ICT Indicators to Measure Connectivity and Support Policy Development

19th Caribbean Internet Governance Forum (CIGF) /
2nd Caribbean Youth Internet Governance Forum (CYIGF)

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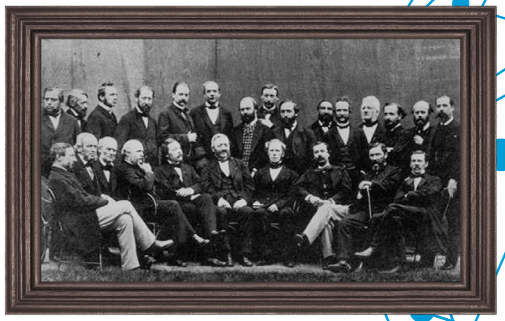
About the ITU

ITU is the United Nations specialized agency for information & communication technologies (ICTs)



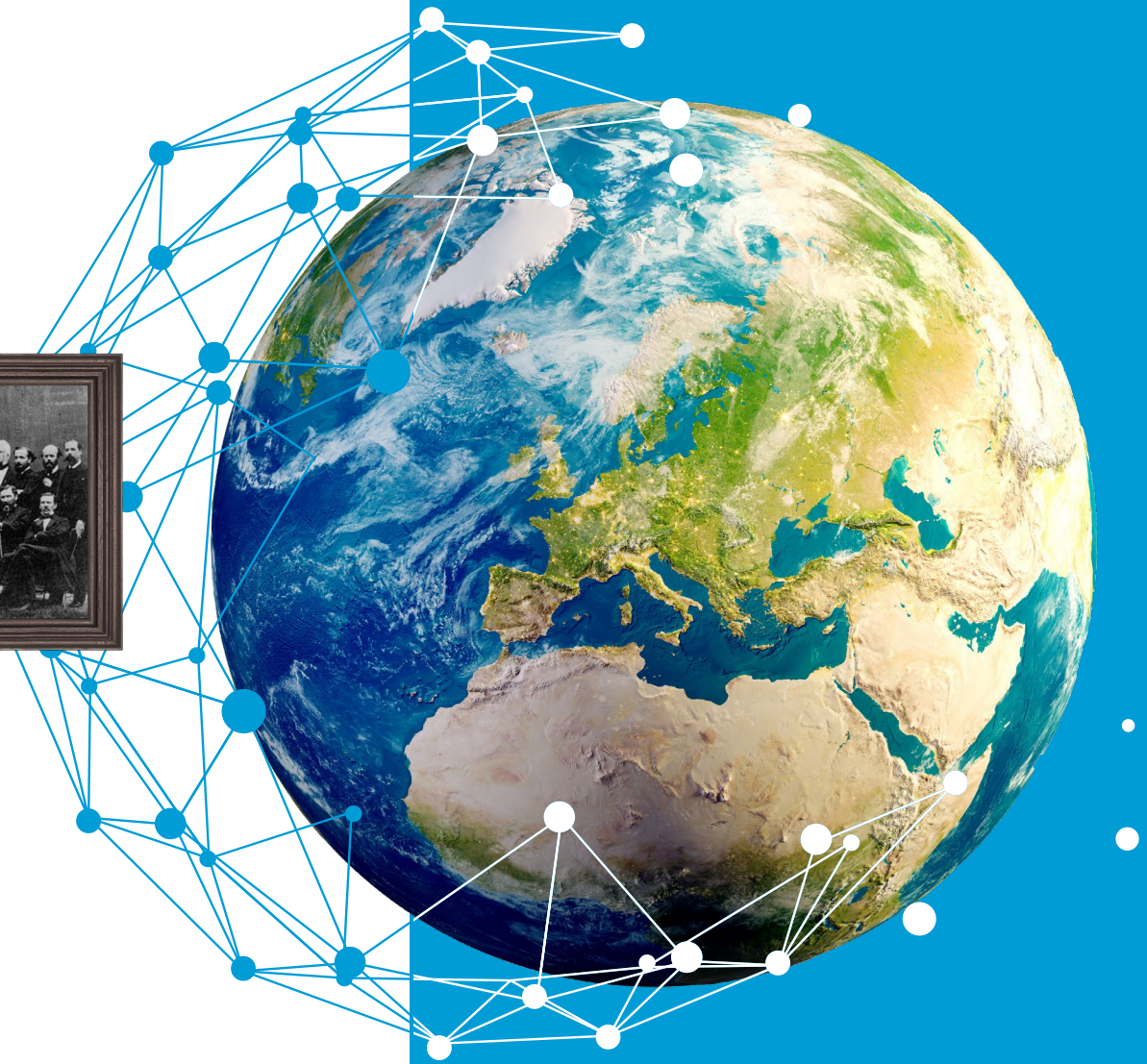
Oldest agency in the UN family:

- Established in 1865
- Connecting the world since the dawn of the telegraph

Headquartered in Geneva, Switzerland
(Regional and Area offices on all continents)

3 Main activities:

- Radiocommunication
- Telecommunication Standardization
- Telecommunication Development



Agenda

1. Indicators for policy development: the universal and meaningful connectivity framework
2. ITU's work on ICT statistics
3. A look at the different aspects of the digital divide through ITU's statistics
4. Conclusion

1. Universal and Meaningful Connectivity: embracing the policy imperative, addressing the measurement challenge

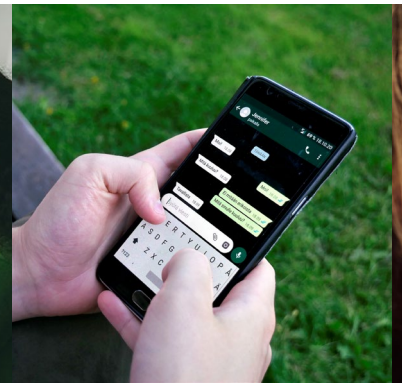
The meaning of ‘meaningful’

universal and meaningful connectivity

> the possibility for everyone to enjoy a safe, satisfying, enriching, productive, and affordable online experience.







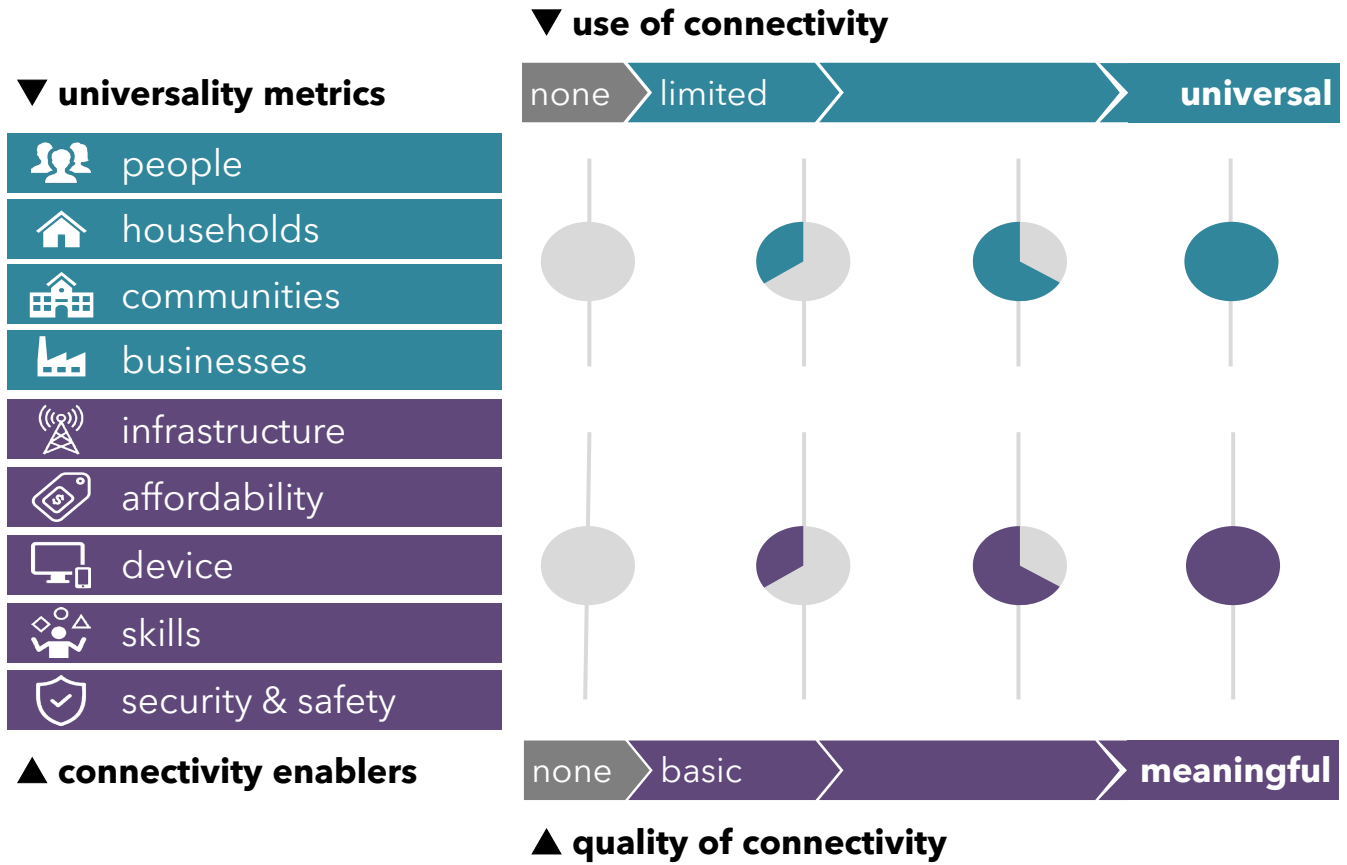

The two dimensions of connectivity

Framework for universal and meaningful connectivity

To what extent is connectivity universal and meaningful?

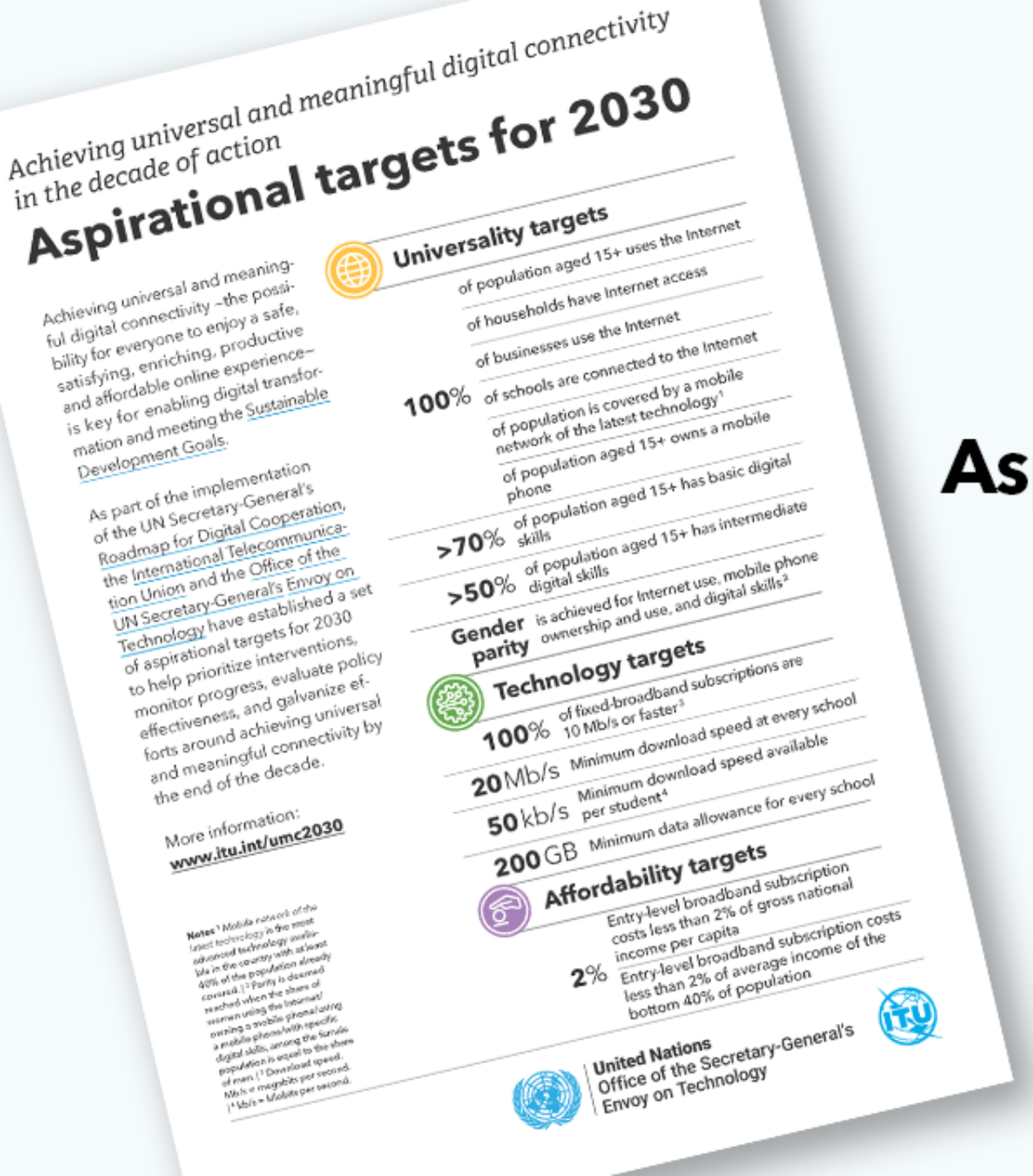
Out of scope

What are the **catalysts** and **levers** to improve use and quality of connectivity?



