2	n.a.	0.2	0.8	98.4†	95.0	87.3	82.4	97.8	76.9	n.a.	100.0	100.0	100.0
Italy	81.7	81.5	96.8	100.0	100.0	142.6	2451.5	0.6	1.3	95.4†	86.0	85.8	64.5	100.0	79.9	84.7	100.0	99.1	100.0
Jamaica	82.4	75.4	61.5	99.0	98.0	40.3	5489.7	5.2	7.9	97.2†	86.7	79.3	41.0	98.4	59.8	93.5	79.4	78.6	100.0
Japan	82.9	88.2	223.6	99.9	93.2	72.1	2391.3	1.5	1.1	93.0	87.3	92.8	100.0	95.9	69.0	84.5	97.4	99.7	97.9
Jordan	86.0	90.1	65.3	99.8	99.0	49.0	898.8	4.2	11.0	89.9†	90.5	94.8	43.5	99.3	62.9	73.9	84.5	69.0	94.7
Kazakhstan	90.9	94.5	93.8	96.0	83.5	199.3	1885.7	1.4	0.8	92.6	95.7	99.4	62.5	88.5	85.3	81.9	98.3	100.0	97.5
Kenya	38.2†	44.9†	53.5	95.0	94.0	28.6	1498.2	6.7	18.1	53.8†	40.3	47.2	35.7	94.4	54.5	79.4	71.8	47.0	56.6
Kiribati	54.0†	60.2†	41.1	73.5	54.0	28.9	n.a.	14.5	n.a.	65.6†	56.9	63.4	27.4	61.8	54.7	n.a.	33.7	n.a.	69.1
Korea (Rep. of)	97.6	99.9	117.2	99.9	99.9	146.1	3889.0	0.9	1.1	97.6	100.0	100.0	78.1	99.9	80.3	89.7	100.0	99.7	100.0
Kuwait	99.7	99.4	136.6	100.0	100.0	657.8	8205.6	0.8	1.6	99.2	100.0	100.0	91.1	100.0	100.0	97.9	100.0	98.1	100.0
Kyrgyzstan	72.0‡	87.8‡	124.0†	91.0†	85.0†	n.a.	n.a.	2.8	3.6	92.6‡	75.8	92.4	82.7	87.4	n.a.	n.a.	91.3	91.9	97.5
Lao P.D.R.	62.0	72.0	56.4	85.0	52.0	42.0	532.6	9.0	7.5	79.2†	65.3	75.8	37.6	65.2	60.5	68.2	60.6	80.0	83.4
Latvia	91.2	91.1	117.9	99.0	95.0	461.8	4409.9	1.0	1.5	96.6†	96.0	95.9	78.6	96.6	98.7	91.1	100.0	98.4	100.0
Lebanon	87.9†	75.8†	76.8‡	99.6‡	99.2‡	11.7‡	2372.3‡	11.1	1.9	89.1†	92.5	79.8	51.2	99.4	40.9	84.4	50.2	97.3	93.7

Notes: †) ITU estimate; ‡) lagged value from 2020; n.a. = data not available, estimate used for calculating aggregate score not published.

