ITU WTIS
GENEVA 2023

The ICT Development Index

Information Session

4 July 2023

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A brief history of the IDI

2009 – 2017

The ICT Development Index was introduced in 2009 and published until 2017

In 2017

An EGTI/EGH meeting adopted a revised set of indicators for the IDI.

A methodologically sound index could not be computed using the new indicators due to challenges in data availability, harmonization, and methodology.

2018 – 2020

Efforts to publish the IDI or to develop an entirely new index were unsuccessful.

2021 – 2022

In 2021, ITU Council decided that decision regarding the future of the IDI should be deferred to the Plenipotentiary Conference 2022, where Resolution 131 was revised and offered new guidance for resuming the IDI

2023

Development of a new IDI

Resolution 131: Process and index features

- Urgency to resume IDI
- Development through EGTI/EGH and formal consultations, facilitated by BDT Director
- Special EGTI/EGH meeting convened to resolve contentious issues
- Integrity of all ITU's statistical work must be preserved, in strict adherence to UN principles on good statistics
- Methodology submitted for approval by Member States and adopted if 70% of respondents approve it

If approved:

- Published without rankings – only scores
- Validity period: 4 editions
- In each edition, Member States can opt out (and re-join in subsequent editions)

Process

Completed in 2023

- Feb-Mar: ‘Zero draft’ prepared by Secretariat to inform EGTI/EGH consultation
- Mar-Apr: compilation of comments received, responses, and update of methodology (Version 1)
- Apr-May: Version 1 sent to Member States for comments
- May-Jun: compilation of comments received, responses, and update of methodology (Version 2)
- Jun: Special EGTI/EGH meeting convened to resolve contentious issues

Next steps in 2023

- Jun-Jul: ITU Secretariat to produce final version of the IDI methodology (Version 3) + statistical assessment by Joint Research Centre
- Aug-Sep: IDI methodology sent to Member States for approval. Two questions:
  1) Do you approve the methodology?
  2) Do you want to opt out from the 2023 edition?
- If at least 70% of responding Member States approve, IDI to be published in Nov-Dec.
- If methodology approved: Data for use in IDI sent to Member States for information in October

Steps to develop an index

Step

1. Develop the conceptual framework based on the stated objective
2. Identify potential indicators that capture those concepts
3. For each considered indicator, assess coverage, methodological soundness, quality of data

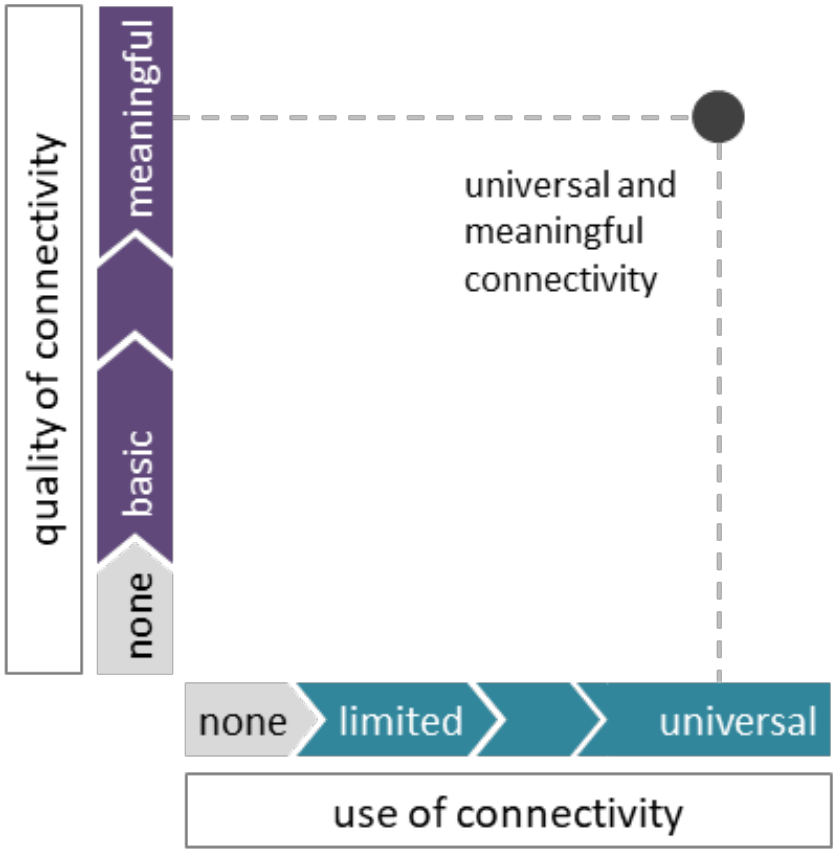
Based on this assessment, revisit the framework, concepts, and/or indicators (steps 1-3) if necessary