Out of scope

What are the **applications** and the **impacts** of connectivity?



Aspirational targets for 2030

Achieving universal and meaningful digital connectivity in the decade of action

www.itu.int/umc2030

United Nations
Office of the Secretary-General's
Envoy on Technology

A new partnership to promote and measure universal and meaningful connectivity

On 27 April 2023, ITU and the European Commission announced a three-year, €3-million global project to promote and measure universal and meaningful connectivity (UMC).

The project officially started on 1 May.

Myriam Ferran, Deputy Director-General for International Partnerships, European Commission, and Dr Cosmas Luckyson Zavazava, Telecommunication Development Director at ITU, announced the project.

Global Gateway

Funded by the European Union

Promoting and measuring UMC

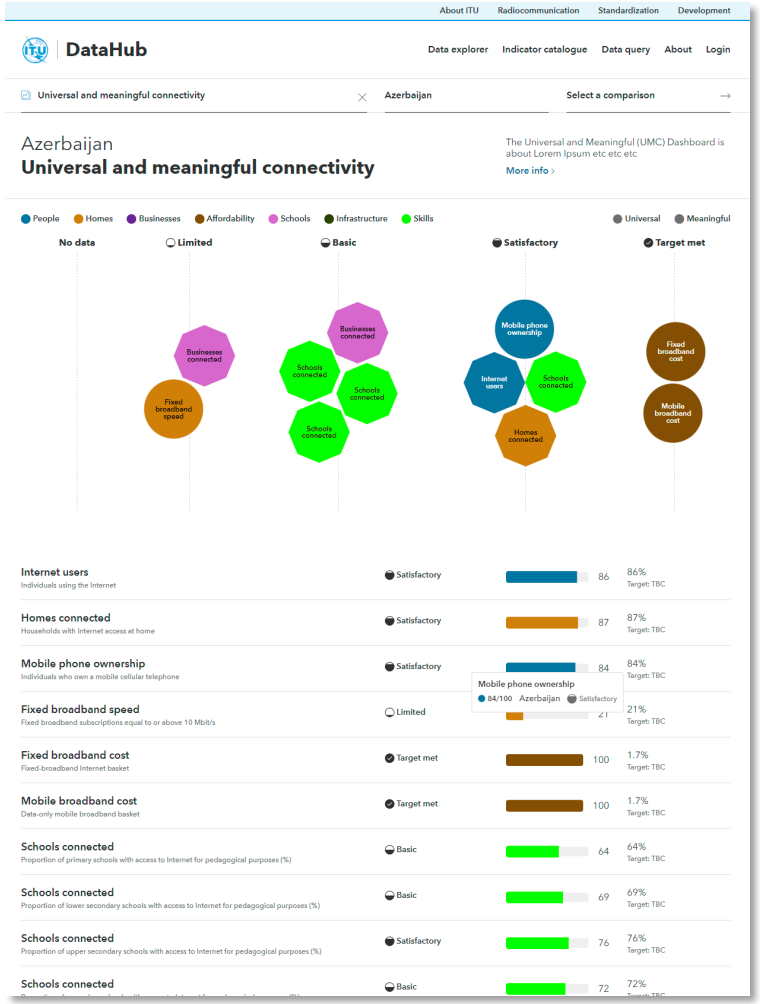
3 workstreams

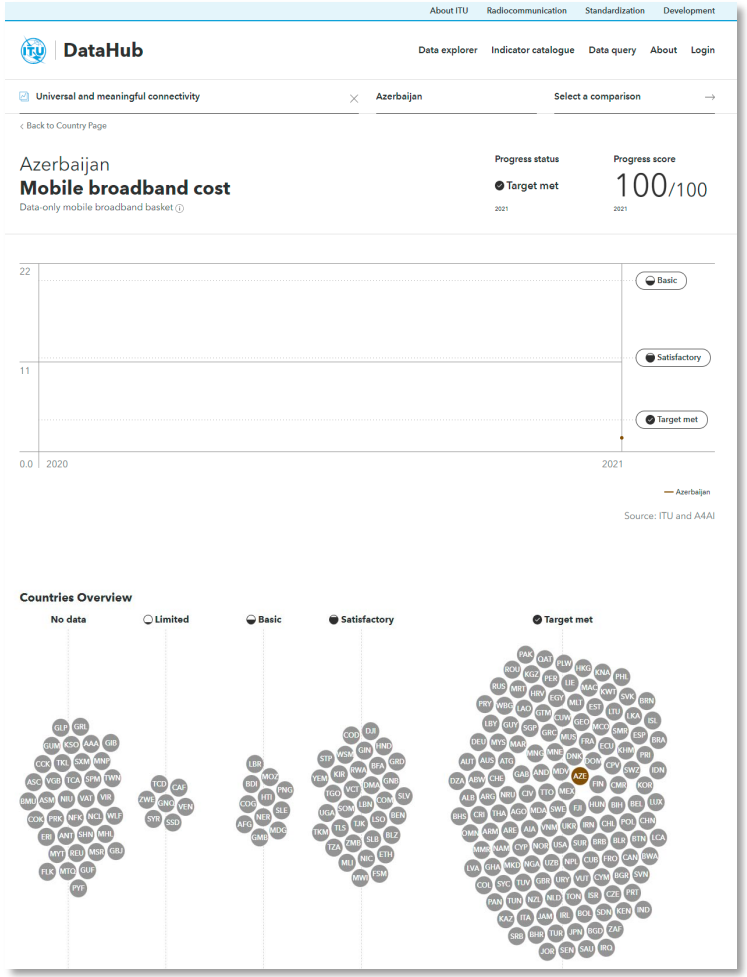
1. Advocacy
2. Measurement & Capacity building
3. Research

4 expected outputs

1. Increased awareness of UMC
2. Improved UMC data dissemination
3. Enhanced statistical capacity to measure UMC
4. Better policies for achieving UMC

Achieving universal and meaningful connectivity
Dashboard for universal and meaningful connectivity





Visit our event at the IGF

IGF 2023 WS #165 Beyond universality: the meaningful connectivity imperative

When? Wednesday 11 October 2023

Where? Kyoto International Conference Center, ICC Kyoto

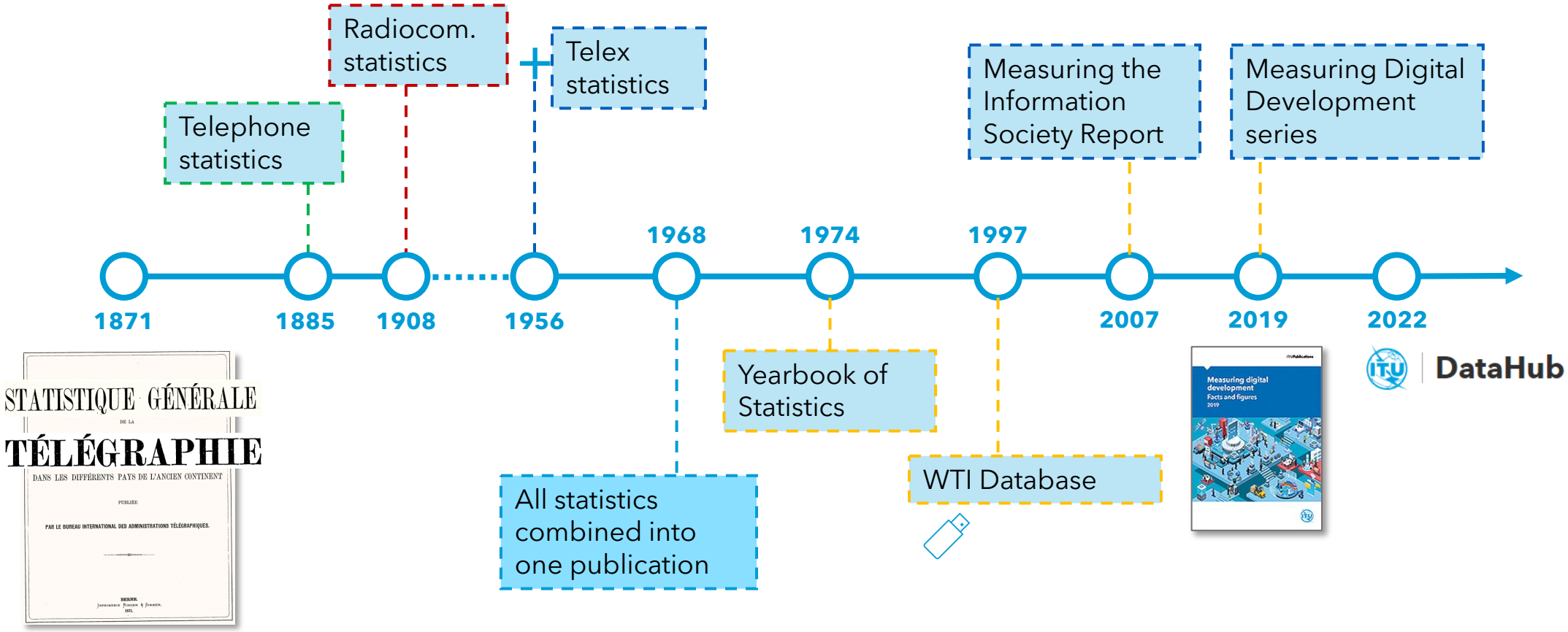
Workshop Room 3 (or online!)

What time? 09:45 - 11:15

More info: https://www.intgovforum.org/en/content/igf-2023-ws-165-beyond-universality-the-meaningful-connectivity-imperative

2. An introduction to ITU statistics

The History of ITU Statistics



The leader in global ICT statistics

ITU-D's ICT Data and Analytics Division (IDA) leads the global ICTs statistics agenda. It collects and disseminates vital information and carries out world-class research to support evidence-based decision making towards universal and meaningful connectivity and sustained digital transformation.

Collecting data

ITU develops new indicators, sets international standards for their computation and collection, and promotes adoption.

We collect, compile and maintain statistics for 200+ economies.

Our data science practice harnesses the power of big data to develop a new generation of statistics.

Building capacity

ITU develops the statistical capacity of Members, through workshops, trainings, webinars, online courses, technical publications, and technical assistance.

Making sense

ITU monitors the state of digital development, analyses its drivers and on economies and societies, identifies good practices and solutions.

Reaching out

ITU disseminates data and research through various channels, and is strengthening its digital presence.

Working together

ITU is active within the UN system and beyond in advancing the statistics agenda.

ITU is involved in several partnerships, leveraging synergies and complementarities and maximize impact.

ICT statistics for innovation and digital transformation: What is your entry point?