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	Indicator values										Normalized Progress Scores (0-100)								
Economy	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile-broadband subscriptions per 100 inhabitants	Population covered by at least a 3G mobile network (%)	Population covered by at least a 4G/LTE mobile network (%)	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p. c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile broadband subscriptions per 100 inhabitants	3G and 4G/LTE network coverage	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p.c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)
Lesotho	43.7†	n.a.	64.2	95.0	85.0	4.5	275.9	17.6	7.4	n.a.	46.0	n.a.	42.8	89.0	27.5	61.1	18.3	80.3	n.a.
Libya	84.3†	n.a.	120.9	72.0	40.0	n.a.	n.a.	6.2	4.5	85.4†	88.8	n.a.	80.6	52.8	n.a.	n.a.	74.2	89.2	89.9
Liechtenstein	95.6†	93.5†	123.5	99.0	98.3	26.4	3756.6	0.1	0.3	96.6†	100.0	98.5	82.3	98.6	53.2	89.4	100.0	100.0	100.0
Lithuania	86.9	86.6	122.5	100.0	100.0	263.4	n.a.	0.4	0.9	95.7‡	91.5	91.1	81.6	100.0	89.7	n.a.	100.0	100.0	100.0
Luxembourg	98.7	99.2	115.0	99.0	99.0	79.5	n.a.	0.2	0.8	98.3†	100.0	100.0	76.7	99.0	70.6	n.a.	100.0	100.0	100.0
Macao, China	88.5	89.9	185.7	99.8	99.7	42.4	n.a.	0.2	0.5	94.2†	93.1	94.7	100.0	99.7	60.6	n.a.	100.0	100.0	99.2
Madagascar	18.1†	13.1†	17.8	67.1	27.1	19.9	3407.7	19.8	164.2	37.5†	19.1	13.8	11.9	43.1	48.9	88.3	7.6	0.0	39.5
Malawi	26.9†	14.5†	39.3	84.4	68.6	9.8	124.9	16.4	63.3	46.0†	28.3	15.3	26.2	74.9	38.3	52.5	24.1	0.0	48.4
Malaysia	96.8	94.9	125.1	95.4	95.4	251.6	3371.6	1.3	2.3	97.4	100.0	99.9	83.4	95.4	89.0	88.2	98.7	95.9	100.0
Maldives	85.2†	83.1†	46.4	100.0	100.0	66.2	2195.6	3.0	4.2	94.8†	89.7	87.5	30.9	100.0	67.7	83.5	90.3	90.2	99.8
Mali	30.5†	39.6†	40.0	68.0	47.0	n.a.	n.a.	17.6	25.0	63.5†	32.1	41.7	26.7	55.4	n.a.	n.a.	18.1	25.9	66.9
Malta	87.5	90.5	78.7	100.0	100.0	119.7	n.a.	0.5	1.1	96.0†	92.1	95.3	52.5	100.0	77.1	n.a.	100.0	99.8	100.0
Mauritania	43.8†	n.a.	70.8	43.7	34.7	17.4	1657.2	9.0	19.1	60.9†	46.1	n.a.	47.2	38.3	46.9	80.5	60.8	44.0	64.1
Mauritius	71.6	73.8	108.7	99.0	99.0	50.2	2061.4	1.6	1.6	84.5	75.4	77.6	72.5	99.0	63.3	82.9	97.2	98.1	88.9
Mexico	75.6	66.4	86.4	95.7	95.0	57.7	n.a.	1.4	2.4	78.3†	79.6	69.9	57.6	95.2	65.5	n.a.	98.1	95.6	82.5
Moldova	60.5†	66.8	87.8	99.9	99.0	75.0	n.a.	1.5	2.1	88.4†	63.7	70.3	58.6	99.4	69.7	n.a.	97.6	96.7	93.0
Mongolia	81.6	80.0	116.2	100.0	99.0	97.1	1644.9	3.3	1.9	91.3	85.9	84.2	77.4	99.4	73.8	80.4	88.9	97.3	96.1
Montenegro	82.2	80.8	89.5	98.0	97.8	131.2	1872.8	2.8	2.0	93.0†	86.5	85.0	59.7	97.9	78.6	81.8	91.2	96.8	97.9
Morocco	88.1	86.2	82.6	99.3	99.1	115.2	2537.4	2.3	4.2	96.2	92.8	90.7	55.1	99.2	76.5	85.1	93.4	90.0	100.0
Mozambique	20.0†	14.3†	19.3	85.0	50.0	14.1‡	n.a.	19.9	35.8	42.3†	21.0	15.1	12.9	64.0	43.7	n.a.	7.0	0.0	44.5

Notes: †) ITU estimate; ‡) lagged value from 2020; n.a. = data not available, estimate used for calculating aggregate score not published.

