

SDG indicator metadata

(Harmonized metadata template - format version 1.1)

0. Indicator information (SDG_INDICATOR_INFO)

0.a. Goal (SDG_GOAL)

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

0.b. Target (SDG_TARGET)

Target 9.c: Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020

0.c. Indicator (SDG_INDICATOR)

Indicator 9.c.1: Proportion of population covered by a mobile network, by technology

0.d. Series (SDG_SERIES_DESCR)

IT_MOB_2GNTWK - Proportion of population covered by at least a 2G mobile network [9.c.1]

IT_MOB_3GNTWK - Proportion of population covered by at least a 3G mobile network [9.c.1]

IT_MOB_4GNTWK - Proportion of population covered by at least a 4G mobile network [9.c.1]

IT_MOB_5GNTWK - Proportion of population covered by at least a 5G mobile network [9.c.1]

0.e. Metadata update (META_LAST_UPDATE)

2025-03-28

0.f. Related indicators (SDG_RELATED_INDICATORS)

4.4.1, 4.5.1, 17.6.1, 17.8.1

0.g. International organisations(s) responsible for global monitoring

(SDG_CUSTODIAN_AGENCIES)

International Telecommunication Union (ITU)

1. Data reporter (CONTACT)

1.a. Organisation (CONTACT_ORGANISATION)

International Telecommunication Union (ITU)

2. Definition, concepts, and classifications (IND_DEF_CON_CLASS)

2.a. Definition and concepts (STAT_CONC_DEF)

Definitions:

Proportion of population covered by a mobile network, broken down by technology, refers to the percentage of inhabitants living within range of a mobile-cellular signal, irrespective of whether or not they are mobile phone subscribers or users. This is calculated by dividing the number of inhabitants within range of a mobile-cellular signal by the total population and multiplying by 100.

Concepts:

The indicator is based on where the population lives, and not where they work or go to school, etc. When there are multiple operators offering the service, the maximum population number covered should be reported. Coverage should refer to at least 5G, at least LTE and above (4G), at least 3G and any technology (2G) mobile-cellular technologies and include:

- at least 2G mobile population coverage: refers to the percentage of inhabitants that are within range of at least a 2G mobile-cellular signal, irrespective of whether or not they are subscribers. This includes mobile-cellular technologies such as GPRS, CDMA2000 1x and most EDGE implementations. The indicator refers to the theoretical ability of subscribers to use non-broadband speed mobile data services, rather than the number of active users of such services.
- at least 3G population coverage: 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. It excludes people covered only by GPRS, EDGE or CDMA 1xRTT.
- at least LTE population coverage: 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.
- at least 5G population coverage: refers to the percentage of inhabitants that are within range of at least a 5G mobile cellular signal, irrespective of whether or not they are subscribers. This is calculated by dividing the number of inhabitants that are covered by a 5G mobile-cellular signal by the total population and multiplying by 100.

As technologies evolve and as more and more countries will deploy and commercialize more advanced mobile-broadband networks, the indicator will include further breakdowns.

2.b. Unit of measure (UNIT_MEASURE)

Percent (%)

2.c. Classifications (CLASS_SYSTEM)

Technologies as defined in the ITU Handbook for the Collection of Administrative Data on Telecommunications/ICT 2020.

3. Data source type and data collection method (SRC_TYPE_COLL_METHOD)

3.a. Data sources (SOURCE_TYPE)

This indicator is based on an internationally agreed definition and methodology, which have been developed under the coordination of the International Telecommunication Union (ITU), through its Expert Groups and following an extensive consultation process with countries. It is also a core indicator of

the Partnership on Measuring ICT for Development's Core List of Indicators, which has been endorsed by the UN Statistical Commission in 2022.

ITU collects data for this indicator through an annual questionnaire from national regulatory authorities or Information and Communication Technology Ministries, who collect the data from mobile network operators (MNOs).

3.b. Data collection method (COLL_METHOD)

The International Telecommunication Union (ITU) collects data for this indicator through a questionnaire from national regulatory authorities or Information and Communication Technology Ministries, who collect the data from mobile network operators (MNOs).

3.c. Data collection calendar (FREQ_COLL)

The International Telecommunication Union (ITU) collects data twice a year from Member States, in 1st quarter and in 3rd quarter. The calendar is available in the following link: [ITU data collection](#).

3.d. Data release calendar (REL_CAL_POLICY)

Data are released twice a year, in July and December, in the ITU DataHub, see <https://datahub.itu.int/>.

3.e. Data providers (DATA_SOURCE)

Telecommunication/ Information and Communication Technology (ICT) regulatory authority, or Ministry of ICTs.

3.f. Data compilers (COMPILING_ORG)

International Telecommunication Union (ITU)

3.g. Institutional mandate (INST_MANDATE)

As the UN specialized agency for Information and Communication Technology (ICTs), the International Telecommunication Union (ITU) is the official source for global ICT statistics, collecting ICT data from its Member States, see resolution 131 of the ITU Plenipotentiary Conference, <https://www.itu.int/pub/S-CONF-ACTF-2022>.