Societal level:

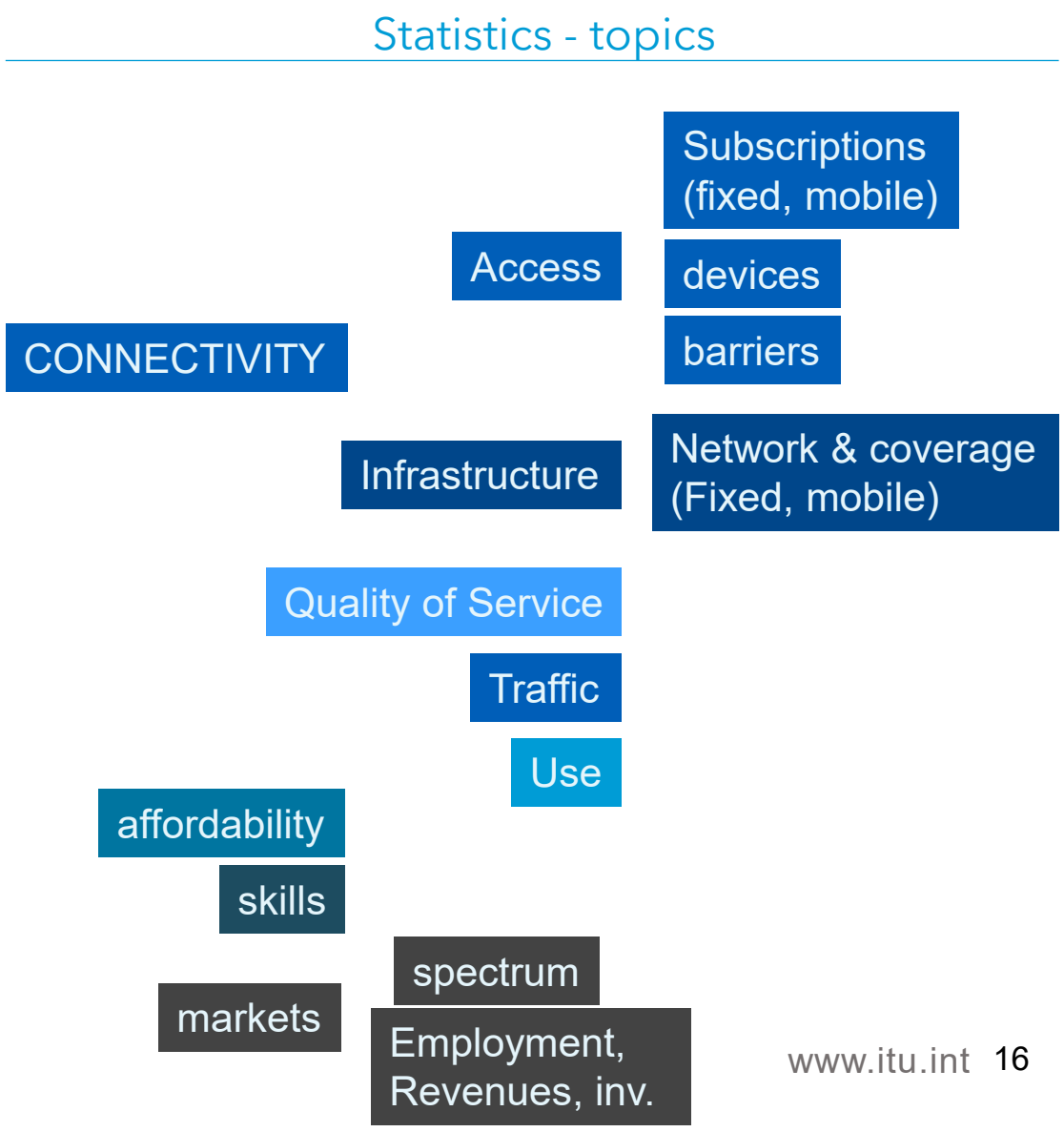
- Impact on sustainable development
- e-Government, e-Health services; skills; inclusion

Sectoral level: industry dynamics, catch-up

Company level:

- product innovators
- process [or non-tech] innovators (companies introducing new ICT tools and methods);
- non-innovator ICT users

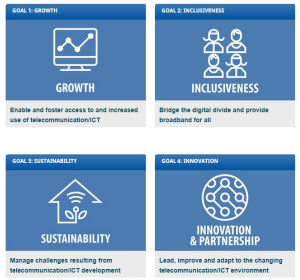
Technology, product or service level



Monitoring global ICT targets

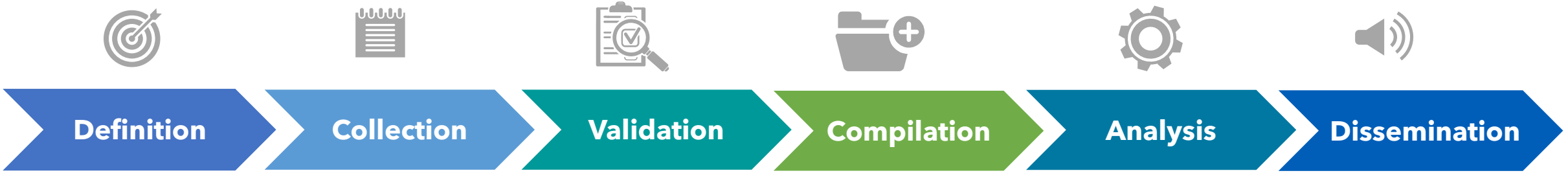
- ICTs serve as catalysts for achieving all of the Sustainable Development Goals (SDGs);
- The Global SDG Indicator Framework includes **7 ICT indicators** covering **6 targets.**
  5 indicators are under the responsibility of ITU:
  - Indicator 4.4.1: % of youth and adults with ICT skills, by type of skills
  - Indicator 5.b.1: % of individuals who own a mobile telephone, by sex
  - Indicator 9.c.1: % of population covered by a mobile network, by technology
  - Indicator 17.6.1: Fixed Internet broadband subscriptions per 100 inhabitants, by speed
  - Indicator 17.8.1: % of individuals using the Internet

BROADBAND COMMISSION FOR SUSTAINABLE DEVELOPMENT



- UN Broadband Commission 2025 targets “connecting the other half”
- Connect 2030 Agenda’s Strategic Goals
- Universal and Meaningful Connectivity targets focus on quality

ICT Data Cycle: behind the scenes



The set of indicators to be collected is defined and periodically updated through the expert groups (EGTI and EGH)

Data request through questionnaires from National Statistics Offices and Government Agencies in charge of telecommunications/ICT (Ministry, Regulator Authority).

ITU validates the consistency of the data received and clarifies with the statistical focal points, (applying statistical techniques, expertise and sectoral knowledge)

Harmonize at country level and aggregate at regional or global levels.

Analyse evidence and monitor the evolution of digital development

Results published via digital channels and reports:
ITU DataHub, Digital Development Dashboard,
Facts and Figures,
Global Connectivity Report.

ICT Data Collection - Sources

UNCTAD

ICT use by businesses surveys

[Telecom Regulation, Tariff policies]

Supply-side data

Demand-side data

ITU DataHub

ITU ICT Statistics

Administrative data from telecom operators
Source: **Regulators/Ministries**

ICT Price Basket
(Source: **Regulators/Ministries & operators' website**

(annual questionnaires)

ICT surveys
(annual questionnaires)
Source: **National Statistical Offices**

Source of ICT statistics matter

ICT Statistics	Supply side	Demand side
Type of data	Administrative records of Mobile phone operators and Internet service providers, and network operators (e.g., subscriptions, coverage, traffic from call data records, network monitoring parameters)	Household ICT surveys (exceptionally: other omnibus surveys, or censes) (e.g., Did you use the Internet in the last 3 months?)
Initial data processing and aggregation	Operators collect and aggregate data real time or make periodic reports;	National Statistical Offices ensure representativeness
Frequency	Operators report to ICT ministries or regulatory authorities quarterly or annually	Surveys carried out less frequently (every 2-years at best)
Data availability limitations	Capacity; legal restrictions or licensing requirements for reporting	Costs and capacity => coverage is lower
Main use	Statistics on infrastructure, access, on use	Statistics on use (services, devices), barriers, skills, etc.

ITU Data Collection: Methodological References

SUPPLY SIDE

Administrative data on telecom/ICT

Covers harmonized indicators for fixed and mobile networks, Internet, bundles, traffic, employment, revenue and investment, broadcasting, QoS

ICT Service prices

Definition of ICT price baskets to make retail prices for mobile-cellular and fixed-broadband services globally comparable.