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	Indicator values										Normalized Progress Scores (0-100)								
Economy	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile-broadband subscriptions per 100 inhabitants	Population covered by at least a 3G mobile network (%)	Population covered by at least a 4G/LTE mobile network (%)	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p. c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile broadband subscriptions per 100 inhabitants	3G and 4G/LTE network coverage	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p.c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)
Myanmar	n.a.	n.a.	109.6	94.3	94.3	0.6	87.6	3.3	12.4	n.a.	n.a.	n.a.	73.0	94.3	7.1	48.7	88.9	64.8	n.a.
Namibia	61.1†	63.0†	76.0	89.0	79.0	9.8	n.a.	2.6	8.8	78.6†	64.3	66.3	50.6	83.0	38.3	n.a.	92.2	75.9	82.7
Netherlands (Kingdom of the)	92.1	96.0	138.7	99.0	99.0	51.8	n.a.	0.5	1.4	87.4	96.9	100.0	92.5	99.0	63.8	n.a.	100.0	98.7	92.0
New Zealand	95.7†	96.3†	93.3	98.3	97.5	52.6	3458.6	0.5	1.3	95.8†	100.0	100.0	62.2	97.8	64.1	88.5	100.0	99.1	100.0
Nicaragua	54.8†	41.5†	62.8	72.1	68.7	n.a.	n.a.	6.6	20.8	68.0†	57.7	43.7	41.8	70.1	n.a.	n.a.	72.4	38.9	71.6
Nigeria	32.3†	34.6†	36.6	84.6	61.9	4.3	42.7	3.9	21.5	75.4†	34.0	36.4	24.4	71.0	26.8	41.0	85.6	36.6	79.3
North Macedonia	81.4‡	79.9‡	67.4	99.9	99.6	63.8	2255.4	3.1	3.5	89.1†	85.7	84.1	44.9	99.7	67.1	83.8	89.5	92.2	93.8
Norway	99.0	99.0	98.8	99.9	99.9	116.9	n.a.	0.5	1.2	96.0	100.0	100.0	65.9	99.9	76.7	n.a.	100.0	99.4	100.0
Oman	95.2‡	94.4‡	112.6	100.0	97.8	49.7	3037.7	1.8	3.5	97.1‡	100.0	99.4	75.1	98.7	63.2	87.1	96.1	92.3	100.0
Pakistan	18.9‡	32.8‡	46.5	78.1	75.4	74.7	1766.2	4.4	15.7	45.5‡	19.9	34.5	31.0	76.5	69.6	81.2	83.4	54.5	47.9
Palestine	81.8	87.6†	20.1	59.0	0.0	96.1	5028.8	6.3	7.8	77.8†	86.1	92.2	13.4	23.6	73.6	92.5	73.7	78.9	81.9
Panama	73.1†	80.5†	96.4	95.0	84.0	n.a.	n.a.	2.1	5.7	88.5†	76.9	84.7	64.2	88.4	n.a.	n.a.	94.6	85.4	93.2
Paraguay	77.0	45.4	69.7	95.2	93.5	34.7‡	4321.0‡	3.0	5.2	85.5†	81.1	47.8	46.5	94.2	57.5	90.9	90.4	87.1	90.0
Peru	71.1	48.7	80.3	86.7	81.3	125.0	n.a.	1.7	3.6	83.2	74.9	51.2	53.6	83.4	77.8	n.a.	96.4	91.8	87.5
Philippines	63.4†	38.0†	62.3	96.0	80.0‡	99.6	n.a.	3.3	11.6	79.5†	66.7	40.0	41.6	86.4	74.2	n.a.	88.8	67.3	83.6
Poland	85.4	92.4	205.8	100.0	100.0	70.0	5147.1	0.5	1.2	95.5†	89.9	97.3	100.0	100.0	68.6	92.8	100.0	99.3	100.0
Portugal	82.3	87.3	88.6	99.9	99.8	65.5	2823.3	0.8	1.6	96.9†	86.6	91.9	59.0	99.8	67.5	86.3	100.0	98.3	100.0
Qatar	99.7‡	95.0‡	144.0	100.0	99.8	140.2	10484.5	0.4	2.2	99.6‡	100.0	100.0	96.0	99.9	79.6	100.0	100.0	96.3	100.0

Notes: †) ITU estimate; ‡) lagged value from 2020; n.a. = data not available, estimate used for calculating aggregate score not published.

(continued)