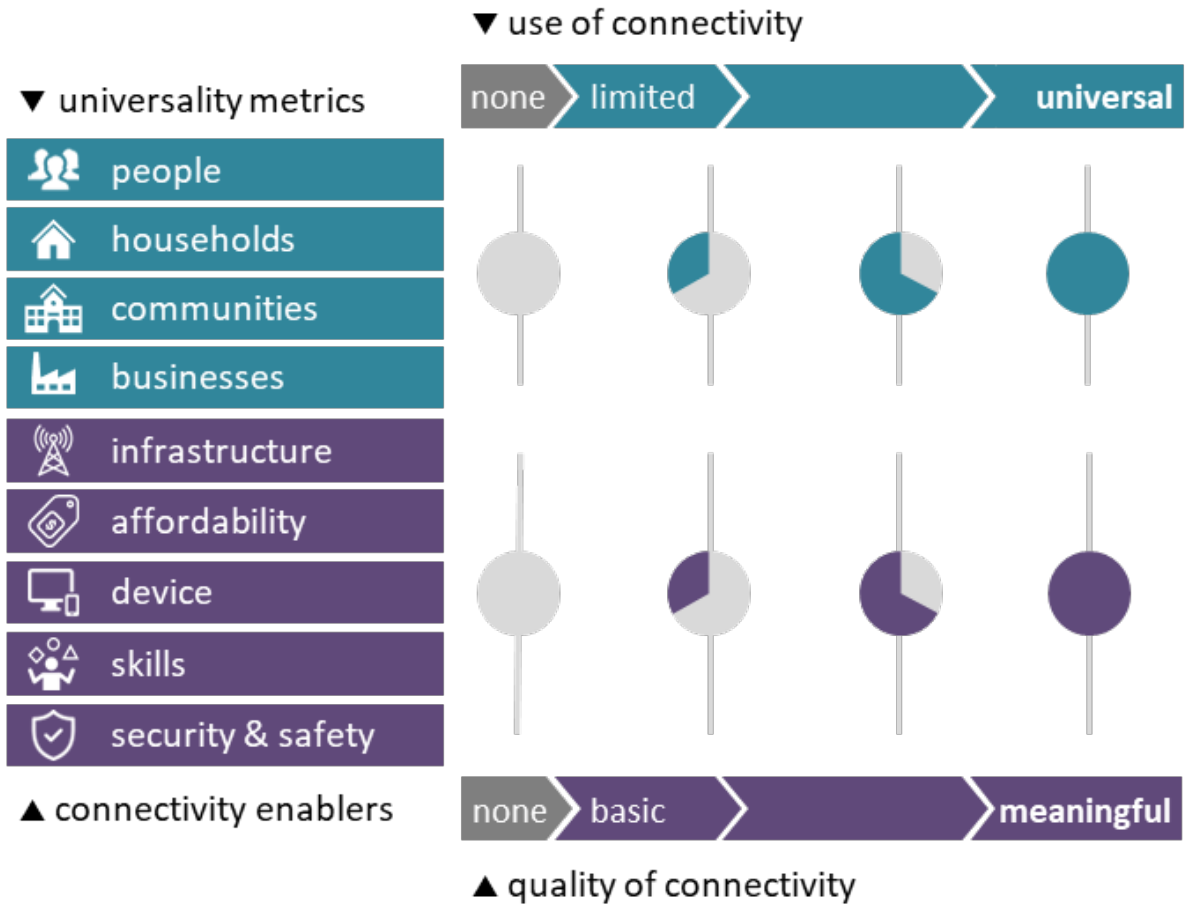
4. Identify and treat any outliers and missing data
5. Define the suitable normalization, weighting, and aggregation methods
6. Calculate the index
7. Assess the statistical and conceptual coherence of the index
8. Conduct sensitivity analyses and assess the impact of uncertainties on resulting scores

Based on the results of the sensitivity analysis, revisit steps 1-8 if necessary

9. Make sense of the data and validate the results
10. Communicate the results and underlying information

Conceptual framework: Universal and Meaningful Connectivity





The measurement challenge

ITU DataHub

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unesco Institute for Statistics

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Criteria applied

- Relevant to UMC concept
- Clear interpretation
- Official source
- Reliable
- Sufficient variation
- Available and timely

