

Subregional workshop for Africa on promoting and measuring
Universal and Meaningful Connectivity (UMC)
24 – 26 March 2026, Dar es salaam, Tanzania

Core Indicators for measuring UMC: World Telecommunication / ICT indicators (WTI)

Nehal DESAI, Statistical Assistant
International Telecommunication Union (ITU)
ICT Data and Analytics Division



Funded by
the European Union

In collaboration with



Organized by:



Agenda



- Core World Telecommunication ICT/Indicators
- How to report your data to ITU

ICT Data Collection - Sources

Demand-side data 	Source - Household Surveys - Budget/Expenditure Surveys - Labor Surveys - ICT Surveys	Collected by - National Statistical Office - Digital Agency	ITU Questionnaire - Household Short Questionnaire - Household Long Questionnaire
Supply-side data 	Source - Administrative Data on Telecommunications - Big Data from Telecom Operators/ISPs	Collected by - Ministry of Telecommunications - Regulatory Authority	ITU Questionnaire - World Telecommunications/ICT Indicators Short Questionnaire - World Telecommunications/ICT Long Questionnaire
Price data 	Source Retail prices for mobile-cellular and fixed-broadband services	Collected by - Ministry of Telecommunications - Regulatory Authority	ITU Questionnaire ICT Price Basket Questionnaire

Where are the indicators collected on WTI Questionnaires defined?



Mission of EGTI – Expert Group on Telecommunication ICT Indicators



To **review existing and develop new** telecommunication/ICT **supply-side indicators** on a continuous basis, including reviewing and developing **harmonized definitions and data collection** methodologies to keep up to date with the fast changing nature of ICT technologies and services.



To decide on ICT indicators from the supply side to be **collected through the ITU statistical questionnaires** on telecommunications/ICT.



To **periodically review the *ITU Handbook for the Collection of Administrative Data on Telecommunications/ICT***. The Handbook is updated to reflect the updated definitions and methodologies.



To work with the Expert Group on ICT Household Indicators (**EGH**) on issues related to indicators and topics that are common to both groups.



Why is it important to be actively involved?

- Each country has its **own characteristics** and it is important to **have diversity when analyzing the topics**.
- Because the decisions made affect the requested indicators and their methodology, and this has **a direct impact on the information you collect**.
- **To propose** specific topics you are interested in measuring.



Expert Group on Telecom/ICT Indicators Forum



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[DISCUSSION BOARDS](#)

[WHAT'S NEW](#)

[SEARCH](#)

[MEMBERS](#)

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Identify Yourself

Username:

Password:

Username and Password are CASE sensitive

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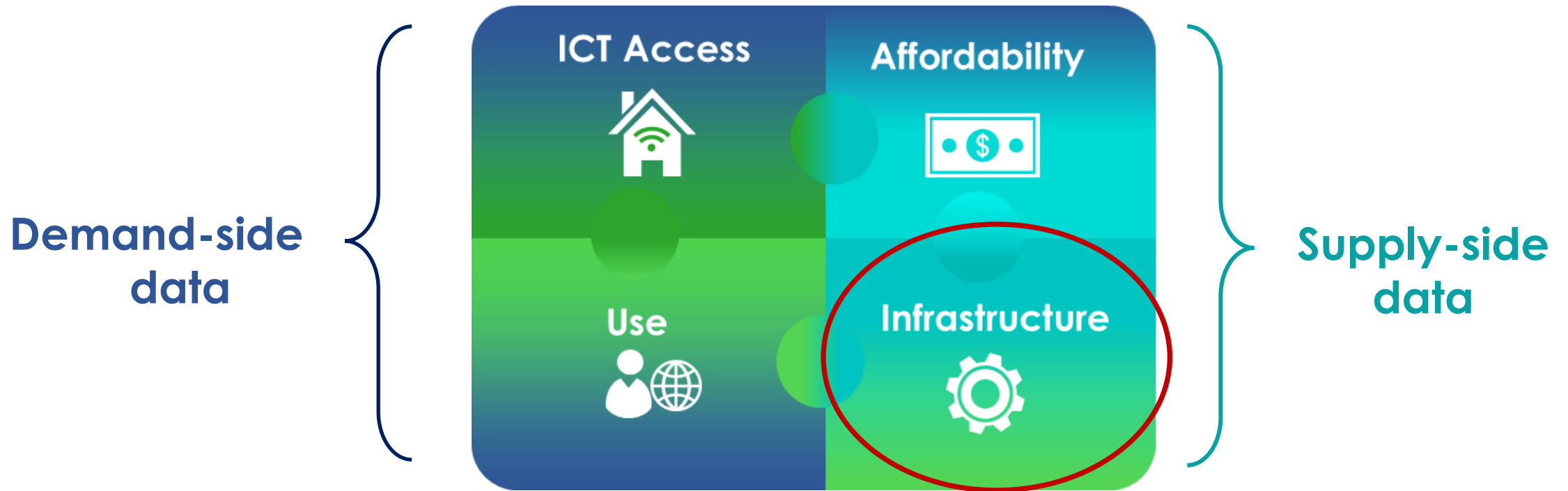
☐ Save Password

[Forgot your Password?](#)

<https://www.itu.int/net4/ITU-D/ExpertGroup/default.asp>



How to measure ICT?



Core ICT indicators approved by the UN Statistical Commission



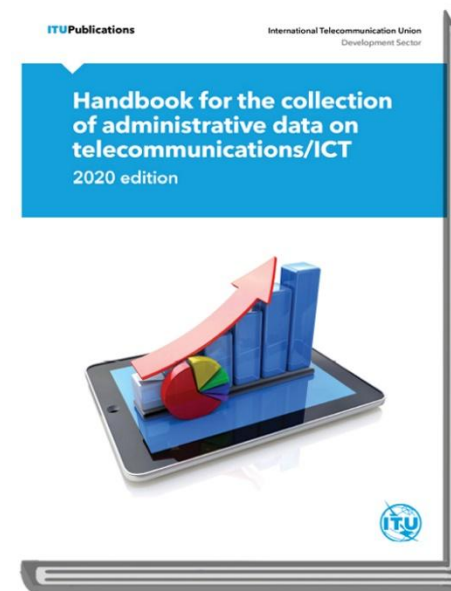
Core WTI Indicators



Indicators definition and examples are found here:

<https://www.itu.int/en/ITU-D/Statistics/Pages/publications/handbook.aspx#gsc.tab=0>