	Indicator values										Normalized Progress Scores (0-100)								
Economy	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile-broadband subscriptions per 100 inhabitants	Population covered by at least a 3G mobile network (%)	Population covered by at least a 4G/LTE mobile network (%)	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p. c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile broadband subscriptions per 100 inhabitants	3G and 4G/LTE network coverage	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p.c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)
Romania	83.6	88.7	95.9	100.0	98.6	80.5	2119.3	0.6	0.7	97.8	88.0	93.4	63.9	99.2	70.8	83.2	100.0	100.0	100.0
Russian Federation	88.2	84.0	108.2	96.2	89.8	188.5	2250.0	0.8	0.7	98.1	92.9	88.4	72.2	92.3	84.4	83.8	100.0	100.0	100.0
Rwanda	23.8‡	18.7†	47.0	98.6	98.1	16.1	4639.0	11.1	45.7	41.2‡	25.1	19.7	31.4	98.3	45.7	91.7	50.3	0.0	43.4
Saint Kitts and Nevis	69.1†	84.6†	101.7	100.0	100.0	n.a.	n.a.	2.6	3.3	85.3†	72.8	89.0	67.8	100.0	n.a.	n.a.	92.2	92.9	89.8
Saint Lucia	75.1†	82.2†	51.8	100.0	96.0	22.7‡	n.a.	4.7	5.1	77.2†	79.1	86.6	34.5	97.6	50.9	n.a.	81.7	87.4	81.3
Saint Vincent and the Grenadines	78.7†	76.1†	93.3	100.0	90.0	19.4‡	n.a.	6.8	7.3	90.8†	82.9	80.1	62.2	94.0	48.5	n.a.	71.3	80.5	95.6
Samoa	76.3†	75.5†	12.8	91.0	49.0	n.a.	n.a.	5.9	12.3	80.5†	80.3	79.5	8.5	65.8	n.a.	n.a.	76.1	65.1	84.7
Sao Tome and Principe	56.1†	60.8†	39.8	94.0	0.0‡	15.7	2901.0	8.6	17.3	69.4†	59.1	64.0	26.6	37.6	45.3	86.6	62.5	49.7	73.1
Saudi Arabia	100.0	99.8	119.5	100.0	100.0	335.5	6346.5	1.4	3.6	100.0	100.0	100.0	79.7	100.0	93.6	95.1	98.3	92.0	100.0
Senegal	55.0†	60.4†	94.1	99.4	83.1	n.a.	n.a.	5.7	18.5	76.5†	57.9	63.6	62.7	89.6	n.a.	n.a.	76.7	45.8	80.5
Serbia	81.2	81.5	104.8	99.5	98.6	85.4	1822.4	2.6	2.7	95.5	85.4	85.8	69.8	99.0	71.7	81.5	92.2	94.9	100.0
Seychelles	80.7†	79.0†	88.7	99.0	98.5	76.0	583.9	4.5	1.3	91.1†	85.0	83.2	59.2	98.7	69.9	69.2	83.0	99.2	95.9
Singapore	96.9	99.3	147.5	100.0	100.0	87.9	n.a.	0.3	0.8	98.5	100.0	100.0	98.3	100.0	72.2	n.a.	100.0	100.0	100.0
Slovakia	88.9	90.3	88.7	99.0	99.0	81.4	1859.5	1.5	0.8	97.7	93.6	95.1	59.2	99.0	71.0	81.7	97.7	100.0	100.0
Slovenia	89.0	93.0	90.8	99.9	99.9	124.7	n.a.	0.9	2.0	98.1	93.7	97.9	60.5	99.9	77.8	n.a.	100.0	96.9	100.0
Somalia	19.9†	11.9‡	2.6	70.0	30.0	n.a.	n.a.	19.4	38.7	18.9†	20.9	12.5	1.7	46.0	n.a.	n.a.	9.7	0.0	19.9
South Africa	74.2†	77.5	115.7	99.9	97.9	28.1	3131.2	5.4	4.8	81.2†	78.1	81.5	77.1	98.7	54.2	87.4	78.4	88.2	85.5

Notes: †) ITU estimate; ‡) lagged value from 2020; n.a. = data not available, estimate used for calculating aggregate score not published.

(continued)

	Indicator values										Normalized Progress Scores (0-100)								
Economy	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile-broadband subscriptions per 100 inhabitants	Population covered by at least a 3G mobile network (%)	Population covered by at least a 4G/LTE mobile network (%)	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p. c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile broadband subscriptions per 100 inhabitants	3G and 4G/LTE network coverage	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p.c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)
Spain	93.9	95.9	107.3	99.8	99.6	85.4	3236.8	0.8	1.9	99.2	98.8	100.0	71.5	99.7	71.7	87.8	100.0	97.2	100.0
Sri Lanka	44.5	61.7	87.0	96.0	96.0	77.9	401.7	1.1	0.9	65.0†	46.8	65.0	58.0	96.0	70.3	65.1	99.4	100.0	68.5
Suriname	72.0†	79.8†	128.1	92.0	87.0	681.2	3.8‡	12.1	4.9	86.8†	75.8	84.1	85.4	89.0	100.0	17.1	45.2	88.0	91.4
Sweden	94.7	90.7	126.6	100.0	100.0	177.3	n.a.	0.5	1.1	87.6†	99.7	95.5	84.4	100.0	83.4	n.a.	100.0	99.8	92.3
Switzerland	95.6	96.2	101.1	100.0	100.0	166.6	1990.7	0.8	1.0	97.8	100.0	100.0	67.4	100.0	82.4	82.5	100.0	100.0	100.0
Syrian Arab Republic	n.a.	n.a.	17.4	97.0	42.0	1.3	2466.2‡	11.1	1.5	n.a.	n.a.	n.a.	11.6	64.0	13.5	84.8	50.5	98.5	n.a.
Tanzania	29.7†	31.1†	18.3	85.0	13.0	42.4	6.8	9.6	22.0	72.3†	31.3	32.8	12.2	41.8	60.7	22.2	57.9	34.9	76.1
Thailand	85.3	88.7	111.9	98.8	98.1	254.6	3362.7	3.0	3.5	86.7	89.8	93.4	74.6	98.4	89.2	88.2	90.3	92.2	91.2
Timor-Leste	35.5†	n.a.	30.3	96.5	45.0	n.a.	n.a.	20.7	32.1	65.1†	37.4	n.a.	20.2	65.6	n.a.	n.a.	3.3	3.6	68.6
Togo	32.5†	45.1†	34.3	97.0	83.0	16.8	2049.5	27.5	56.8	53.0†	34.2	47.4	22.8	88.6	46.3	82.8	0.0	0.0	55.8
Tonga	57.5	33.8	60.7	99.0	96.0	2.0	343.4	3.1	3.5	62.4	60.5	35.6	40.5	97.2	17.6	63.4	89.8	92.1	65.7
Trinidad and Tobago	79.0	80.6	40.3	100.0	75.0	161.6	3434.6	2.6	3.2	83.9	83.2	84.8	26.9	85.0	81.9	88.4	92.1	93.2	88.3
Tunisia	71.9†	55.5†	81.3	99.0	95.0	64.2	2358.2	1.8	3.1	86.4†	75.7	58.4	54.2	96.6	67.2	84.3	96.2	93.6	90.9
Türkiye	81.4	92.0	82.6	98.8	96.8	117.1	2216.6	0.7	1.5	93.3	85.7	96.8	55.1	97.6	76.8	83.6	100.0	98.6	98.3
Uganda	10.0	n.a.	52.2	85.0	31.0	13.1	545.5	25.7	50.5	65.0	10.5	n.a.	34.8	52.6	42.5	68.4	0.0	0.0	68.4
Ukraine	79.2	82.7	80.1	91.6	91.6	n.a.	n.a.	1.7	1.8	90.7	83.4	87.0	53.4	91.6	n.a.	n.a.	96.5	97.6	95.5
United Arab Emirates	100.0	99.9	241.2	100.0	99.8	52.7	5183.2	0.9	0.6	100.0	100.0	100.0	100.0	99.9	64.1	92.9	100.0	100.0	100.0
United Kingdom	94.8‡	95.2‡	113.3	99.9	99.9	89.7	4529.0	0.6	1.3	94.8†	99.8	100.0	75.5	99.9	72.5	91.4	100.0	99.1	99.8