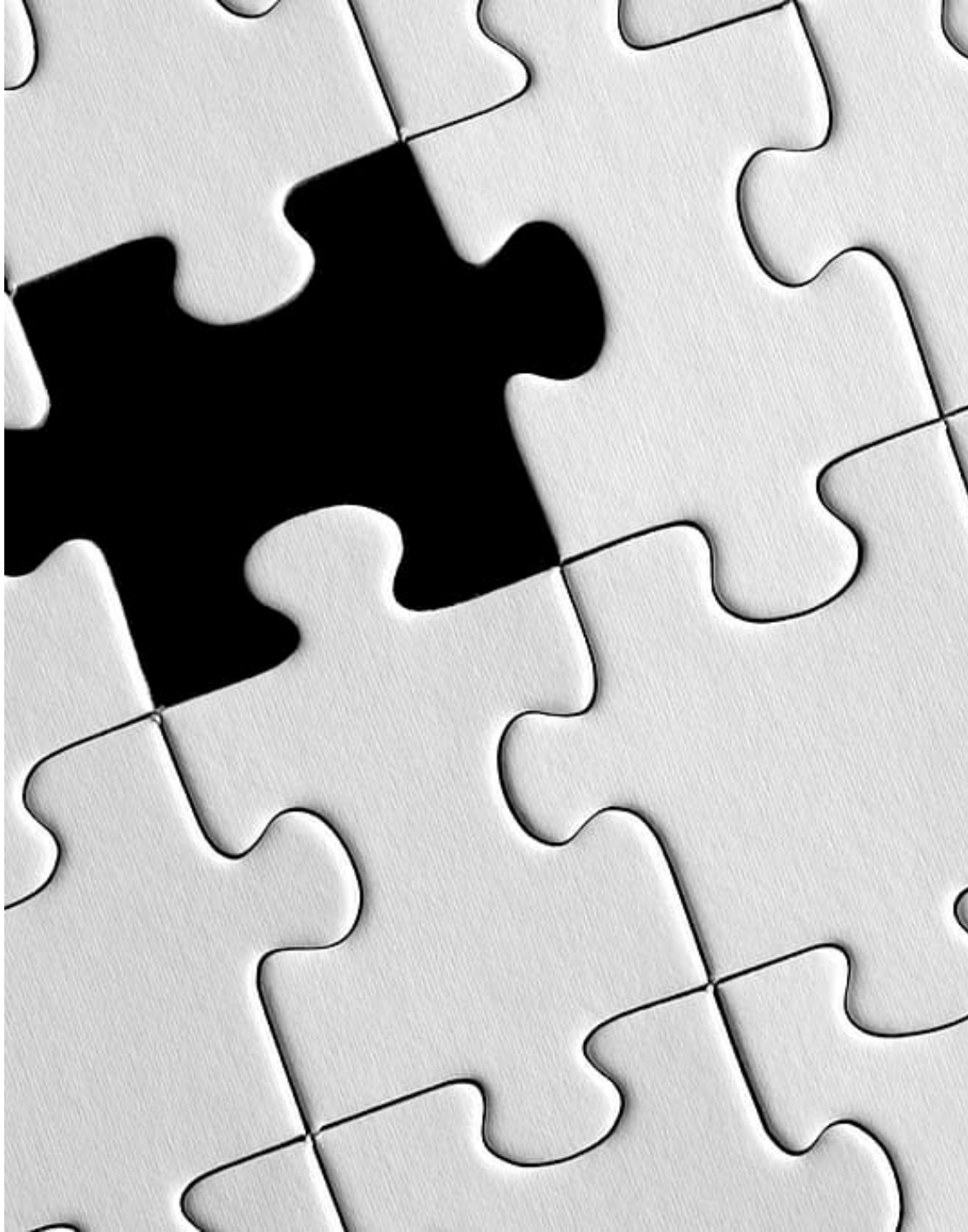
An iterative process

- Assessed a long list of relevant indicators collected by ITU and UN agencies
- Zero Draft – Discussed by EGTI/EGH
- Version 1 – Discussed by Member States
- Version 2 – Discussed by EGTI/EGH
- Agreed on a short list of indicators meeting the criteria

The measurement challenge: inherent trade-offs

- Exclude countries that have not conducted a household ICT survey recently or exclude HH indicators?
- Timeliness of data:
  trade-off between coverage and timeliness
- ICT sector evolves fast: data collection comes with a lag
  (e.g., 5G coverage)
- Different policy priorities
  across the world (one size fits all?)

Compromises needed!