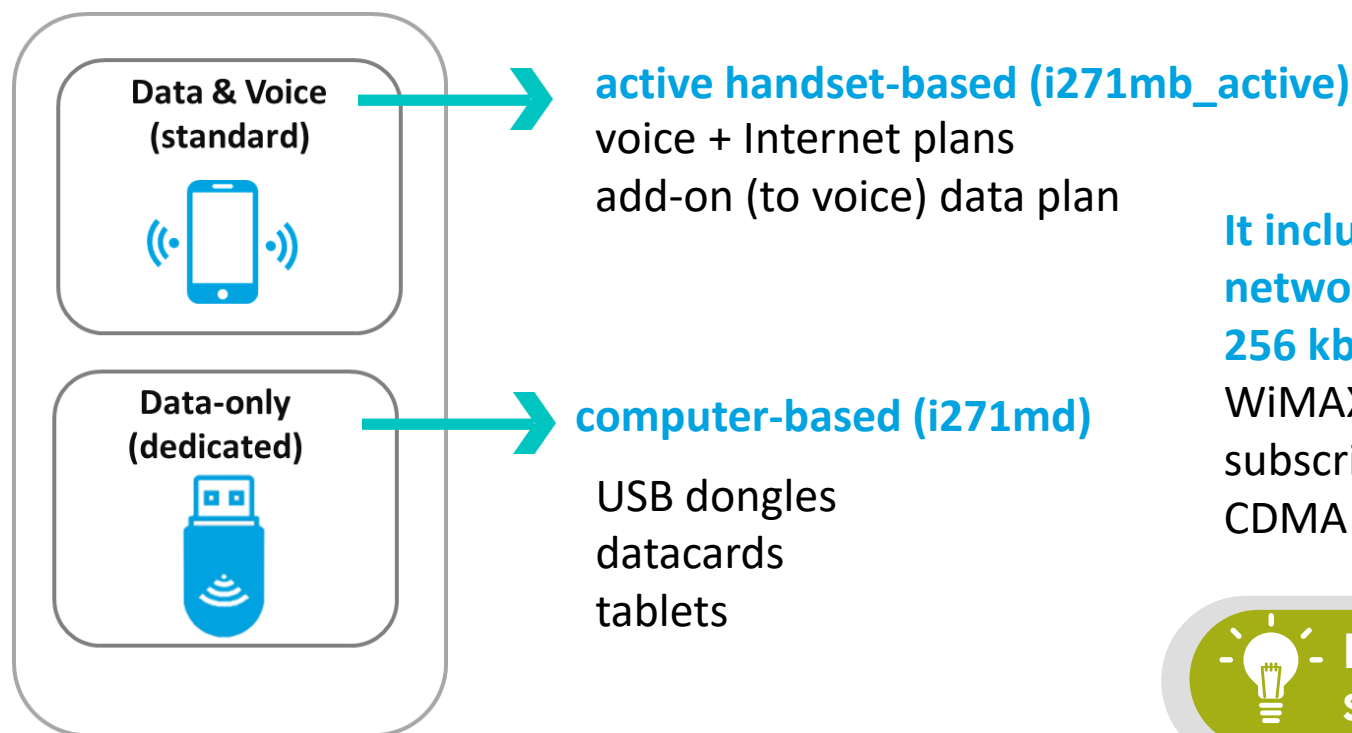
Fixed-Telephone 	Fixed-telephone subscriptions (i112)
Fixed-Broadband 	- Fixed-broadband subscriptions (i4213tffb) - Fixed-broadband subscriptions breakdown by speed: - 256 kbit/s to less than 2 Mbit/s subscriptions (i4213_256to2) - 2 Mbit/s to less than 10 Mbit/s subscriptions (i4213_2to10) - equal or above 10 Mbit/s subscriptions (i4213_G10)
Mobile 	- Mobile-cellular telephone subscriptions (i271) - Active mobile-cellular subscriptions (i271mw)
Mobile Coverage 	- Percentage of the population covered by: - a mobile-cellular network (i271pop) - at least a 3G mobile network (i271G) - at least an LTE/WiMAX network (i271GA) - at least a 5G mobile network (i271G5_pop)
Internet Traffic 	- Fixed-broadband Internet traffic - exabytes (i135tfb) - Mobile-broadband Internet traffic - within the country (i136mwi)
Bandwidth 	- International bandwidth usage, in Mbit/s (i4214u) - Lit/equipped international bandwidth capacity, in Mbit/s (i4214l)



Active mobile broadband subscriptions (i271mw)

Active mobile-broadband subscriptions refers to the sum of **active handset-based** and **computer-based** (USB/dongles) 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 pass a usage requirement – **users must have accessed the Internet in the last three months**.



It includes subscriptions to mobile-broadband networks that provide download speeds of at least **256 kbit/s** (e.g. WCDMA, HSPA, CDMA2000 1x EV-DO, WiMAX IEEE 802.16e and LTE), and excludes subscriptions that only have access to GPRS, EDGE and CDMA 1xRTT.



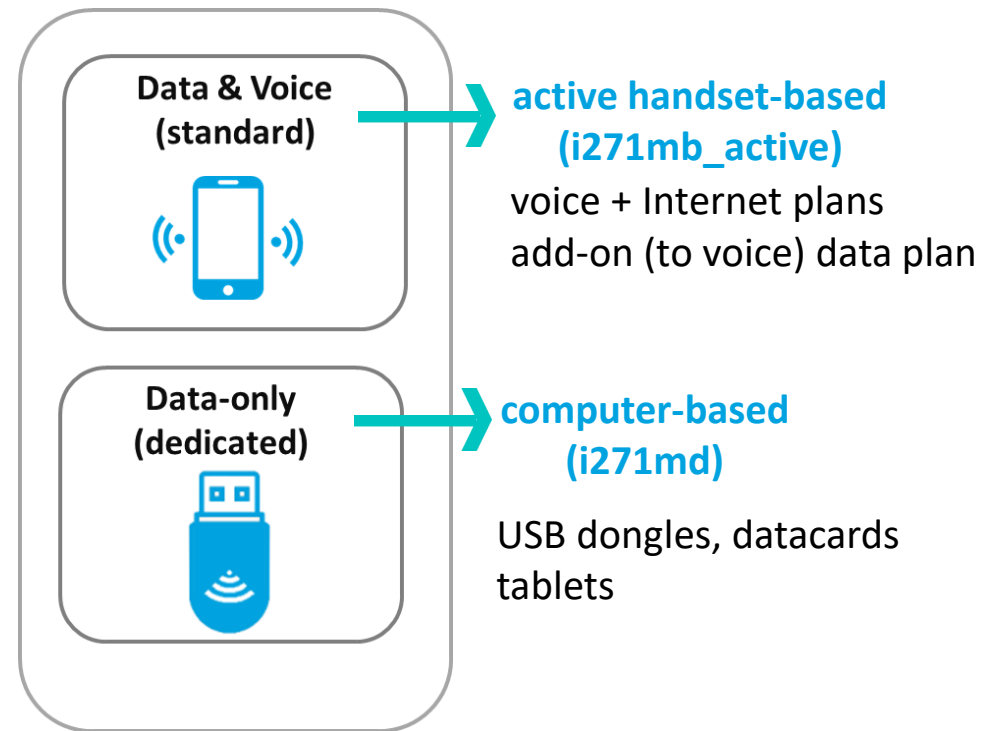
Both residential and business subscriptions should be included



Active mobile broadband subscriptions (i271mw)

Main Features

- advertised ≥ 256 kbit/s 
→  **GPRS and EDGE excluded**
- active 
 - 1. Monthly fee paid for Internet access
 - OR
 - 2. Accessed the Internet in the previous three months
- allows access to the open Internet



Active mobile-broadband subcategories

$$i271mw = i271mb_active + i271md$$

 Data and voice mobile subscriptions (i271mb_active)

Data and voice mobile-broadband subscriptions refers to subscriptions to mobile-broadband services that allow access to the open Internet via HTTP and **in which data services are contracted together with voice services** (mobile voice and data plans) **or as an add-on package to a voice plan**. These are typically smartphone-based subscriptions with voice and data services used in the same terminal. Data and voice mobile-broadband subscriptions with specific recurring subscription fees for Internet access are included regardless of actual use. **Prepaid and pay-per-use data and voice mobile-broadband subscriptions should only be counted if they have been used to access the Internet in the last three months.**

 M2M subscriptions should be **excluded**.