Notes: †) ITU estimate; ‡) lagged value from 2020; n.a. = data not available, estimate used for calculating aggregate score not published.

(continued)

	Indicator values										Normalized Progress Scores (0-100)								
Economy	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile-broadband subscriptions per 100 inhabitants	Population covered by at least a 3G mobile network (%)	Population covered by at least a 4G/LTE mobile network (%)	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p. c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)	Individuals using the Internet (%)	Households with Internet access at home (%)	Mobile broadband subscriptions per 100 inhabitants	3G and 4G/LTE network coverage	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (% GNI p.c.)	Fixed-broadband Internet basket price (% GNI p. c.)	Individuals owning a mobile phone (%)
United States	96.8†	92.5†	165.8	99.9	99.9	101.5	n.a.	0.7	1.0	95.9†	100.0	97.4	100.0	99.9	74.5	n.a.	100.0	100.0	100.0
Uruguay	87.6†	83.2†	109.1	92.7	92.3	99.1	2556.9	1.4	2.5	90.7†	92.3	87.6	72.7	92.5	74.1	85.2	98.0	95.2	95.5
Uzbekistan	76.6	95.0	105.5	95.0	75.0	36.1	390.7	1.1	2.1	72.4	80.6	100.0	70.3	83.0	58.1	64.8	99.3	96.5	76.2
Vanuatu	68.6†	68.6†	285.1	70.0	70.0	8.1	968.6	8.3	33.5	78.1†	72.2	72.2	100.0	70.0	35.6	74.7	64.0	0.0	82.2
Venezuela	n.a.	n.a.	48.2	82.0	65.0	33.1	1441.6	n.a.	n.a.	n.a.	n.a.	n.a.	32.1	71.8	56.8	79.0	n.a.	n.a.	n.a.
Viet Nam	74.2	81.0	87.8	99.8	99.7	81.8	3590.6	2.9	3.5	77.5	78.1	85.3	58.6	99.7	71.0	88.9	90.5	92.2	81.6
Zambia	27.0†	42.3†	53.2	95.5	91.2	n.a.	263.4	9.6	16.0	54.9†	28.4	44.6	35.5	92.9	n.a.	60.6	57.7	53.6	57.7
Zimbabwe	29.3‡	50.1‡	58.3	84.3	39.1	10.3	1039.6	35.4	18.3	47.0‡	30.8	52.7	38.9	57.2	39.0	75.4	0.0	46.6	49.5

Notes: †) ITU estimate; ‡) lagged value from 2020; n.a. = data not available, estimate used for calculating aggregate score not published.