4. Other methodological considerations (OTHER_METHOD)

4.a. Rationale (RATIONALE)

The percentage of the population covered by a mobile cellular network can be considered as a minimum indicator for Information and Communication Technology (ICT) access since it provides people with the possibility to subscribe to and use mobile-cellular services to communicate. Over the last decade, mobile-cellular networks have expanded rapidly and helped overcome very basic infrastructure barriers that existed when fixed-telephone networks – often limited to urban and highly populated areas - were the dominant telecommunication infrastructure.

While 2G (narrowband) mobile-cellular networks offer limited (and mainly voice-based) services, higher-speed networks (3G and LTE and above) provide increasingly high-speed, reliable and high-quality access to the Internet and its increasing amount of information, content, services, and applications. In addition, 5G technology offers opportunities for growth, innovation, and efficiency. To name a few examples: healthcare innovation, industrial transformation, smart infrastructure, agricultural efficiency, automotive and transformation, among others. Moreover, it has a direct impact in people development as it requires competencies as well as enhance educational experiences through high-quality online learning, virtual classrooms, and immersive educational content, making education more accessible and engaging. Mobile networks are therefore essential to overcoming infrastructure barriers, helping people join the information society and benefit from the potential of ICTs, in particular in least developed countries.

The indicator highlights the importance of mobile networks in providing basic, as well as advanced communication services and will help design targeted policies to overcome remaining infrastructure barriers, and address the digital divide. Many governments track this indicator and have set specific targets in terms of the mobile population coverage (by technology) that operators must achieve.

4.b. Comment and limitations (REC_USE_LIM)

Some countries have difficulty calculating overall mobile-cellular population coverage. In some cases, data refer only to the operator with the largest coverage, and this may understate the true coverage.

4.c. Method of computation (DATA_COMP)

The indicator percentage of the population covered by a mobile network, broken down by technology, refers to the percentage of inhabitants living within range of a mobile-cellular signal, irrespective of whether or not they are mobile phone subscribers or users. This is calculated by dividing the number of inhabitants within range of a mobile-cellular signal by the total population and multiplying by 100.

$$(Nr. inhabitants covered by any mobile - cellular signal) / (Total population) \times 100$$

4.d. Validation (DATA_VALIDATION)

Data are submitted by Member States to the International Telecommunication Union (ITU). ITU checks and validates the data, in consultation with the Member States.

4.e. Adjustments (ADJUSTMENT)

4.f. Treatment of missing values (i) at country level and (ii) at regional level

(IMPUTATION)

- **At country level**

Missing values are estimated using data published by mobile cellular operators that have the largest market share.

- **At regional and global levels**

Missing values are estimated using data published by mobile cellular operators that have the largest market share.

4.g. Regional aggregations (REG_AGG)

Global and regional estimates are produced using weighted country-level data. First, the missing country-level data are estimated using data of the dominant mobile operator. Once all the country-level percentages are available, the number of people covered by the mobile signal is calculated by multiplying the percentage of population covered by the signal to the population of the country. The regional and world total population covered by a signal were calculated by summing the country-level data. The aggregate percentages were calculated by dividing the regional totals by the population of respective groups.

4.h. Methods and guidance available to countries for the compilation of the data at the national level (DOC_METHOD)

ITU Handbook for the Collection of Administrative Data on Telecommunications/ICT 2020:
<https://www.itu.int/en/ITU-D/Statistics/Pages/publications/handbook.aspx>

4.i. Quality management (QUALITY_MGMNT)

Data are checked and validated by the ICT Data and Analytics (IDA) Division of the International Telecommunication Union (ITU). Countries are contacted to clarify and correct their submissions.

4.j Quality assurance (QUALITY_ASSURE)

The guidelines of the ITU Handbook for the Collection of Administrative Data on Telecommunications/ICT 2020 are followed.

4.k Quality assessment (QUALITY_ASSMNT)

The guidelines of the ITU Handbook for the Collection of Administrative Data on Telecommunications/ICT 2020 are followed.

5. Data availability and disaggregation (COVERAGE)

Data availability:

Data for this indicator exist for more than 160 economies.

Time series:

1997 onwards for 2G

2007 onwards for 3G

2012 onwards for LTE

2019 onwards for 5G

Disaggregation:

Based on the data for the percentage of the population covered by a mobile network, broken down by technology, and on rural population figures, countries can produce estimates on rural and urban population coverage. International Telecommunication Union (ITU) produces global estimates for the rural population coverage, by technology.

6. Comparability / deviation from international standards (COMPARABILITY)

Sources of discrepancies:

None. International Telecommunication Union (ITU) uses the data provided by countries, including the in-scope population that is used to calculate the percentages.

7. References and Documentation (OTHER_DOC)

URL:

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

References:

ITU Handbook for the Collection of Administrative Data on Telecommunications/ICT 2020:

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