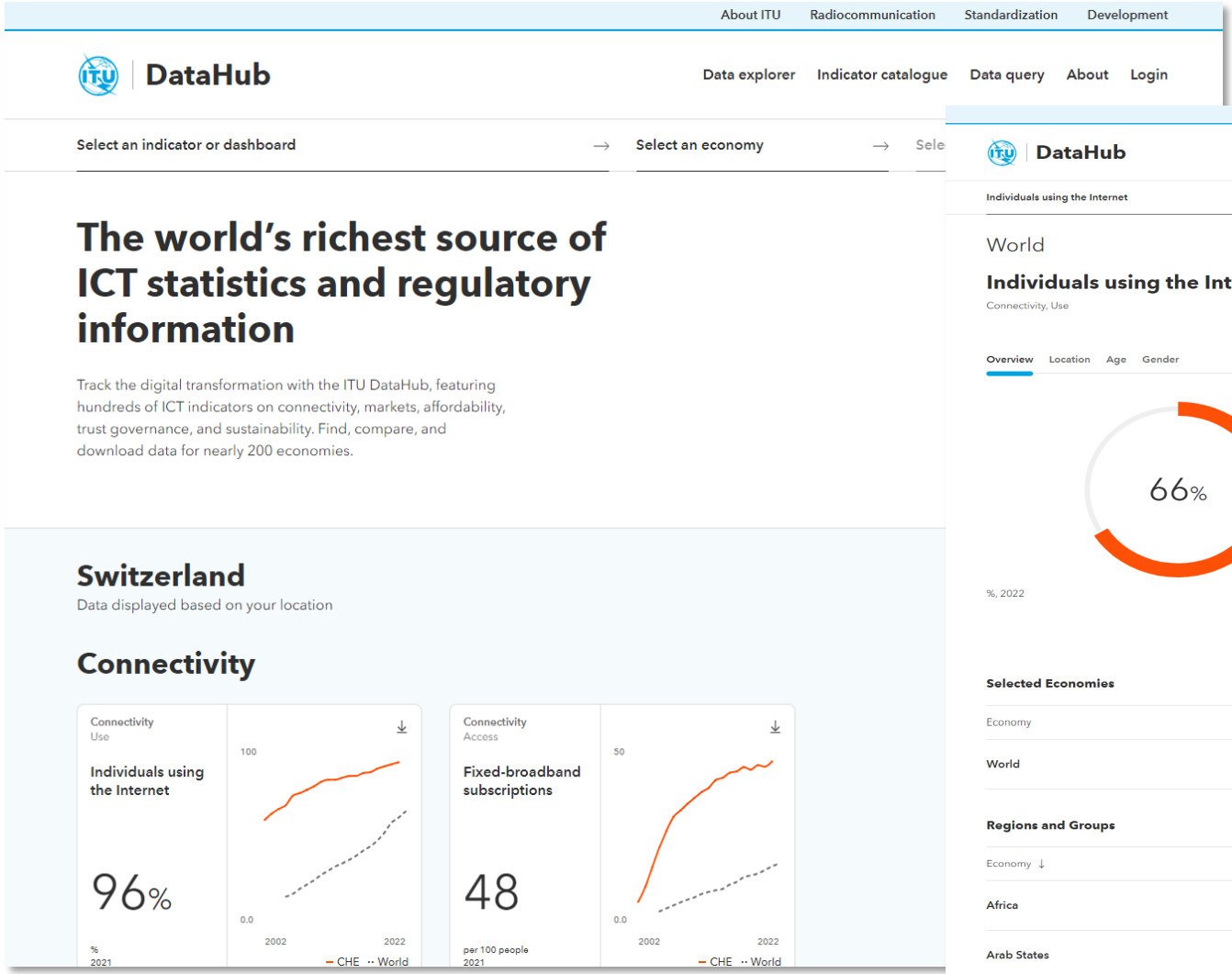
DEMAND SIDE

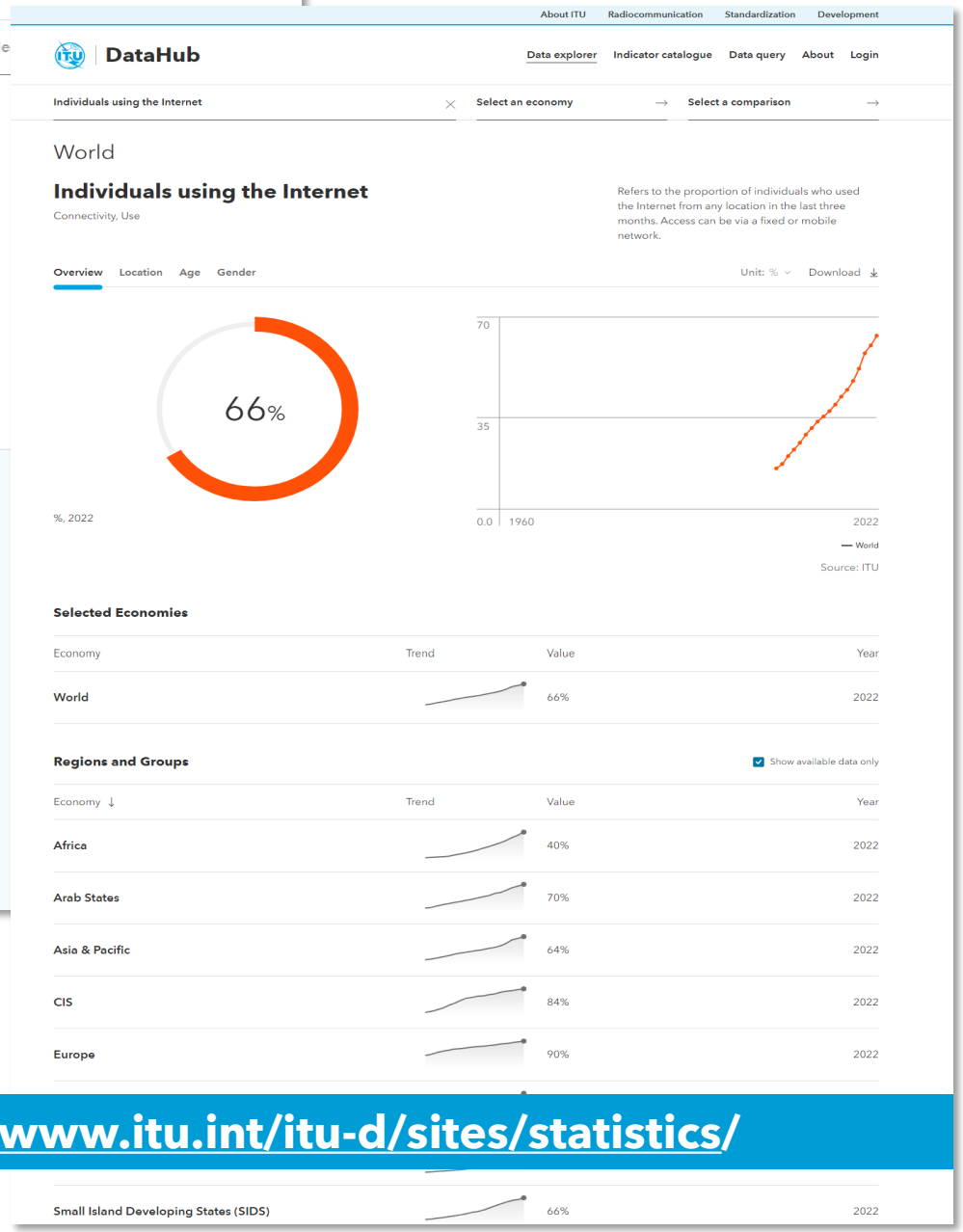
Data on household access to, and individual use of, ICTs

A comprehensive manual on methodologies for conducting ICT surveys for households and individuals (from planning and coordination to standards, collection techniques, sampling, quality assurance, etc.), including core list of indicators and model questionnaires

- Jointly developed; provide basis for data collection and validation
- Freely available in 6 languages

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



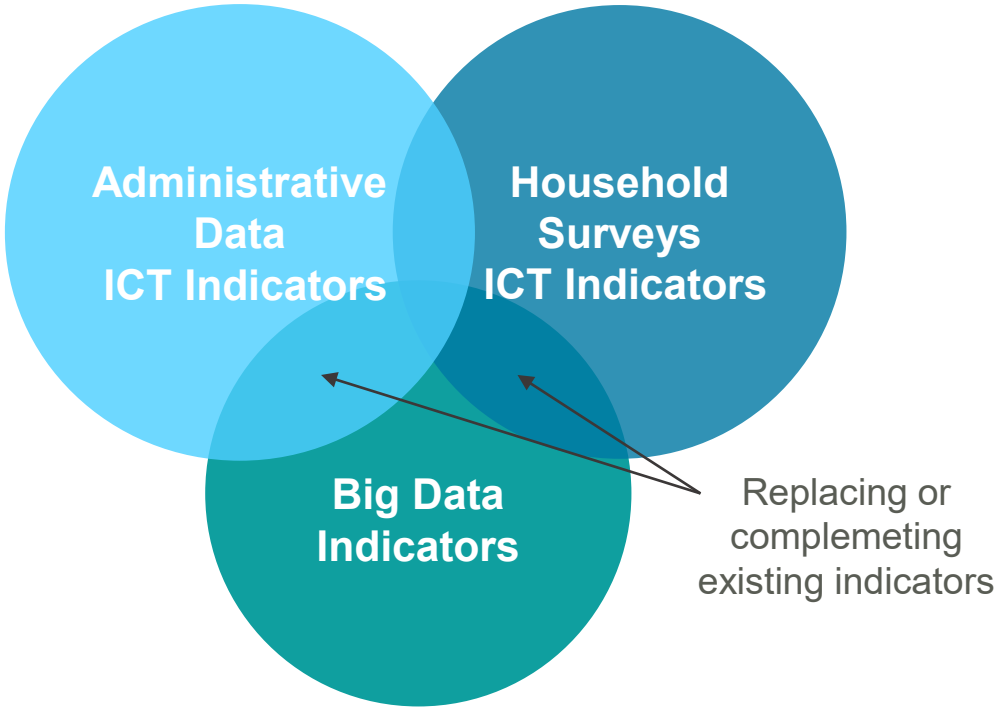


Visit https://datahub.itu.int

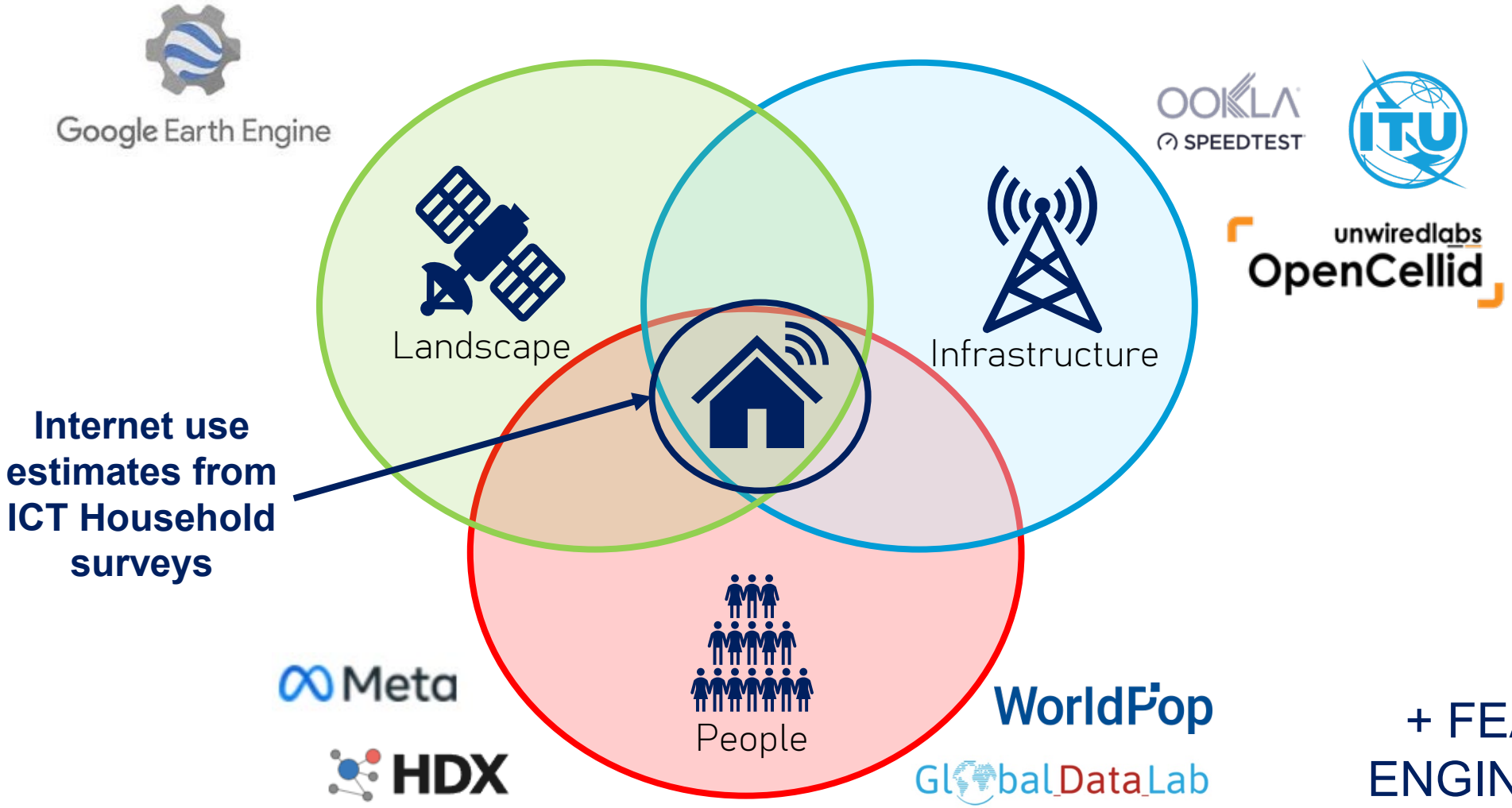
More data tools at www.itu.int/itu-d/sites/statistics/

Big Data for Measuring the Information Society

- “Big data” is revolutionizing the world of statistics.
- Huge opportunities: more granular, timely, accurate, insightful, valuable, less costly to collect (vs surveys).
- ITU is a pioneer in the field; Since 2016, projects run in a dozen of countries; these helped refined methods and models and created guidelines for countries exploring the use of mobile phone big data.