Annex 2: Indicator values and scores by groups

	Indicator values										Normalized Progress Scores (0-100)								
Group	Individuals using the Internet (%)	Households with Internet access at home (%)	Active mobile-broadband subscriptions per 100 inhabitants	Population covered by at least a 3G mobile network (%)	Population covered by at least a 4G/LTE mobile network (%)	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (as % GNI p.c.)	Fixed-broadband Internet basket price (as % GNI p.c.)	Individuals who own a mobile phone (%)	Individuals using the Internet (%)	Households with Internet access at home (%)	Active mobile-broadband subscriptions per 100 inhabitants	3G and 4G/LTE network coverage	Mobile broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per subscription (GB)	Mobile data and voice high-consumption basket price (as % GNI p.c.)	Fixed-broadband Internet basket price (as % GNI p.c.)	Individuals who own a mobile phone (%)
Africa	40.5	42.2	52.0	82.7	57.4	28.7	1'017.5	15.9	45.9	61.5	42.7	44.4	34.7	67.5	47.7	62.3	43.6	39.3	64.7
Americas	75.9	68.6	77.1	94.0	88.7	89.8	2'388.4	4.2	5.7	82.5	79.9	72.2	51.1	90.8	65.9	78.2	84.2	85.3	86.7
Arab States	75.1	76.9	85.6	90.5	79.3	109.3	3'076.9	5.6	7.8	82.8	77.7	79.9	54.0	83.8	64.1	80.7	77.1	79.9	85.5
Asia-Pacific	70.4	72.3	99.5	93.3	85.7	98.8	2'121.2	4.6	7.4	79.6	73.8	75.7	61.0	88.7	63.7	76.5	82.0	80.2	83.3
CIS	82.7	89.3	97.9	96.8	89.2	103.4	1'749.7	1.6	1.9	88.9	87.1	94.0	65.3	92.3	71.2	77.4	96.8	96.9	92.8
Europe	87.4	89.3	105.7	99.2	98.5	123.3	2'908.6	1.0	1.4	93.8	91.5	93.5	69.0	98.8	74.0	85.8	98.4	98.6	97.4
High-income	90.5	*91.5*	116.9	99.2	97.8	142.4	3'431.9	1.0	1.6	94.6	*94.3*	95.4	74.3	98.4	74.9	86.1	98.5	98.0	97.9
Upper-middle-income	76.1	73.2	80.1	94.8	88.2	92.2	2'288.7	4.6	*4.5*	83.8	80.1	77.1	53.4	90.8	65.3	77.0	85.2	*89.1*	88.0
Lower-middle-income	56.5	59.0	70.8	89.0	73.5	48.4	1'107.0	8.0	12.8	72.3	59.5	62.1	45.3	79.7	55.1	68.6	67.0	63.4	76.0
Low-income	21.7	23.5	29.0	72.2	41.7	18.0	1'088.3	22.2	86.0	45.8	22.9	24.7	19.3	53.9	43.6	65.5	19.4	14.0	48.2
LDCs	35.2	37.6	43.9	79.7	53.2	27.8	824.9	16.0	51.8	56.9	37.0	39.6	29.2	63.8	47.4	62.0	38.0	31.3	59.9
LLDCs	50.3	53.1	66.7	86.8	68.9	40.8	1'293.3	12.6	41.6	68.7	53.0	55.9	44.4	76.0	52.5	70.2	57.0	59.4	72.3
SIDS	72.1	70.6	77.9	92.9	80.9	82.0	2'246.5	6.9	11.3	81.2	75.6	73.9	48.7	85.7	59.6	72.6	71.0	72.4	85.0
World	**70.5**	**70.8**	**85.1**	**92.5**	**82.9**	**89.9**	**2'234.1**	**6.0**	**13.5**	**80.7**	**73.8**	**74.2**	**54.9**	**86.7**	**63.7**	**76.7**	**78.5**	**77.8**	**84.2**