Different contracting modalities offered for mobile-broadband

Type of plan	voice	data	activity	how to count for this
Stand-alone voice	Standard voice subscription	Pay-as-you-go	if internet used in last 3 months: active broadband	Data + voice mobile broadband
Stand-alone voice	Standard voice subscription	Add-on data plan contracted	if recurrent fee paid for data plan: active	Data + voice mobile broadband
Stand-alone voice	Standard voice subscription	Add-on data plan contracted	if prepayment or pay-as-you-go data plan: use of internet in the last 3 months	Data + voice mobile broadband
3G/4G modem/USB	No voice calls	Limited plan (GB/month)	Data contract (recurrent fee)	Data only mobile broadband
3G/4G modem/USB	No voice calls	Limited plan (GB/month)	If prepayment: internet used in the last 3 months	Data only mobile broadband
Bundled voice and data	Limited minutes	Limited data cap (GB/month)	If both voice and data plan paid in recurrent fee (contract)	Data + voice mobile broadband
Bundled voice and data	Limited minutes	Limited data cap (GB/month)	If data paid as prepayment: internet accessed in last 3 months	Data + voice mobile broadband

Active mobile-broadband subcategories

$$i271mw = i271mb_active + i271md$$



Data-only mobile-subscriptions (i271md)

Data-only mobile-broadband subscriptions refers to subscriptions to mobile broadband services that allow access to the open Internet via HTTP and that **do not include voice services**, i.e. subscriptions that **offer mobile broadband as a standalone service**, such as mobile-broadband subscriptions for datacards, USB modem/dongle and tablets. Data-only mobile-broadband subscriptions with recurring subscription fees are included regardless of actual use. Prepaid and pay-per-use data-only mobile-broadband subscriptions should only be counted if they have been used to access the Internet in the last three months. **M2M subscriptions should be excluded. It excludes data subscriptions that are contracted together with mobile voice services.**



Fixed-broadband subscriptions (i4213tfbb)



Broadband: advertised download speed of at least 256 kbit/s

Breakdown by technology

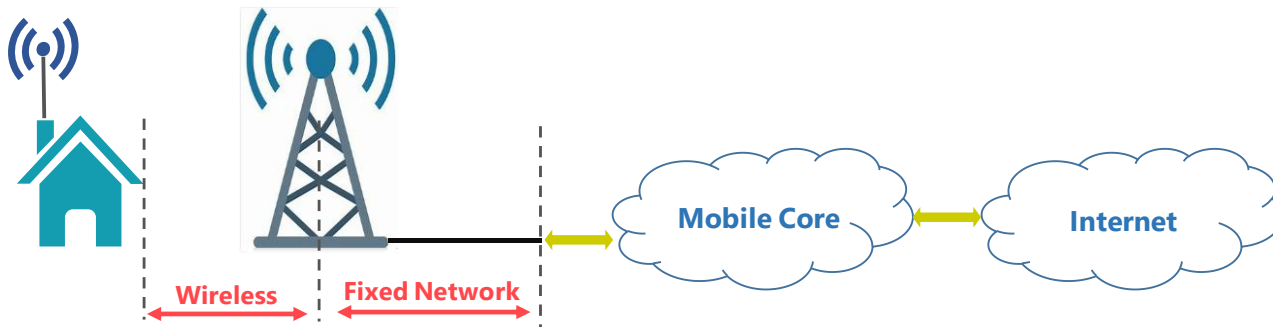
Refers to the different technologies used to provide high-speed internet connections through a fixed network infrastructure. Fixed broadband **uses physical cables to connect the end user to the Internet Service Provider (ISP) network.** (includes cable modem, DSL, fibre-to-the-home/building, other fixed (wired), satellite broadband and terrestrial fixed wireless broadband)

Breakdown by speed

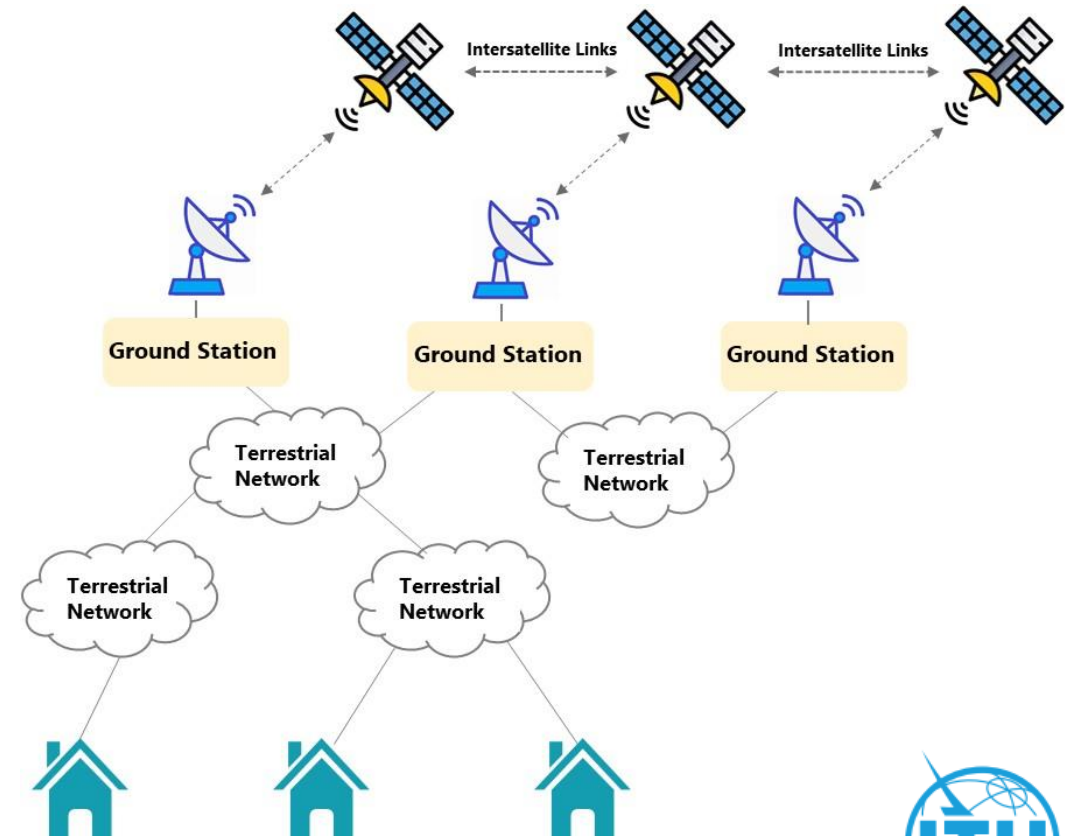
Refers to the different advertised download speeds used to provide high-speed internet connections through a fixed network infrastructure. **(256 kbit/s to less than 2 Mbit/s, 2 Mbit/s to less than 10 Mbit/s, equal to or above 10 Mbit/s)**