Data collection from a variety of open (big) data sources



Partnership on Measuring ICT for Development

- Global initiative to improve availability and quality of internationally comparable ICT statistics
- Main mechanism for the coordination of ICT statistics internationally
- Members: 14 international and regional agencies involved in official ICT statistics
- Steering Committee (2023-2025): ITU, UNCTAD, and UN DESA
- Guidance for policy makers

PARTNERSHIP ON MEASURING ICT FOR DEVELOPMENT

3. What do ITU's statistics show?

2.7

billion people offline in the world in 2022

5.3

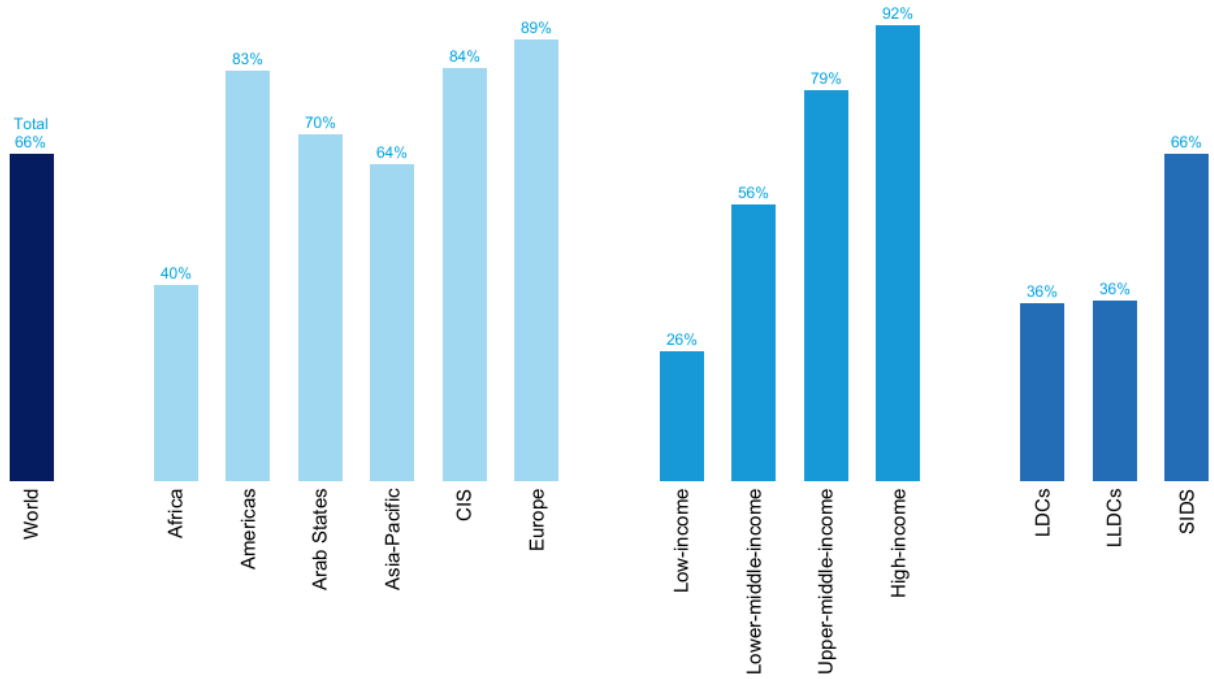
billion people online in the world in 2022

Source : ITU, *Facts and Figures 2022*

Note : being *online* means having used the Internet in the last three months

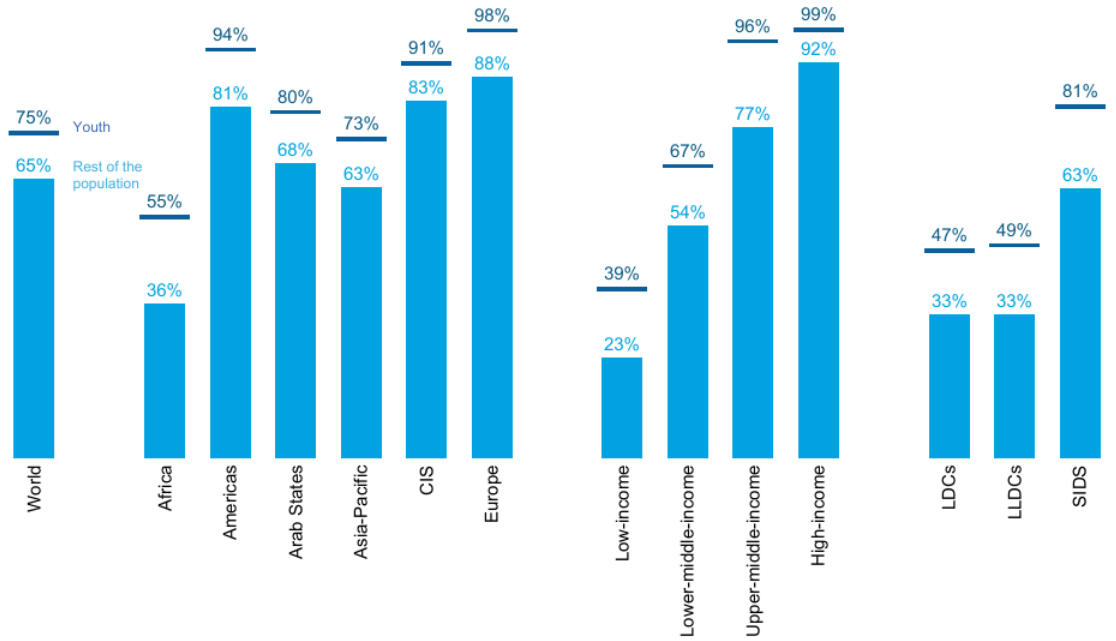
Internet use by region and the age divide

Percentage of individuals using the Internet by region, 2022



Source: ITU

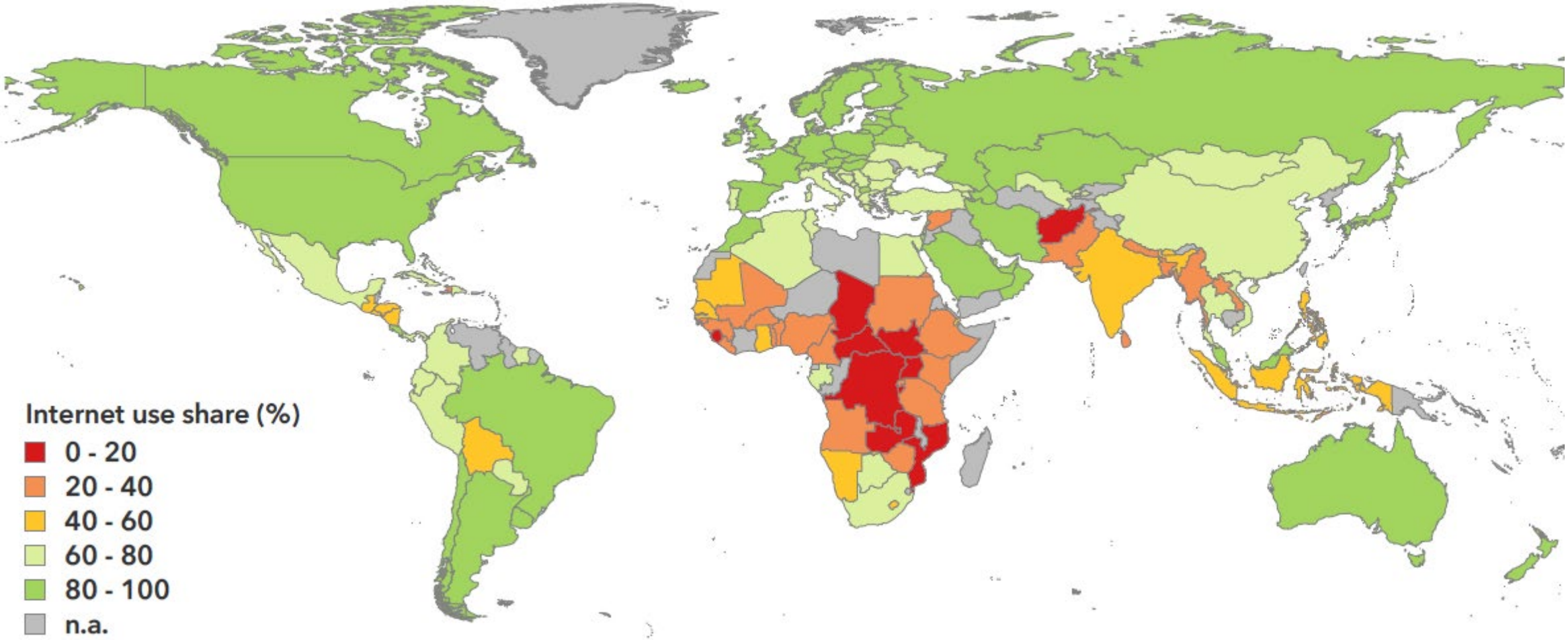
Percentage of individuals using the Internet by age group, 2022



Note: Youth means 15-24 year old individuals using the Internet as a percentage of the total population aged 15 to 24 years. Rest of the population means individuals below 15 years old or over 24 years old as a percentage of the respective population.

Source: ITU

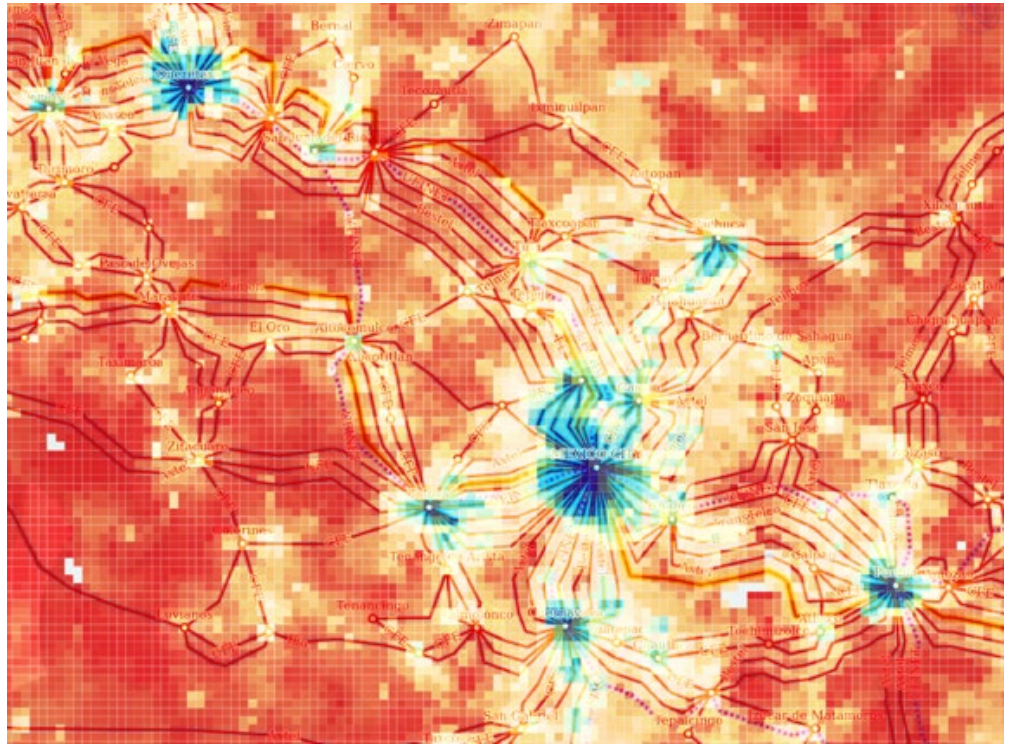
Percentage of the population using the Internet, 2020



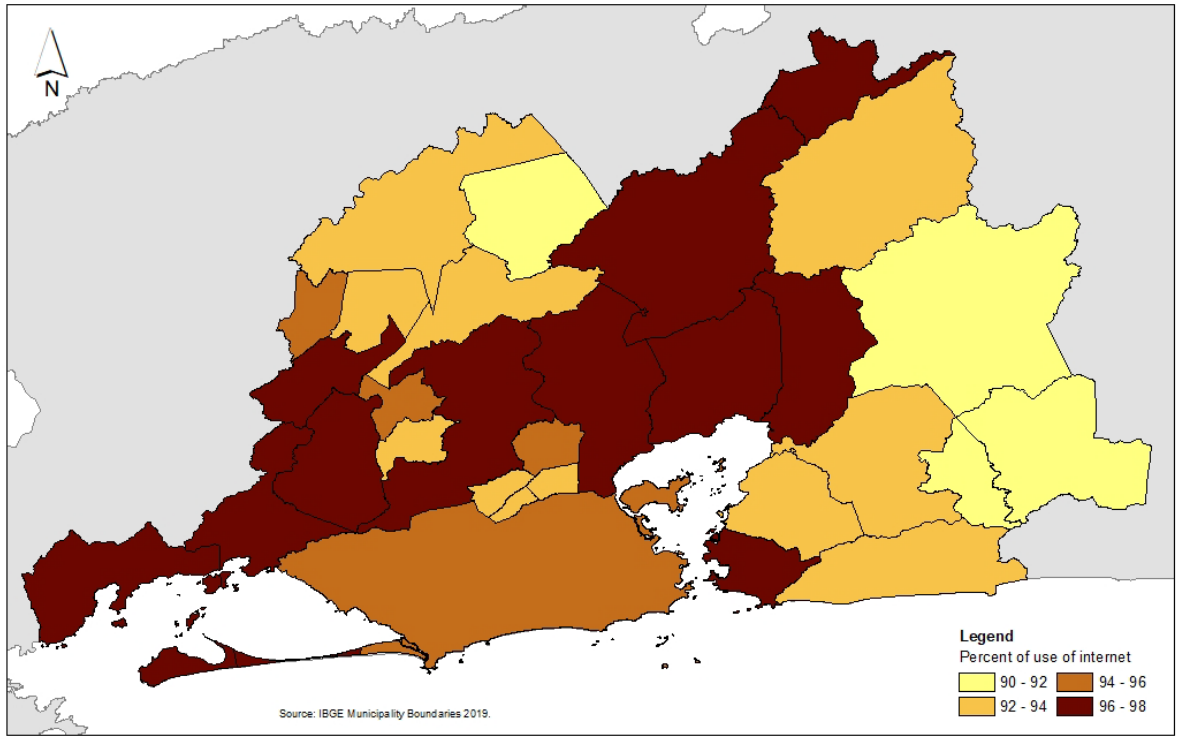
Note: The designations employed and the presentation of material on the map do not imply the expression of any opinion whatsoever on the part of ITU and of the secretariat of ITU concerning the legal status of the country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries. The base map is the UNmap database of the United Nations Cartographic Section.
Source: ITU.