Annex 3: Indicator definitions

Indicator	Definition
Individuals using the Internet (%)	Proportion of individuals who used the Internet from any location in the last three months. The Internet is a worldwide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (not assumed to be only via a computer – it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network.
Households with Internet access at home (%)	Proportion of households with Internet access at home. Internet access at home means that the Internet is generally available for use by all members of the household at any time, regardless of whether it is actually used. The connection and devices may or may not be owned by the household but should be considered household assets. If one member of the household has a mobile phone with connection to the Internet and makes it available for all members, then it should be considered that the household has access to the Internet. An Internet connection in the household should be working at the time of the survey.
Active mobile-broadband subscriptions per 100 inhabitants	Active mobile-broadband subscriptions per 100 inhabitants. Active mobile-broadband subscriptions refers to the sum of standard mobile-broadband and dedicated mobile-broadband subscriptions to the public Internet. It covers actual subscribers, not potential subscribers, even though the latter may have broadband enabled-handsets. Subscriptions must include a recurring subscription fee or if in the prepayment modality, pass a usage requirement – users must have accessed the Internet in the last three months.
Population covered by at least a 3G mobile network (%)	Percentage of the population covered by at least a 3G mobile network refers to the percentage of inhabitants that are within range of at least a 3G mobile-cellular signal, irrespective of whether or not they are subscribers. This is calculated by dividing the number of inhabitants that are covered by at least a 3G mobile-cellular signal by the total population and multiplying by 100.
Population covered by at least a 4G/LTE mobile network (%)	Percentage of the population covered by at least a 4G/LTE mobile network refers to the percentage of inhabitants that live within range of LTE/LTE-Advanced, mobile WiMAX/WirelessMAN or other more advanced mobile-cellular networks, irrespective of whether or not they are subscribers. This is calculated by dividing the number of inhabitants that are covered by the previously mentioned mobile-cellular technologies by the total population and multiplying by 100. It excludes people covered only by HSPA, UMTS, EV-DO and previous 3G technologies, and also excludes fixed WiMAX coverage.
Mobile broadband Internet traffic per subscription (GB)	Mobile broadband Internet traffic per mobile-broadband subscription (GB). Mobile-broadband Internet traffic (within the country) refers to broadband traffic volumes originated within the country from 3G networks or other more advanced mobile-networks, including 3G upgrades, evolutions or equivalent standards in terms of data transmission speeds. Traffic should be collected and aggregated at the country level for all 3G or more advanced mobile networks within the country. Download and upload traffic should be added up and reported together. Traffic should be measured at the end-user access point. Wholesale and walled-garden traffic should be excluded. The indicator is calculated by dividing mobile-broadband Internet traffic (within the country) by active mobile-broadband subscriptions.

(continued)

Indicator	Definition
Fixed broadband Internet traffic per subscription (GB)	Fixed broadband Internet traffic per fixed broadband subscription (GB). Fixed (wired)- broadband Internet traffic refers to traffic generated by fixed-broadband subscribers measured at the end-user access point. It should be measured by adding up download and upload traffic. This should exclude wholesale traffic, walled garden, IPTV and cable TV traffic. The indicator is calculated by dividing fixed-broadband Internet traffic by total fixed broadband subscriptions.
Mobile data and voice high-consumption basket price (% GNI p.c.)	Mobile-broadband data and voice high-consumption basket price as a percentage of GNI per capita (p.c.). The basket refers to the cheapest mobile broadband plan (and add-on) providing at least 2 GB of monthly data using at least 3G technology, 140 minutes of voice and 70 SMSs. Detailed ICT price basket data collection rules are available here.
Fixed-broadband Internet basket price (% GNI p.c.)	Entry-level fixed-broadband basket price as percentage of GNI per capita. The basket is composed of the cheapest plan providing at least 5GB of monthly high-speed data (256Kbit/s or higher) from the operator with the largest market share in each economy. Detailed ICT price basket data collection rules are available here.
Individuals owning a mobile phone (%)	Proportion of individuals who own a mobile phone. An individual owns a mobile cellular phone if he/she has a mobile cellular phone device with at least one active SIM card for personal use. It includes mobile cellular phones supplied by employers that can be used for personal reasons (to make personal calls, access the Internet, etc.) and those who have a mobile phone for personal use that is not registered under his/her name. It excludes individuals who have only active SIM card(s) and not a mobile phone device.

Office of the Director
International Telecommunication Union (ITU)
Telecommunication Development Bureau (BDT)
Place des Nations
CH-1211 Geneva 20
Switzerland

Email: bdtdirector@itu.int
Tel.: +41 22 730 5035/5435
Fax: +41 22 730 5484

Office of Deputy Director and Regional Presence
Field Operations Coordination Department (DDR)
Place des Nations
CH-1211 Geneva 20
Switzerland

Email: bdtdeputydir@itu.int
Tel.: +41 22 730 5131
Fax: +41 22 730 5484

Digital Networks and Society (DNS)
Email: bdt-dns@itu.int
Tel.: +41 22 730 5421
Fax: +41 22 730 5484

Digital Knowledge Hub Department (DKH)
Email: bdt-dkh@itu.int
Tel.: +41 22 730 5900
Fax: +41 22 730 5484

Partnerships for Digital Development Department (PDD)
Email: bdt-pdd@itu.int
Tel.: +41 22 730 5447
Fax: +41 22 730 5484

Africa

Ethiopia
International Telecommunication Union (ITU) Regional Office
Gambia Road
Leghar Ethio Telecom Bldg. 3rd floor
P.O. Box 60 005
Addis Ababa
Ethiopia