Fixed-broadband subscriptions (i4213tfbb)

Terrestrial Fixed Wireless architecture (i271fw)



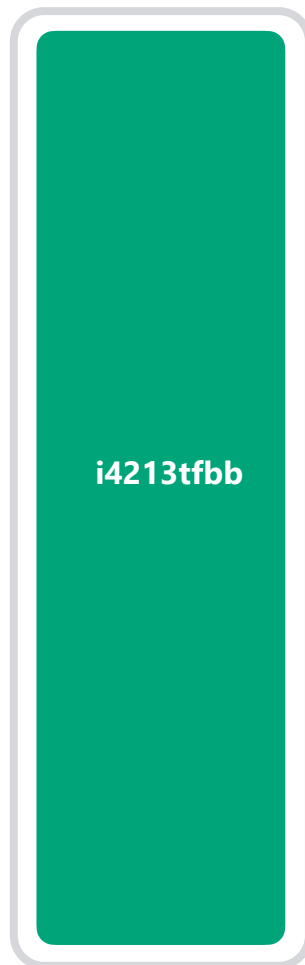
Satellite broadband architecture (i271s)



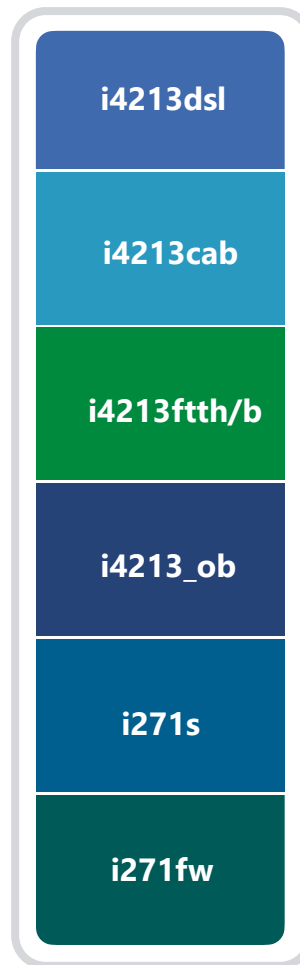
Fixed-broadband subscriptions (i4213tfbb)



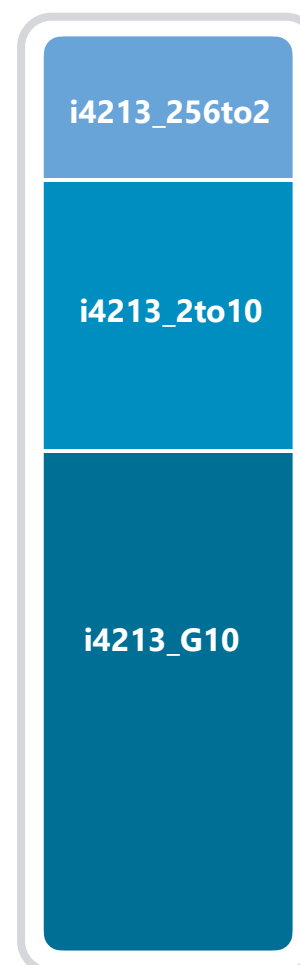
Total fixed broadband subscriptions



Breakdown by Technology



Breakdown by Speed



Internet Traffic – a few concepts

Internet traffic is the flow of data across the internet, encompassing all the information sent and received by users, devices, and applications. This data is transmitted over the internet in the form of packets, which are small units of **data routed** between an **origin and a destination through various networks and devices** such as routers, switches, and servers.

Internet traffic includes a wide variety of activities:



Web browsing



File transfers (to and from the Internet)



E-mail



VoIP calls



Video conferencing



Streaming



IoT Devices



Gaming



Social media



Internet Traffic – measurement

Basic unit = bit (0 or 1)

- **In terms of data volume**

Bytes = consists of 8 bits and is used to measure data volumes. For example:

Kilobytes (KB): 1 KB = 1,024 bytes

Megabytes (MB): 1 MB = 1,024 KB

- **In terms of data transfer**

Bits per second (bps) = the basic unit of measurement of data transfer speed. It indicates how many bits of data are transferred per second.

Kilobits per second (Kbps) = 1 Kbps = 1,000 bps

Megabits per second (Mbps) = 1 Mbps = 1.000 Kbps = 1,000,000 bps

Gigabits per second (Gbps) = 1 Gbps = 1.000 Mbps = 1,000,000,000 bps

Terabits per second (Tbps) = 1 Tbps = 1.000 Gbps = 1,000,000,000,000 bps



- **Bandwidth: refers to the maximum rate at which data can be transferred over an internet connection.**



Internet Traffic: Units of measurement

Unit	Value	Size
bit (b)	0 or 1	1/8 of a byte
byte (B)	8 bits	1 byte
kilobyte (KB)	1000^1 bytes	1,000 bytes
megabyte (MB)	1000^2 bytes	1,000,000 bytes
gigabyte (GB)	1000^3 bytes	1,000,000,000 bytes
terabyte (TB)	1000^4 bytes	1,000,000,000,000 bytes
petabyte (PB)	1000^5 bytes	1,000,000,000,000,000 bytes
exabyte (EB)	1000^6 bytes	1,000,000,000,000,000,000 bytes
zettabyte (ZB)	1000^7 bytes	1,000,000,000,000,000,000,000 bytes
yottabyte (YB)	1000^8 bytes	1,000,000,000,000,000,000,000,000 bytes

Can also use online conversion calculators but check by recalculating



Internet Traffic: Units of measurement

Unit	Value	Size
bit (b)	0 or 1	1/8 of a byte
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kilobyte (KB)	1000^1 bytes	1,000 bytes
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gigabyte (GB)	1000^3 bytes	1,000,000,000 bytes
terabyte (TB)	1000^4 bytes	1,000,000,000,000 bytes
petabyte (PB)	1000^5 bytes	1,000,000,000,000,000 bytes
exabyte (EB)	1000^6 bytes	1,000,000,000,000,000,000 bytes
zettabyte (ZB)	1000^7 bytes	1,000,000,000,000,000,000,000 bytes
yottabyte (YB)	1000^8 bytes	1,000,000,000,000,000,000,000,000 bytes



1 EB = 1 billion GB = 1.000.000.000 GB

| Mobile-broadband Internet traffic, within the country (i136mwi)

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 traffic **should be reported in exabytes.**



Example: How to calculate traffic per mobile-broadband subscription (expressed in GB)

$$\text{Traffic per mobile-broadband subscription} = \frac{\text{Total traffic in period } t}{\text{Total active mobile-broadband subscriptions in period } t}$$

i136mwi = 0.025 Exabytes in 2022

i271mw = 1,250,000 subscriptions

1 EB = 1,000,000,000 GB

Conversion to GB = $0.025 \times 1,000,000,000$

Conversion to GB = 25,000,000 GB

Traffic per mobile-broadband subscription in GB, annual = $25,000,000 / 1,250,000 = 20$ GB