Big Data for Measuring the Information Society

Example: estimated share of population using the internet in Mexico City (blue = high internet use, red = low), overlayed with transmission lines, using **open source data**



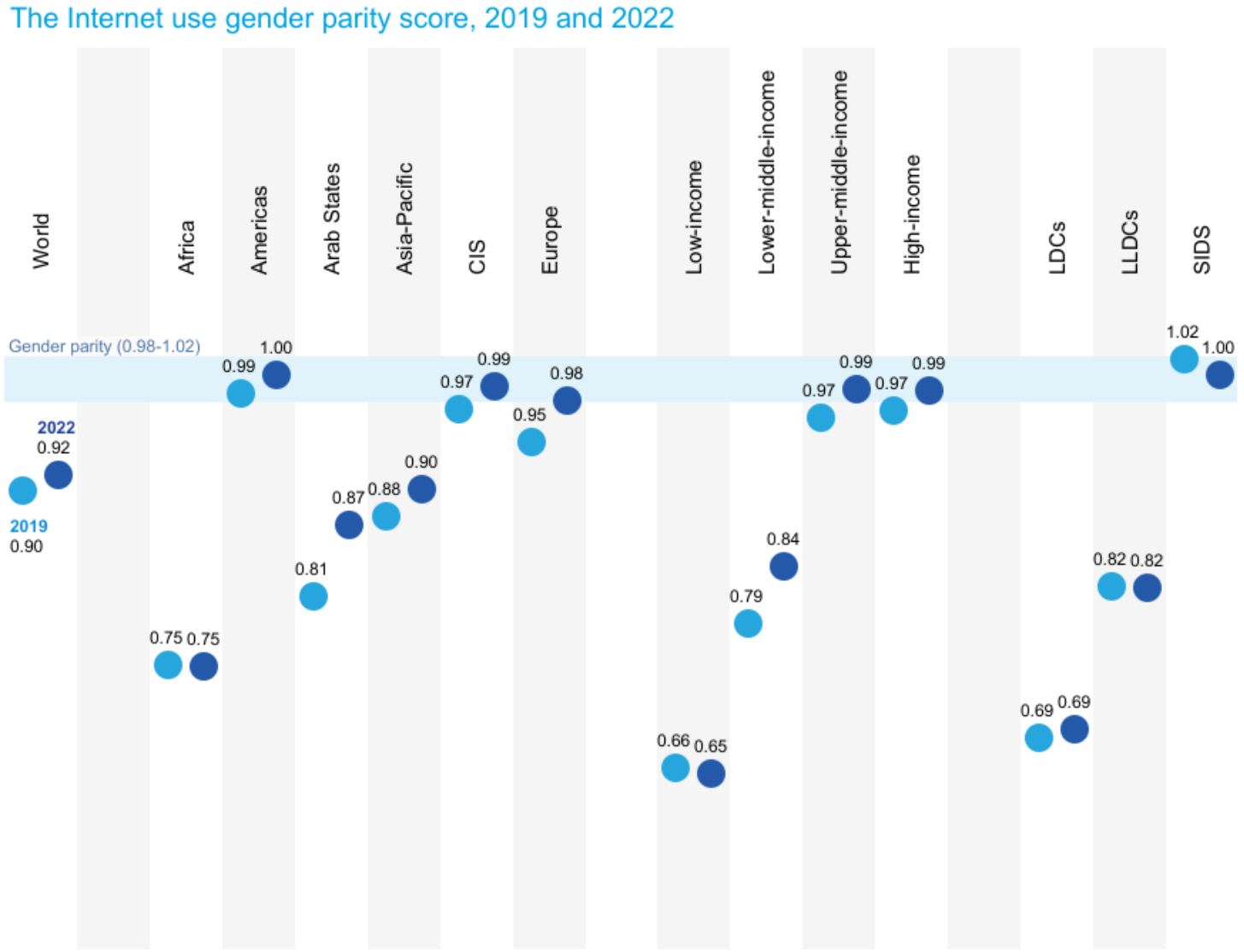
Example: estimated percentage of the population using the Internet in Rio de Janeiro, using **mobile phone big data**



https://www.itu.int/en/ITU-D/Statistics/Pages/bigdata/default.aspx

The gender digital divide

- Gender parity score = proportion women/proportion men
- Between 0.98 and 1.02 = gender parity
- Low Internet use correlated with low gender equality
- Exception: SIDS



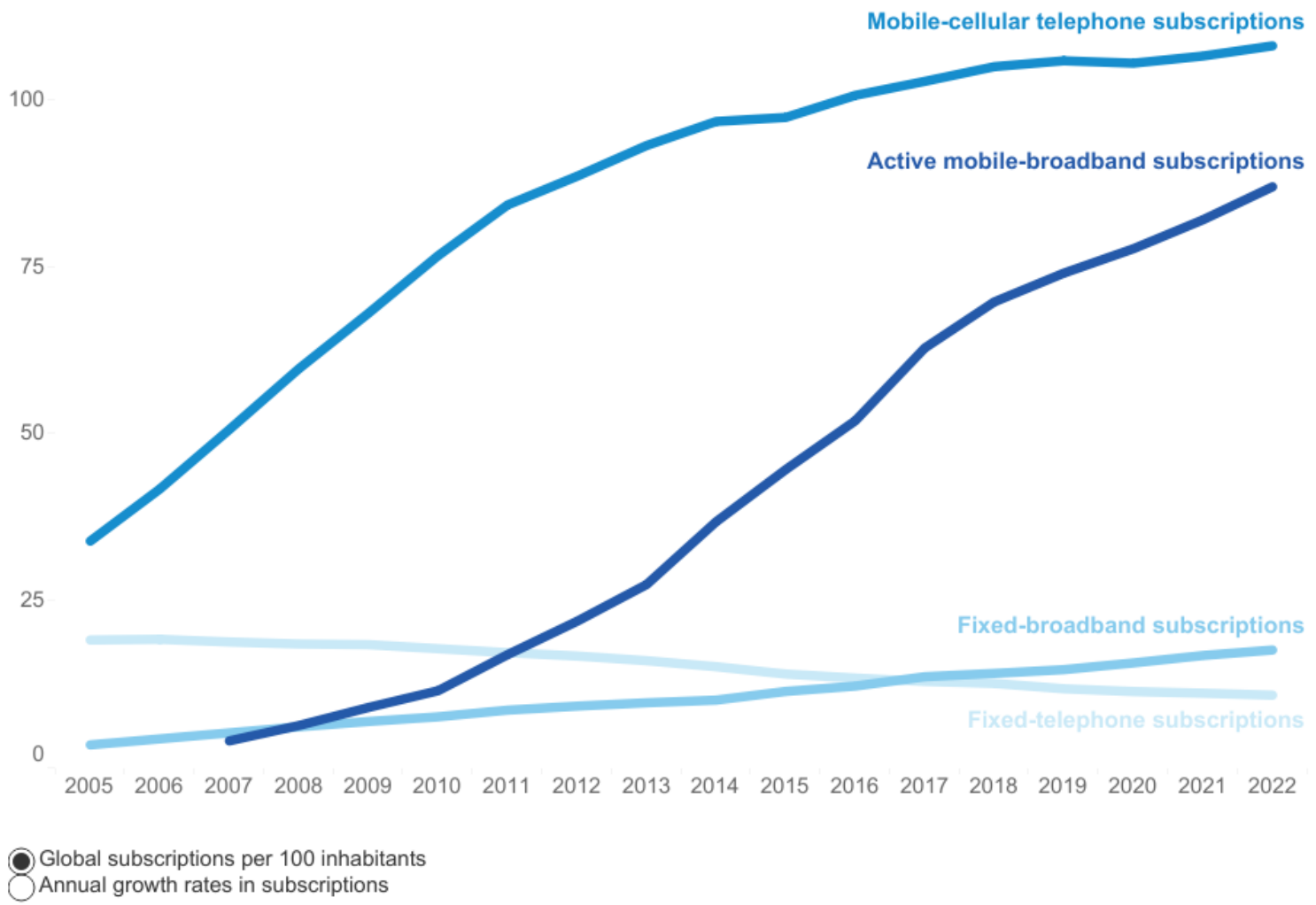
Note: The gender parity score is calculated as the proportion of women who use the Internet divided by the proportion of men. A value less than one indicates that men are more likely to use the Internet than women, while a value greater than one indicates the opposite. Gender parity is considered to be achieved if the value lies between 0.98 and 1.02.

Source: ITU

Subscriptions

- Mobile and fixed not strictly comparable
- Explosion in mobile subscriptions
- Mobile broadband approaching mobile cellular
- Fixed broadband increasing while fixed telephone in decline

Global subscriptions per 100 inhabitants by subscription type

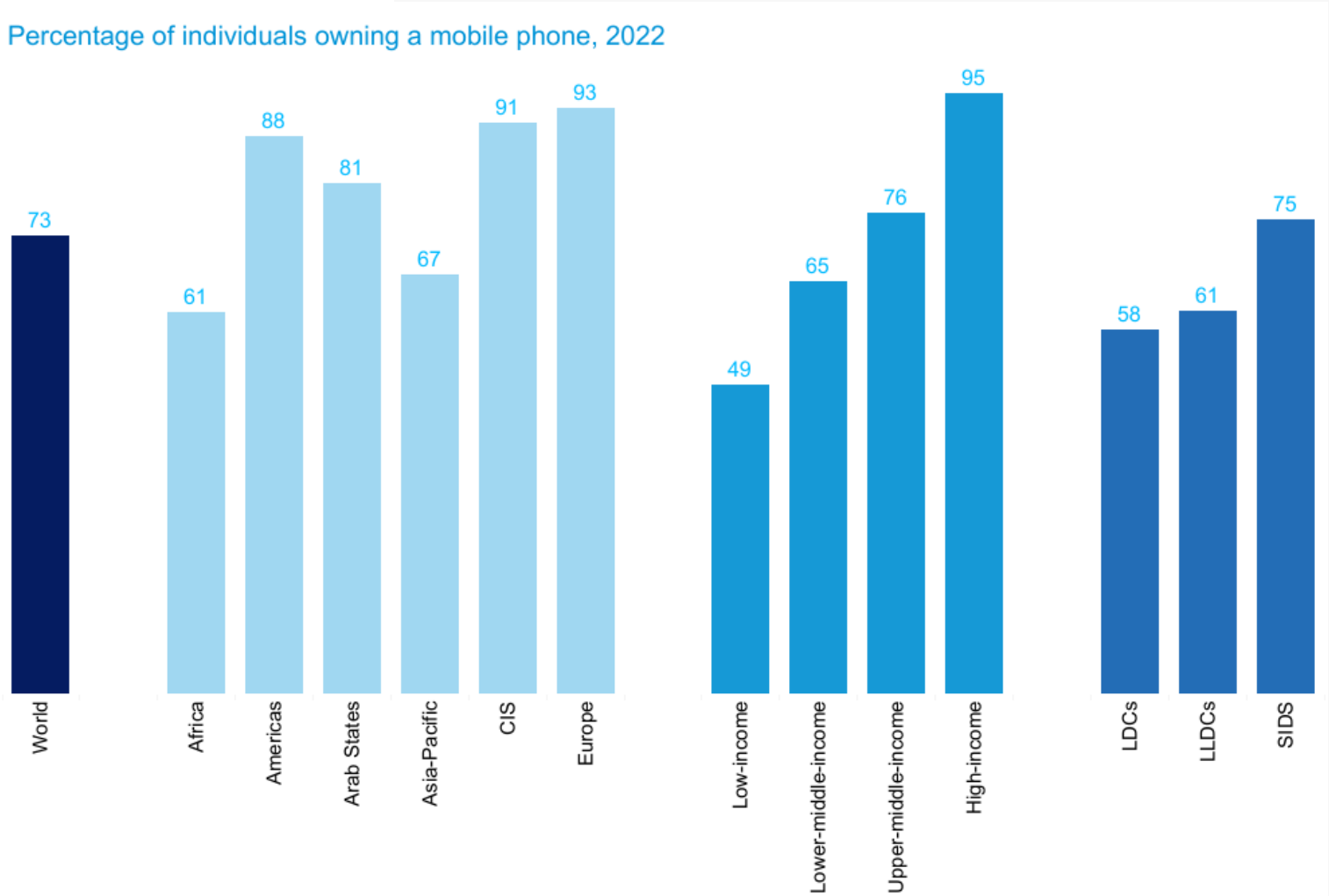


Note: The levels for fixed subscriptions are usually lower than for mobile subscriptions, because the former are usually shared within a household, while the latter are normally tied to an individual

Source: ITU

Mobile phone ownership

- Mobile phone most common tool to use the Internet
- Smaller gap than for Internet use
- But with a similar gender (dis)parity (but again with parity in the SIDS)



Note: Mobile phone ownership refers to individuals aged 10 or older.