Email: itu-ro-africa@itu.int
Tel.: +251 11 551 4977
Tel.: +251 11 551 4855
Tel.: +251 11 551 8328
Fax: +251 11 551 7299

Cameroon
Union internationale des télécommunications (UIT)
Bureau de zone
Immeuble CAMPOST, 3e étage
Boulevard du 20 mai
Boîte postale 11017
Yaoundé
Cameroon

Email: itu-yaounde@itu.int
Tel.: + 237 22 22 9292
Tel.: + 237 22 22 9291
Fax: + 237 22 22 9297

Senegal
Union internationale des télécommunications (UIT)
Bureau de zone
8, Route du Méridien Président
Immeuble Rokhaya, 3e étage
Boîte postale 29471
Dakar - Yoff
Senegal

Email: itu-dakar@itu.int
Tel.: +221 33 859 7010
Tel.: +221 33 859 7021
Fax: +221 33 868 6386

Zimbabwe
International Telecommunication Union (ITU) Area Office
USAF POTRAZ Building
877 Endeavour Crescent
Mount Pleasant Business Park
Harare
Zimbabwe

Email: itu-harare@itu.int
Tel.: +263 242 369015
Tel.: +263 242 369016

Americas

Brazil
União Internacional de Telecomunicações (UIT)
Escritório Regional
SAUS Quadra 6 Ed. Luis Eduardo Magalhães,
Bloco "E", 10º andar, Ala Sul (Anatel)
CEP 70070-940 Brasilia - DF
Brazil

Email: itubrasilia@itu.int
Tel.: +55 61 2312 2730-1
Tel.: +55 61 2312 2733-5
Fax: +55 61 2312 2738

Barbados
International Telecommunication Union (ITU) Area Office
United Nations House
Marine Gardens
Hastings, Christ Church
P.O. Box 1047
Bridgetown
Barbados

Email: itubridgetown@itu.int
Tel.: +1 246 431 0343
Fax: +1 246 437 7403

Chile
Unión Internacional de Telecomunicaciones (UIT)
Oficina de Representación de Área
Merced 753, Piso 4
Santiago de Chile
Chile

Email: itusantiago@itu.int
Tel.: +56 2 632 6134/6147
Fax: +56 2 632 6154

Honduras
Unión Internacional de Telecomunicaciones (UIT)
Oficina de Representación de Área
Colonia Altos de Miramontes
Calle principal, Edificio No. 1583
Frente a Santos y Cía
Apartado Postal 976
Tegucigalpa
Honduras

Email: ituteguciglapa@itu.int
Tel.: +504 2235 5470
Fax: +504 2235 5471

Arab States

Egypt
International Telecommunication Union (ITU) Regional Office
Smart Village, Building B 147,
3rd floor
Km 28 Cairo
Alexandria Desert Road
Giza Governorate
Cairo
Egypt

Email: itu-ro-arabstates@itu.int
Tel.: +202 3537 1777
Fax: +202 3537 1888

Asia-Pacific

Thailand
International Telecommunication Union (ITU) Regional Office
4th floor NBTC Region 1 Building
101 Chaengwattana Road
Laksi,
Bangkok 10210,
Thailand

Mailing address:
P.O. Box 178, Laksi Post Office
Laksi, Bangkok 10210, Thailand

Email: itu-ro-asiapacific@itu.int
Tel.: +66 2 574 9326 – 8
+66 2 575 0055

Indonesia
International Telecommunication Union (ITU) Area Office
Sapta Pesona Building
13th floor
Jl. Merdan Merdeka Barat No. 17
Jakarta 10110
Indonesia

Email: itu-ro-asiapacific@itu.int
Tel.: +62 21 381 3572
Tel.: +62 21 380 2322/2324
Fax: +62 21 389 5521

India
International Telecommunication Union (ITU) Area Office and Innovation Centre
C-DOT Campus
Mandi Road
Chhatarpur, Mehrauli
New Delhi 110030
India

Email: itu-ro-southasia@itu.int

CIS

Russian Federation
International Telecommunication Union (ITU) Regional Office
4, Building 1
Sergiy Radonezhsky Str.
Moscow 105120
Russian Federation
Email: itumoscow@itu.int
Tel.: +7 495 926 6070

Europe

Switzerland
International Telecommunication Union (ITU) Office for Europe
Place des Nations
CH-1211 Geneva 20
Switzerland

Email: eurregion@itu.int
Tel.: +41 22 730 5467
Fax: +41 22 730 5484

International Telecommunication Union
Telecommunication Development Bureau
Place des Nations
CH-1211 Geneva 20
Switzerland

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