Traffic per mobile-broadband subscription in GB, monthly average = $20 \text{ GB} / 12 = 1.67$ GB



Practice: calculate average monthly traffic in GB per mobile-broadband subscription

i136mwi = 0.08 Exabytes in 2022

i271mw = 2,100,000 subscriptions

$$\text{Traffic per mobile-broadband subscription} = \frac{\text{Total traffic in } \textit{period } t}{\text{Total active mobile-broadband subscriptions in } \textit{period } t}$$



Practice: calculate average monthly traffic in GB per mobile-broadband subscription - solution

$$\text{Traffic per mobile-broadband subscription} = \frac{\text{Total traffic in period } t}{\text{Total active mobile-broadband subscriptions in period } t}$$

i136mwi = 0.08 Exabytes in 2022

i271mw = 2,100,000 subscriptions

1 EB = 1,000,000,000 GB

Conversion to GB = $0.08 \times 1,000,000,000$

Conversion to GB = 80,000,000 GB

Traffic per mobile-broadband subscription in GB, annual = $80,000,000 / 2,100,000 = 38$ GB

Traffic per mobile-broadband subscription in GB, monthly average = $38 \text{ GB} / 12 = 3.17$ GB



Fixed-broadband Internet traffic (i135tfb)

Fixed broadband Internet traffic (exabytes) refers to traffic generated by **fixed broadband subscribers measured at the end-user access point**. It should be measured adding up download and upload traffic.

This should *exclude wholesale traffic, walled garden, managed IPTV and managed cable TV traffic and any other managed IP traffic should be excluded*. If it is not possible, it should be specified in a note.



Practice: calculate average monthly traffic in GB per fixed-broadband subscription - solution

$$\text{Traffic per fixed-broadband subscription} = \frac{\text{Total traffic in period } t}{\text{Total active fixed-broadband subscriptions in period } t}$$

i135tfb = 5.897 Exabytes in 2022

i4213tfbb = 4,100,000 subscriptions

1 EB = 1,000,000,000 GB

Conversion to GB = $5.897 \times 1,000,000,000$

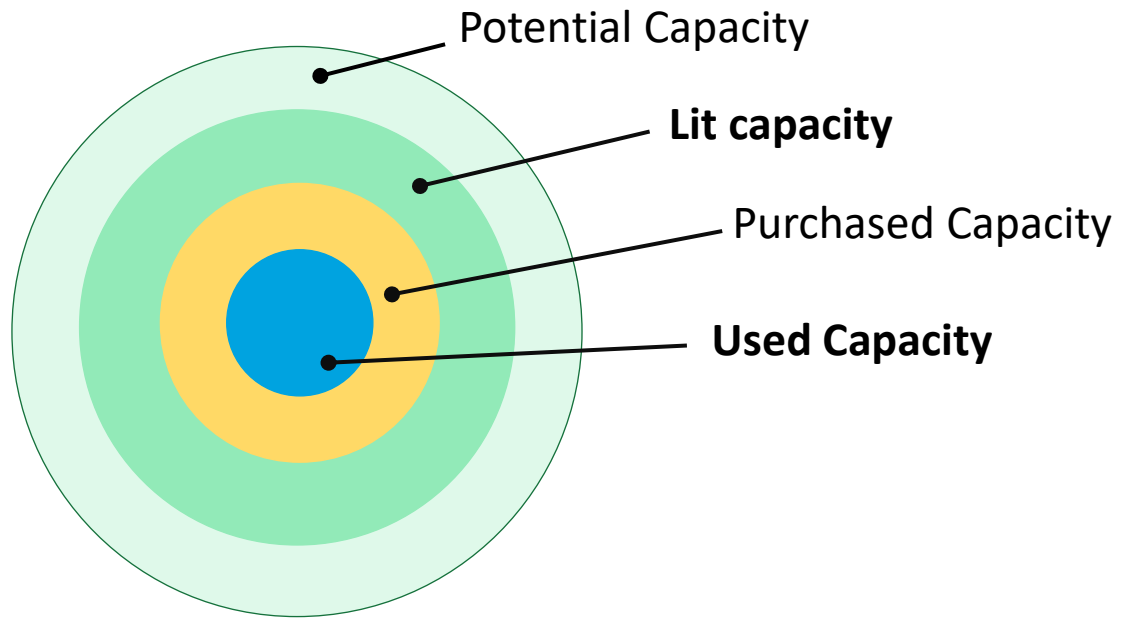
Conversion to GB = 5,897,000,000 GB

Traffic per fixed-broadband subscription in GB = $5,897,000,000 / 4,100,000 = 1,438$ GB

Traffic per mobile-broadband subscription in GB, monthly average = $1,438 \text{ GB} / 12 = 119.9$ GB



International Bandwidth



ITU collects data on two indicators:

Lit Capacity

Used Capacity



$$\text{Ratio} = \frac{\text{Used Capacity}}{\text{Lit Capacity}} < 1$$

| Lit/equipped international bandwidth (traffic), in Mbit/s (i4214I)

Total **lit/equipped** international **bandwidth capacity** refers to the **total lit/equipped capacity of international links**, namely fiber-optic cables, international radio links and satellite uplinks to orbital satellites in the end of the reference year (expressed in Mbit/s).



Used international bandwidth (traffic), in Mbit/s (i4214u)

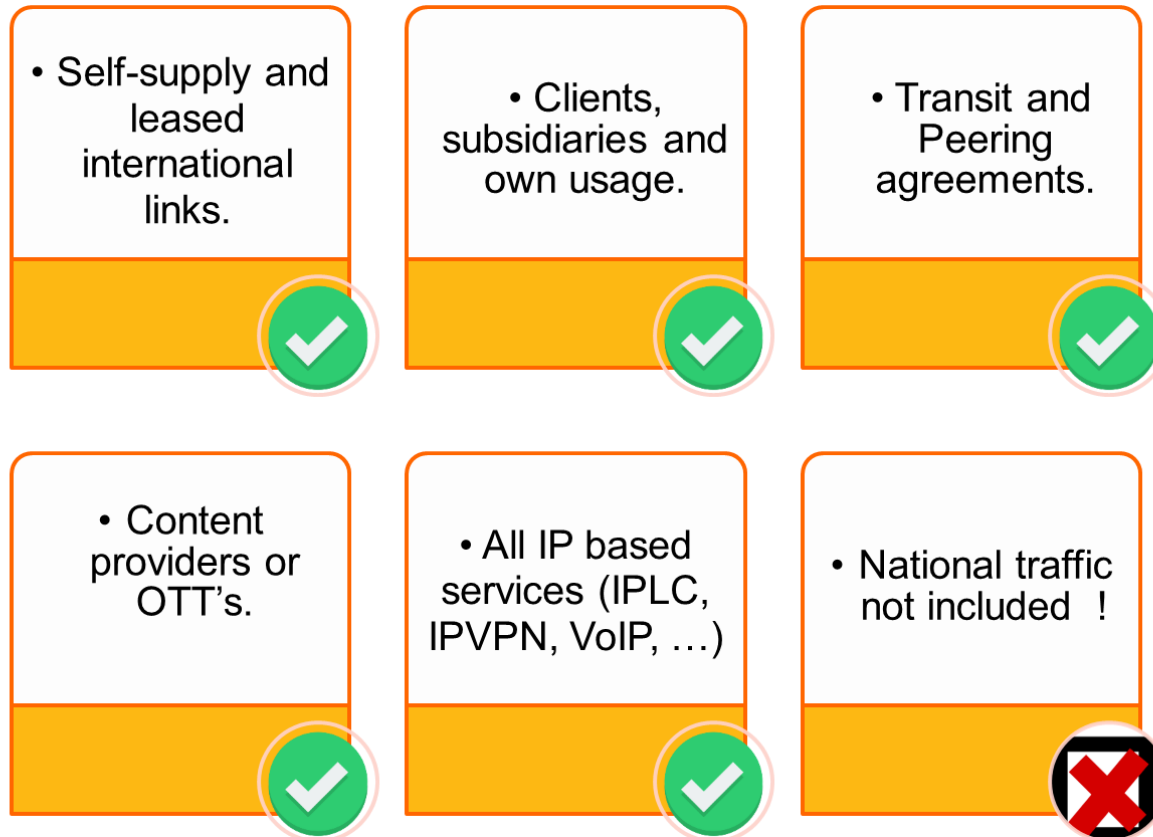
Average usage of all international links including fiber-optic cables, radio links and traffic processed by satellite ground stations and teleports to orbital satellites (expressed in Mbit/s).