Source: ITU

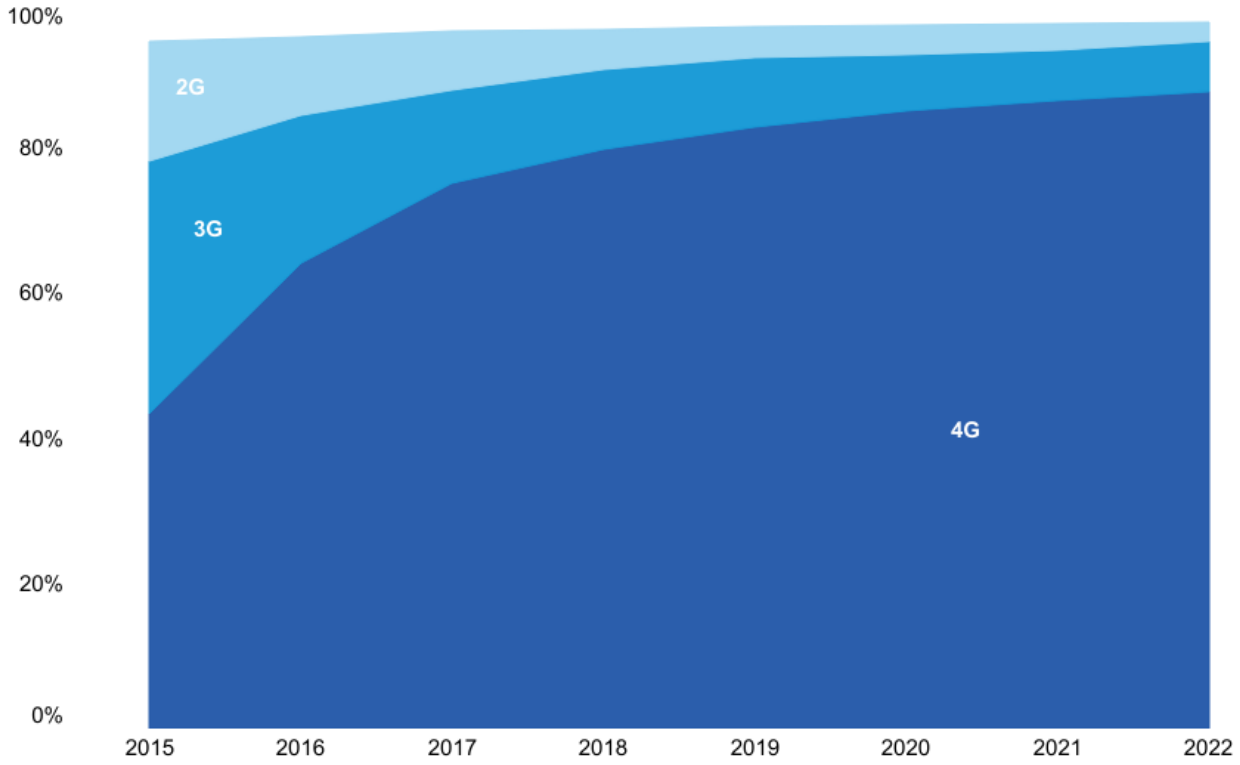
CONNECTIVITY

Access

Mobile network: high variation in availability and technology used

- Mobile broadband necessitates at least 3G tech;
- 88% of world's population covered by 4G networks (doubled between 2015 and 2022)
- Deployment of 5G in progress: around 19% of world population was covered in 2021
  - High-income economies leading deployment
- LDCs: limited availability

Population coverage by type of mobile network, 2015-2022



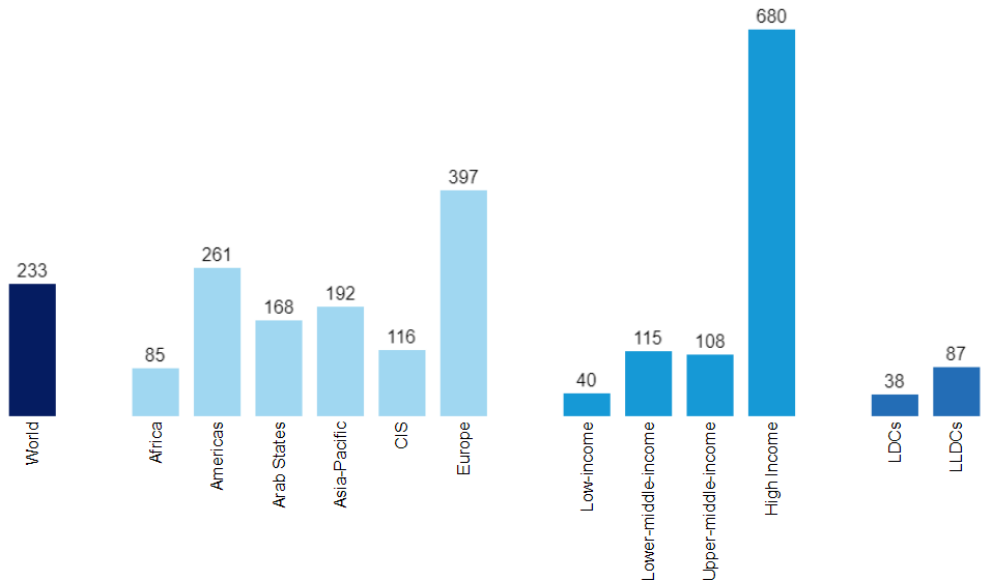
Note: The values for 2G and 3G networks show the incremental percentage of the population that is not covered by a more advanced technology network (e.g. in 2022, 95 per cent of the world population is covered by a 3G or above network, that is 7 per cent + 88 per cent).

Source: ITU

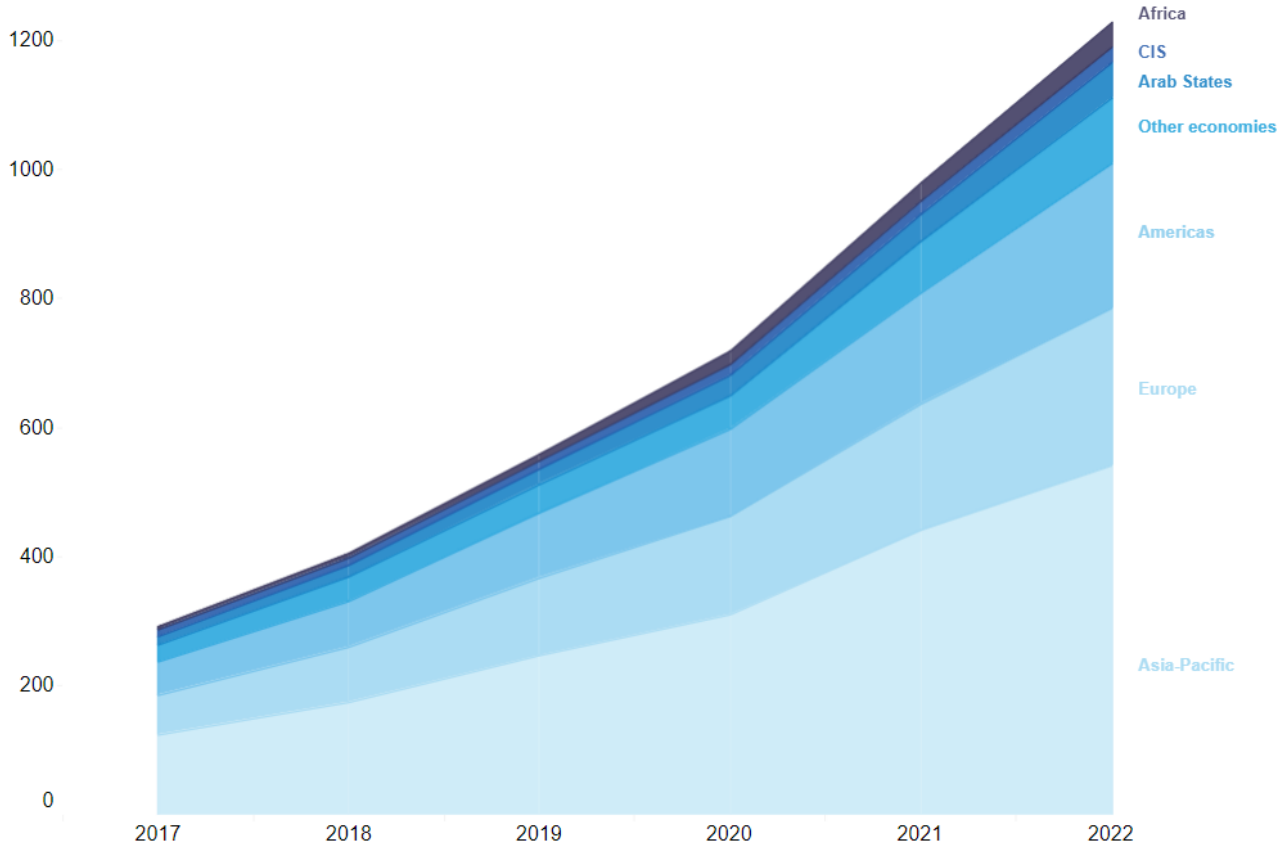
International bandwidth usage

- Measures capacity of international fibre and radio linkages (equipped or lit vs used capacity)
- High growth in response to pandemic
- Uneven distribution (+ hub effect)