All international links used by all types of operators, namely **fixed, mobile and satellite** operators should be taken into account. The average should be calculated over the 12-month period of the reference year.

For each individual international link, ***if the traffic is asymmetric, i.e. incoming traffic is not equal to outgoing traffic, then the higher value out of the two should be provided.*** The combined average usage of all international links can be reported as the sum of the average usage of each individual link.

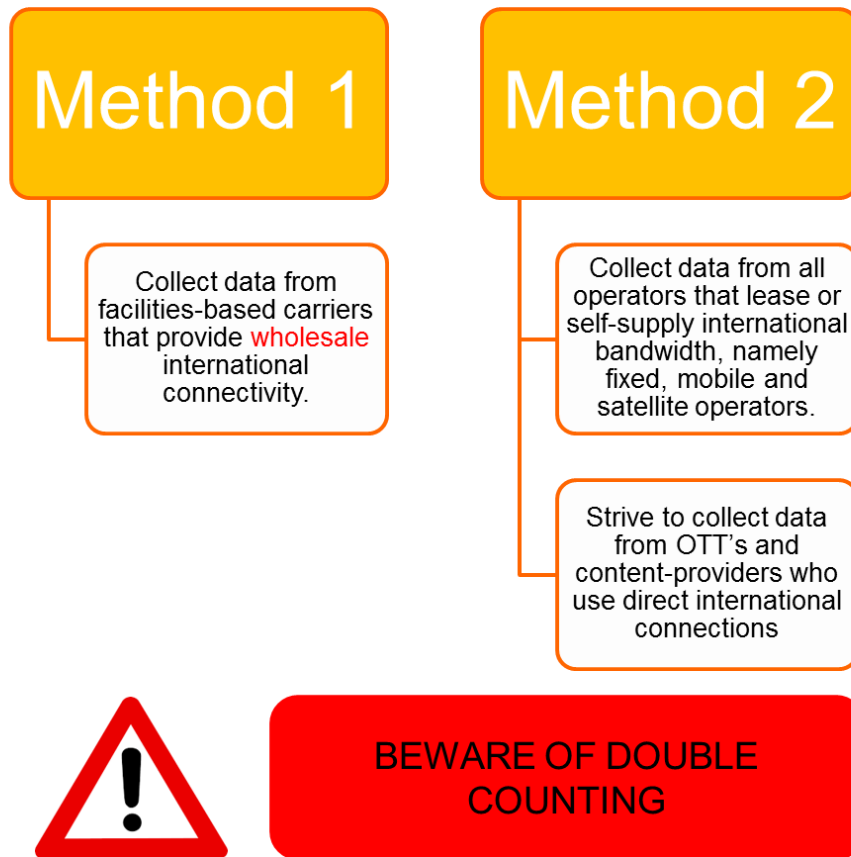


| What is counted as usage?



Source: ANACOM Portugal & EGTI sub-group on international Internet Bandwidth

Methods of data collection

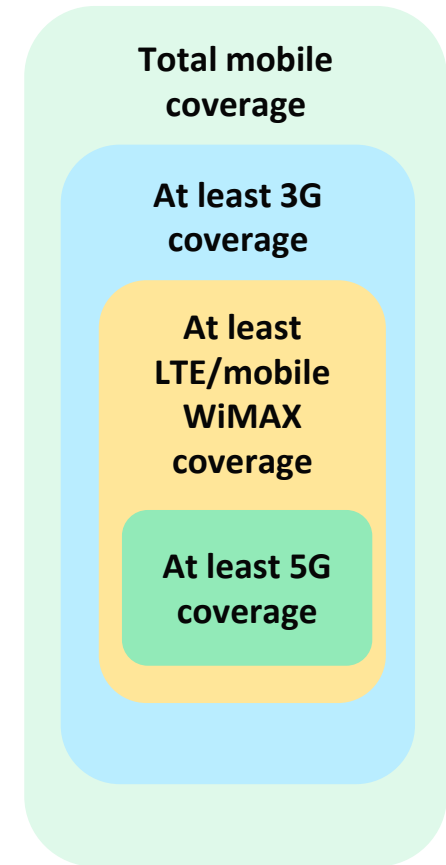


Double counting can occur if data are collected from both service providers and facilities-based carriers.

Mobile coverage indicators

*irrespective of whether or not they are subscribers,
% of inhabitants that live within range of:*

1. Any mobile-cellular signal
2. At least a 3G mobile network
(excl. EDGE, GPRS, CDMA 1xRTT)
3. At least an LTE/WiMAX mobile network
(excl. HSPA, UMTS, EV-DO)
4. At least a 5G mobile network



 **Key for Meaningful Connectivity**

| Mobile coverage: methodology

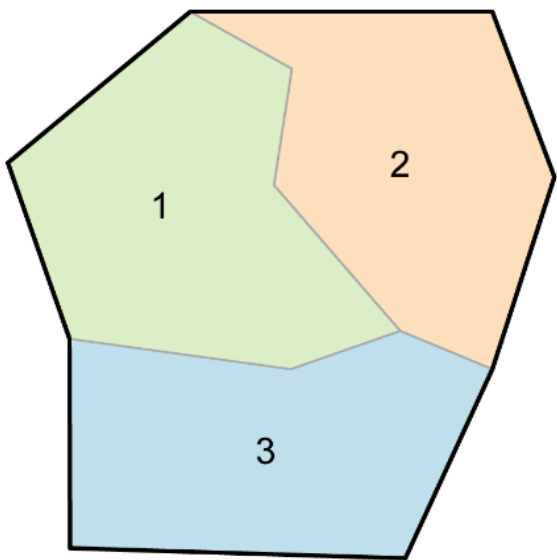
Possible ways of collecting the data:

1. Each operator reports total country coverage
⇒ Max value of all reported
2. Each operator reports total per admin unit
⇒ Max value of all reported per admin unit
⇒ Aggregation according to population/admin unit



Mobile coverage - methodology

Example: *aggregation*



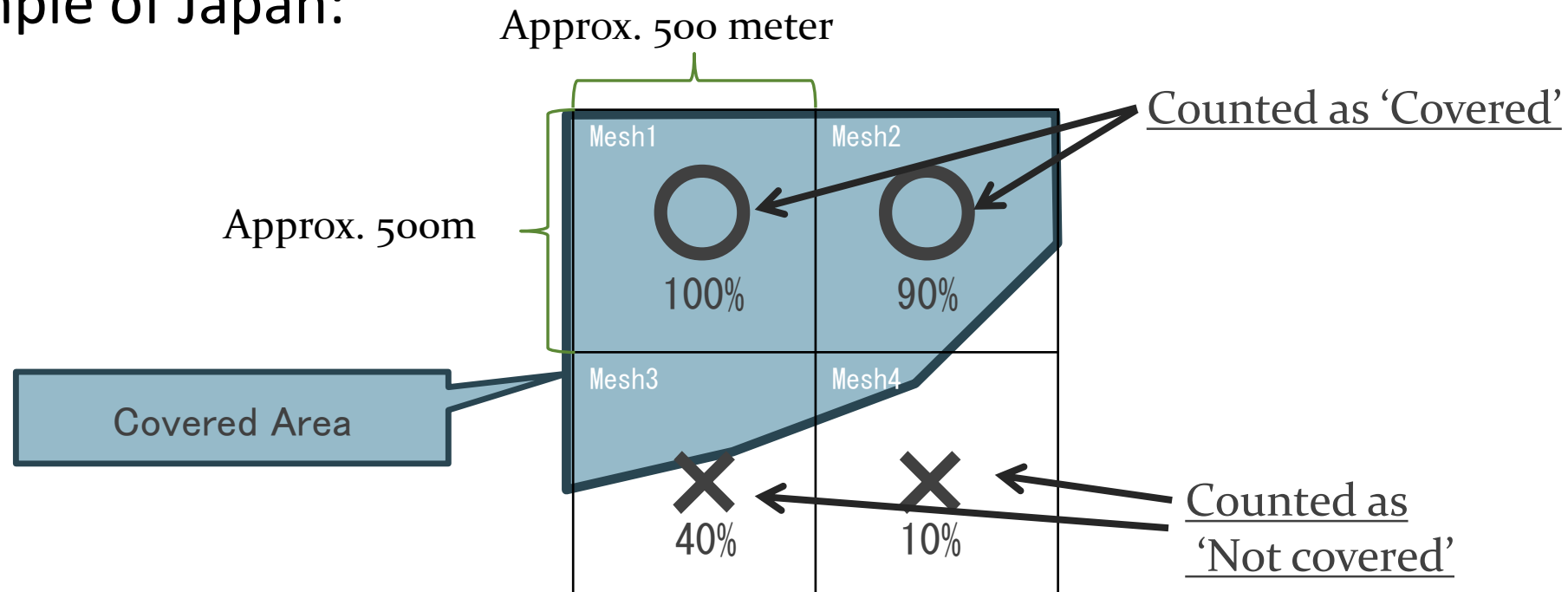
	Op 1	Op 2	Op 3
Region 1 (25% pop)	70%	80%	70%
Region 2 (25% pop)	50%	60%	70%
Region 3 (50% pop)	80%	70%	70%

Total coverage: $80\% * 25\% + 70\% * 25\% + 80\% * 50\% = 77.5\%$

Mobile coverage - methodology

3. Ask each operator to report coverage according to a given division of the land area

Example of Japan:



How to report your data to ITU

New Platform - Qualtrics



Data collection: Practical information

- Collection schedule is communicated every year to **all National Focal Points**: Ministry, Regulator and NSOs.
- **Online notification** with instructions is sent to national focal points responsible for the data reporting (for each questionnaire) as well as the ITU focal point.
- All questionnaires are **based in a new platform: Qualtrics**.
- Sample questionnaires and definitions are available on ITU website:
<http://www.itu.int/en/ITU-D/Statistics/Pages/datacollection/default.aspx#questionnaires>



Important: contact information must be up-to-date



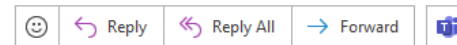
| Data collection: Notification email



IDA ITU <noreply@indicators.itu.int>

To ○ i

Click here to download pictures. To help protect your privacy, Outlook prevented automatic download of some pictures in this message.



Mon 3/25/2024

From: ICT Data and Analytics Division,
International Telecommunication Union
Contact Person: Nehal Desai, Viviana Umpierrez, Nathan Menton
E-mail: indicators@itu.int
Tel: +41 22 730 5410

Geneva, Monday, March 25th

ICT Household Short Questionnaire

Dear Sir / Madam,

The ITU is collecting statistics on access to, and use of, ICTs by households and individuals from national institutions responsible for producing official statistics on ICTs. For this purpose, we kindly ask you to complete the **ITU ICT Households Short Questionnaire 2024** using the following link and use the username and password provided below:

https://itustat.qualtrics.com/ife/form/SV_9NuGGe3pUmnRLBs

Username:

Password:

This questionnaire includes five indicators: households with computer, households with Internet, individuals using the Internet (SDG indicator 17.8.1), individuals who own a mobile phone (SDG indicator 5.b.1), and individuals with ICT skills, by type of skill (SDG indicator 4.4.1) - as well as the corresponding information about the survey (metadata). This year's questionnaire also introduces a new section on ICT skills aggregates based on [recommendations from the Expert Group on ICT Household Indicators](#) (EGH). For the first time, countries may provide information on the number of individuals who possess basic or higher-level ICT skills in specific skill areas.

All five indicators are included in the core list of ICT indicators agreed by the Partnership on Measuring ICT for Development and endorsed by the United Nations Statistical Commission. For more information about the core list of ICT indicators, please see: <http://www.itu.int/en/ITU-D/Statistics/Pages/coreindicators/default.aspx>. Three of these indicators are also included in the global indicator framework to monitor the Sustainable Development Goals (SDGs).

We kindly ask you to send us information that you may have on these indicators for years **2021, 2022 and 2023**. In case you have already submitted information for any of these years through one of our previous questionnaires, the values and metadata are reflected and provided for your reference.

The information you submit through this questionnaire will be featured in [ITU's DataHub](#) and in ITU's major statistical publications. In particular, it will be used in the monitoring of the SDGs.

Please complete the questionnaire no later than **26 April 2024**. Please note that the data you submit will be verified by ITU after submission.

For your information, this email has been sent to the following recipients in your country: **Focal Points' emails**

Note that all recipients can access the survey. All recipients will also receive an email with a summary of responses following submission. You may update this list by making changes in responses to the *Contact Information* section of the questionnaire.