International bandwidth per Internet user, kbit/s, 2022



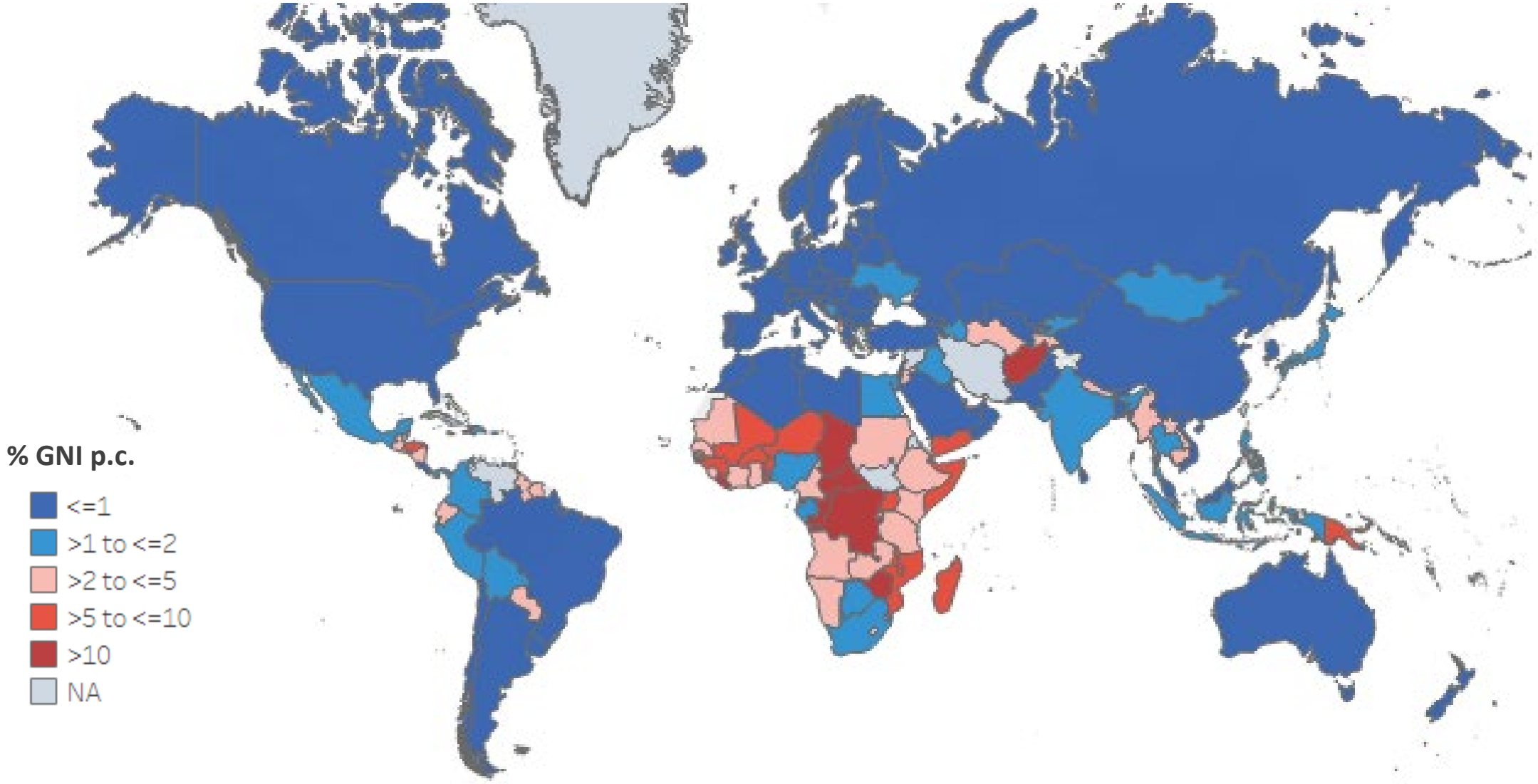
International bandwidth usage by region, Tbit/s



Note: 1 Terabit = 1'000'000 Megabit.

Source: ITU

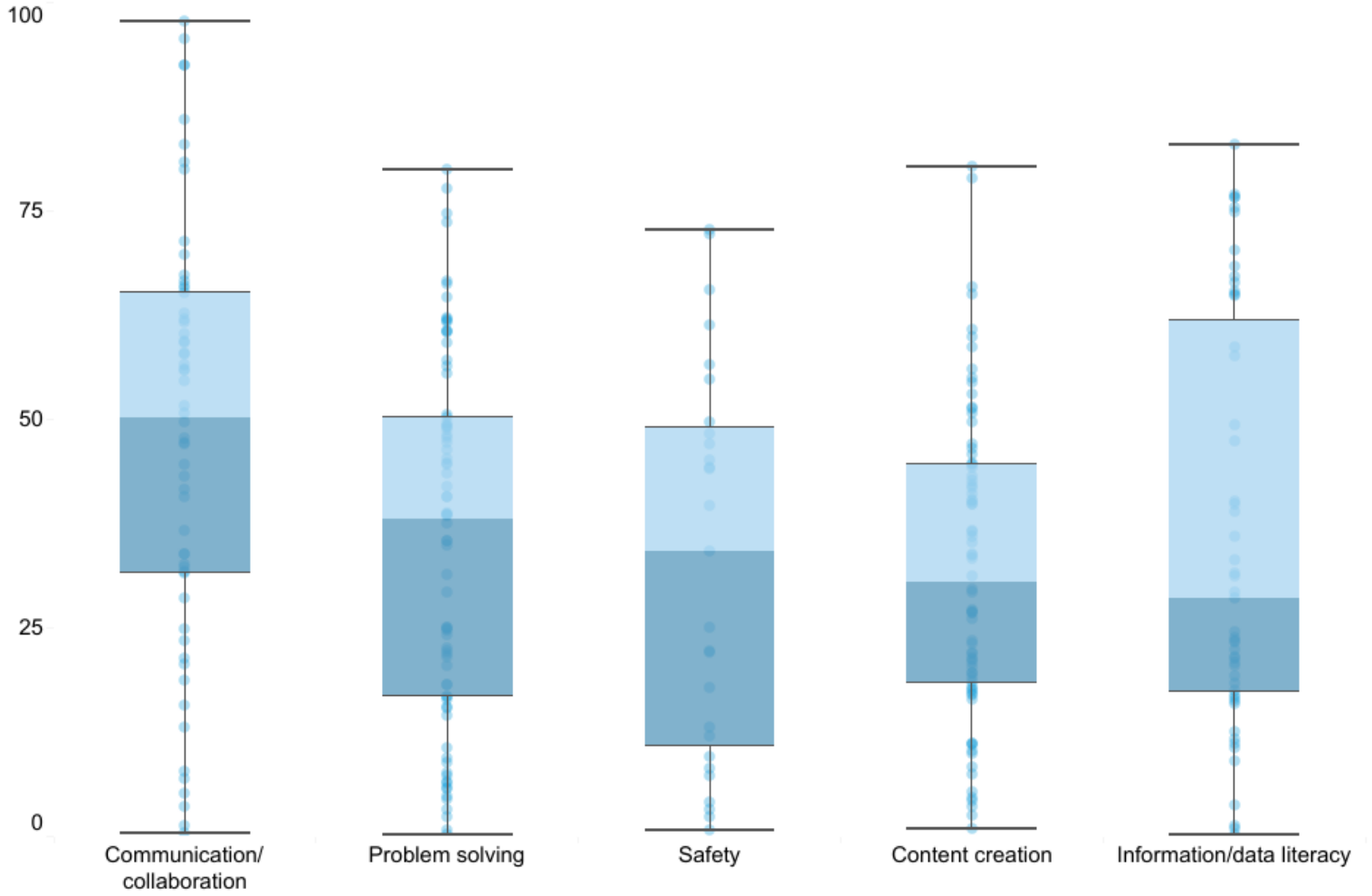
Data-only mobile broadband basket prices as % of GNI p.c., 2022



ICT skills

- Digital skills are crucially important, yet data remain very scant
- *Communication/collaboration skills* most prevalent
- Followed by *problem solving*, *safety* and *content creation*
- *Information/data literacy* had considerable variation between countries

Percentage of individuals with ICT skills, by type of skill, based on most recent data in 2019-2021 period



Note: Bars indicate the 25th, median and 75th percentile of all country values. Bottom and top lines indicate minimum and maximum values. *Communication/collaboration* is the average of sending messages (e.g. e-mail, messaging service, SMS) with attached files; making calls over the Internet; participating in social networks; and taking part in consultation or voting via Internet. *Problem solving* is the average of finding, downloading, installing and configuring software; connecting and installing new devices; transferring files or applications between devices; electronic financial transactions; doing an online course; and purchasing or ordering goods or services. *Safety* is the average of changing privacy settings; and setting up effective security measures. *Digital content creation* is the average of using copy and paste tools; creating electronic presentations; using basic arithmetic formula in a spreadsheet; editing online text, spreadsheets, presentations; and uploading self/user-created content. *Information/data literacy* is the average of verifying the reliability of information; getting information about goods or services; reading or downloading newspapers, etc.; and seeking health-related information. Data availability: 58 countries for *communication/collaboration*, 78 countries for *problem solving*, 27 countries for *safety*, 76 countries for *content creation*, and 51 countries for *information/data literacy*. In-scope ages may vary between countries. Source: ITU

4. To conclude

Concluding remarks

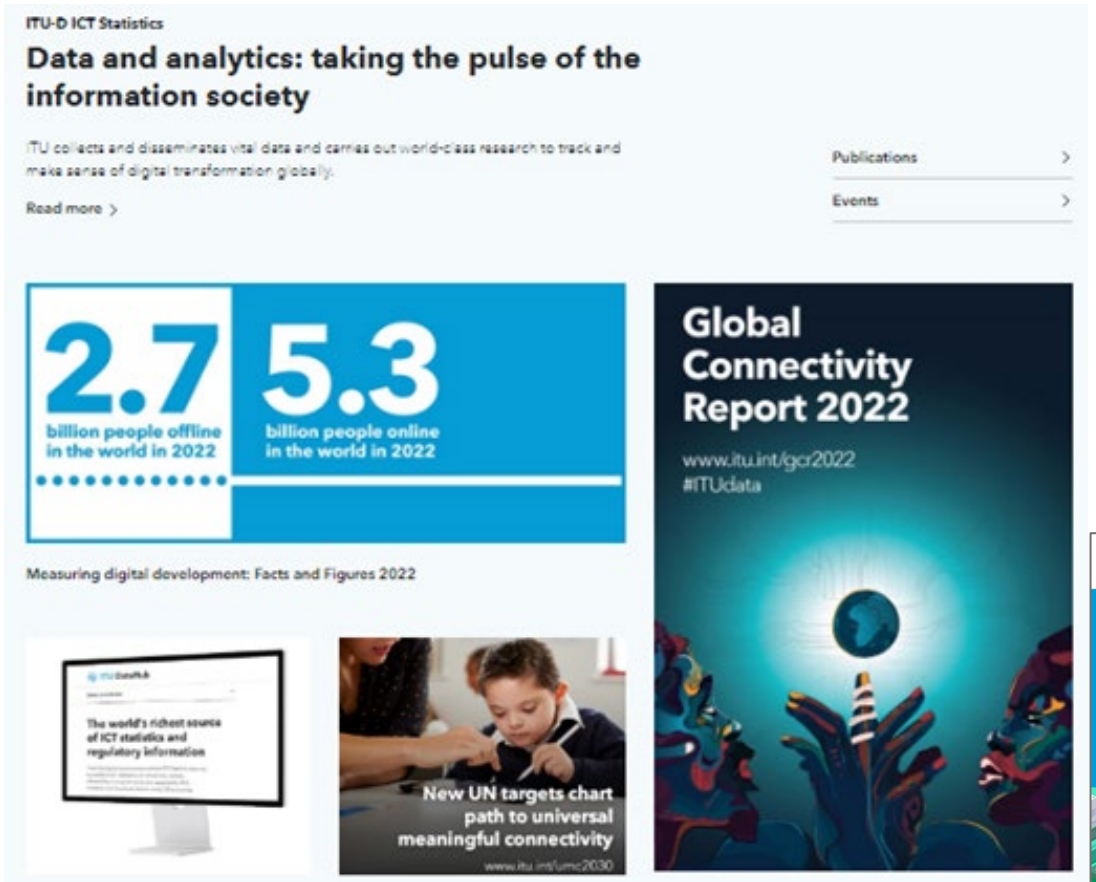
- ICT Statistics offer rich evidence on the connectivity landscape of countries
- Data shows the many dimensions of the persistent digital divide between and within countries
- Connectivity is a key enabler of sustainable development; digital as a driver of growth;
    - The need for digital entrepreneurship to accelerate meetings the SDGs
- To explore further heterogeneity within countries, “big data” can offer more granularity:
    - Access to more granular statistics: national level;
    - open data provides and alternative
- ITU Data is freely available, in line with UN Data Strategy;
- Always room for more research on connectivity drivers and their impact → in many domains!
    - Please share any research results or examples where data is used for policy monitoring
- Further details available at the ITU Statistics website

How to learn more about ITU's ICT statistics?

Join these free, own-paced online courses on ITU Academy

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

Latest ITU Stats Products



https://www.itu.int/itu-d/sites/statistics/

Thank you!

For questions and feedback: martin.schaaper@itu.int

The slides benefitted from contributions from ITU colleagues and experts, which is gratefully acknowledged.

For more information: http://www.itu.int/ict