For any questions or comments please send an email to: indicators@itu.int.

Thank you for your cooperation.

ICT Data and Analytics Division
Telecommunication Development Bureau
International Telecommunication Union (ITU)





Qualtrics Interface: Welcome

Survey Completion
0% ————— 100%



English



Welcome

Please read the below instructions for filling out WTI Short Questionnaire 2024 for

Country

- You can display the questionnaire in any of the six UN languages using the scroll list at the top of each page.
- You move forward and backwards in the questionnaire by pressing the buttons at the bottom.
- To quickly move between the pages, click the icon with the three lines to open up the Table of Contents.
- All answers are recorded as you input the requested information and select "Save and continue". If you cannot fill out the entire questionnaire all at once, you can simply close the tab in your browser and log in to continue filling out the questionnaire at a later stage.

If you need more information please see the [Handbook for the Collection of Administrative Data for Telecommunication/ICT](#) or contact ITU at indicators@itu.int.

The primary recipient is Craig Nesty, National Telecommunications Regulatory Commission.

Focal Points' emails



All recipients will be able to access the survey, but only one person can work on it at a time. It can also only be submitted once. If you would like to update any of this information for future questionnaires, please change the data on the following page.

← Previous page

→ Save and continue



Qualtrics Interface: Accessing the questionnaire

Survey Completion
0% ————— 100%



WELCOME AND
SURVEY GUIDELINES

CONTACT
INFORMATION

DATA INPUT
INSTRUCTIONS

FIXED NETWORK

CHECKS: FIXED
NETWORK

MOBILE NETWORK

CHECKS: MOBILE
NETWORK

INTERNET AND
TRAFFIC

CHECKS: INTERNET
AND TRAFFIC

REVIEW STAGE

SUBMIT
QUESTIONNAIRE

← Previous page

→ Save and continue

English ▼

Instructions for filling out WTI Short Questionnaire 2024 for

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Write to the following email addresses in

to access the survey, but only one person can work on it at a time. It can also only be submitted once. If you would like to update any of this information for future change the data on the following page.

Updating the contact information

Primary recipient

- Main person responsible for ITU WTI or HH questionnaires.
- Often a manager or Head of agency (per country requests).
- Emails addresses of other people involved in the questionnaire should be added in the “email address” field.
- All email addresses entered in this questionnaire will receive a summary email of the responses following submission.

Technical contact

- The name and contact details of the person ITU can contact as part of the validation process
- This person can be the same as the primary recipient.
- To receive future questionnaires and the summary email following submission, the email address of the technical contact should be included in the list of emails for the primary recipient (this is not automatic).



General instructions for data entry

Data entry:

- Reference data from previous years included as guidance.
- Build-in validations refer to both current and prior year both years can be edited.
- Use a dot (.) as decimal separator
- Provide any comments or explanations (metadata) in the *Notes* field.
- Any invalid data entry is shown in red

Remember:

- Please read the instructions (in blue) to avoid getting stuck
- If you do get stuck, please contact ITU at indicators@itu.int



Checks in place to simplify validation process

Direct / automatic

- Cell turns red and with error details below directly if data entered is invalid

	Value		
	2020	2021	2022
Total number of fixed-broadband subscriptions (i4213tfbb)	60000	80000	100000
Speeds from 256 kbit/s to less than 2 Mbit/s (i4213_256to2)	10000	15000	200000

The number needs to be less than the total number of subscriptions

Checks after “Save and continue”

“Hard” validation

- Crucial logical checks - user cannot continue if there is missing data or illogical data entry
- Warning message in red text appear above the question explaining the error
- For troubleshooting, remove all erroneous data; go back to your source (MNOs/ISPs, other department, etc.) to rectify erroneous values

“Soft” validation

- Less crucial logical checks – user can continue
- Warning or information messages appear on next page showing inconsistencies or trends



Checks after “Save and continue”

All blocks: Percentage change from 2021 to 2022 (all indicators)

Indicator	2021	2022	%
Fixed-telephone subscriptions (i112)	15 000	20 000	33.33 %
Fixed-telephone residential subscriptions (i116)	20	25	25.00 %
VoIP subscriptions (i112IP)	2 000	3 000	50.00 %
Fixed-telephone numbers ported (i112pt)	1 000	1 500	50.00 %



To expediate validation process, please double-check for large changes (more than 20%) and if found correct, please add explanatory note





Review and summary email

Survey Completion
0% 100%



Please find a summary of your responses. Click the button to print this page or save it as PDF.

English

Please press "Continue" to go to the final stage and submission of the questionnaire.

Print this page

Main recipient of this questionnaire:

Name:

Title:

Organisation:

Phone:

Email addresses:

Website:

FIXED NETWORK

Number of fixed-telephone subscriptions

	2021	2022	2023
Fixed-telephone subscriptions (m12)	26 011	16 991	
notes			

Fixed broadband subscriptions

	2021	2022	2023
Total number of fixed- broadband subscriptions (i4213tbb)	30 476	34 802	



| And finally, remember:

- **Measuring ICT makes a difference.**
- **These indicators are important for measuring Universal and Meaningful Connectivity.**
- **Every indicator counts.**



Capacity Building



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- By registration method
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- By course level

Measuring digital development: Telecommunication/ICT indicators

REGISTRATION

Start Date: 10 Jan 2024
End Date: 20 Dec 2024

EVENT DATES

Start Date: 10 Jan 2024
End Date: 31 Dec 2024

LOCATION

World or Multi-Regional

Price
\$0.00

TRAINING TOPICS

Big data and statistics

TRAINING TYPE

Online self-paced

LANGUAGES

English

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TRAINING TYPE

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LANGUAGES

English

ENROLL FOR FREE

<https://www.itu.int/en/ITU-D/Statistics/Pages/capacitydev/default.aspx>



Thank you for your attention!

For questions and feedback: indicators@itu.int

For more information: <https://www.itu.int/en/ITU-D/Statistics>

https://www.itu.int/itu-d/sites/projectumc/2025/12/08/umc_ws_africa/



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Example: How to calculate traffic per fixed-broadband subscription (expressed in GB)

$$\text{Traffic per fixed-broadband subscription} = \frac{\text{Total traffic in period } t}{\text{Total active fixed-broadband subscriptions in period } t}$$

i135tfb = 2.568 Exabytes in 2022

i4213tfbb = 1,250,000 subscriptions

1 EB = 1,000,000,000 GB

Conversion to GB = $2.568 \times 1,000,000,000$

Conversion to GB = 2,568,000,000 GB

Traffic per fixed-broadband subscription in GB = $2,568,000,000 / 1,250,000 = 2,054$ GB

Traffic per mobile-broadband subscription in GB, monthly average = $2.054 \text{ GB} / 12 = 171.2$ GB



Practice: calculate average monthly traffic in GB per fixed-broadband subscription

i135tfb = 5.897 Exabytes in 2022

i4213tfbb = 4.100.000 subscriptions

$$\text{Traffic per mobile-broadband subscription} = \frac{\text{Total traffic in } \textit{period } t}{\text{Total active mobile-broadband subscriptions in } \textit{period } t}$$