The ICT Development Index

ICT Development Index (as of 14 June 2023)

Universal connectivity pillar

- Proportion of individuals who used the Internet (from any location) in the last 3 months (yHH7)
- Proportion of households with Internet access at home (xHH6)
- Active mobile-broadband subscriptions per 100 inhabitants (i911mw)
- Fixed broadband penetration

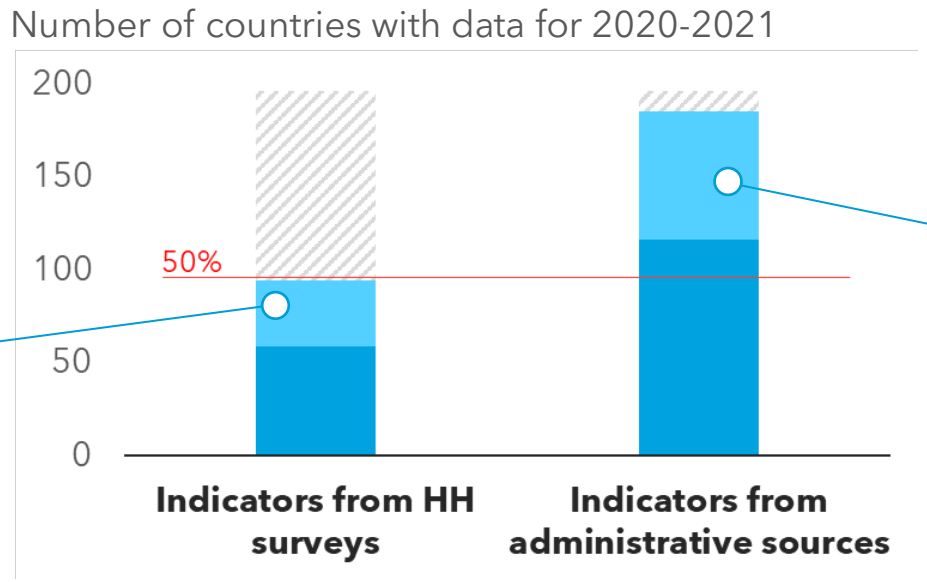
Meaningful connectivity pillar

- Mobile network coverage
  - Percentage of the population covered by at least a 3G mobile network (i271G)
  - Percentage of the population covered by at least an LTE / WiMAX mobile network (i271GA)
- Mobile broadband Internet traffic per mobile broadband subscriptions (GB) (i136mwi_subs)*
- Fixed broadband Internet traffic per fixed broadband subscriptions (GB) (i135tfb_subs)*
- Mobile data and voice high-consumption basket price (% of GNI per capita) (i271mb_high_ts_GNI)
- Fixed-broadband Internet basket price (as % of GNI per capita) (i154_FBB_ts_GNI)
- Percentage of individuals who own a mobile phone (xHH18)*
- ICT Skills

DEFERRED TO IDI2027

How to ensure a maximum number of countries included?

- Use a 2-year window to assess data availability (2020-2021)

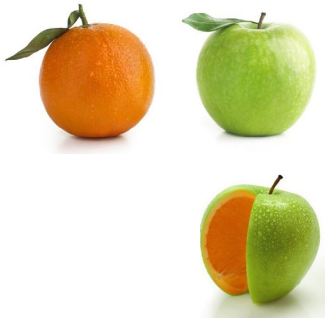


- *Individuals and households using the Internet* and *device ownership* included
- Insufficient data for *ICT Skills* and household-statistics-based *fixed broadband penetration*

- *Infrastructure, traffic, affordability,* well covered

There is insufficient data to include businesses and schools using the Internet

165 economies potentially covered
(having non-estimated data available for at least 50% of the 10 indicators)



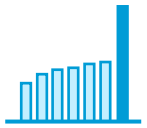
Apply statistical methods to

Ensure a statistically sound methodology

Treat outliers

Outliers become unrealistic targets; biases correlation analysis, affects normalization.

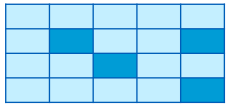
Winsorize where necessary.



Missing data

Estimate missing values using the most fitting model where possible. Depends on quality of other available indicators.

Estimates sent to countries for information.



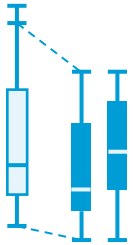
Goal posts

Thresholds & goalposts will be established at 100%, 95% or the 95th percentile, as reasonable.

Normalization

Indicators measured at different scale should be rescaled to 0-100.

Where reasonable, the min-max approach is used (with thresholds and goalposts). Traffic indicators log-transformed.



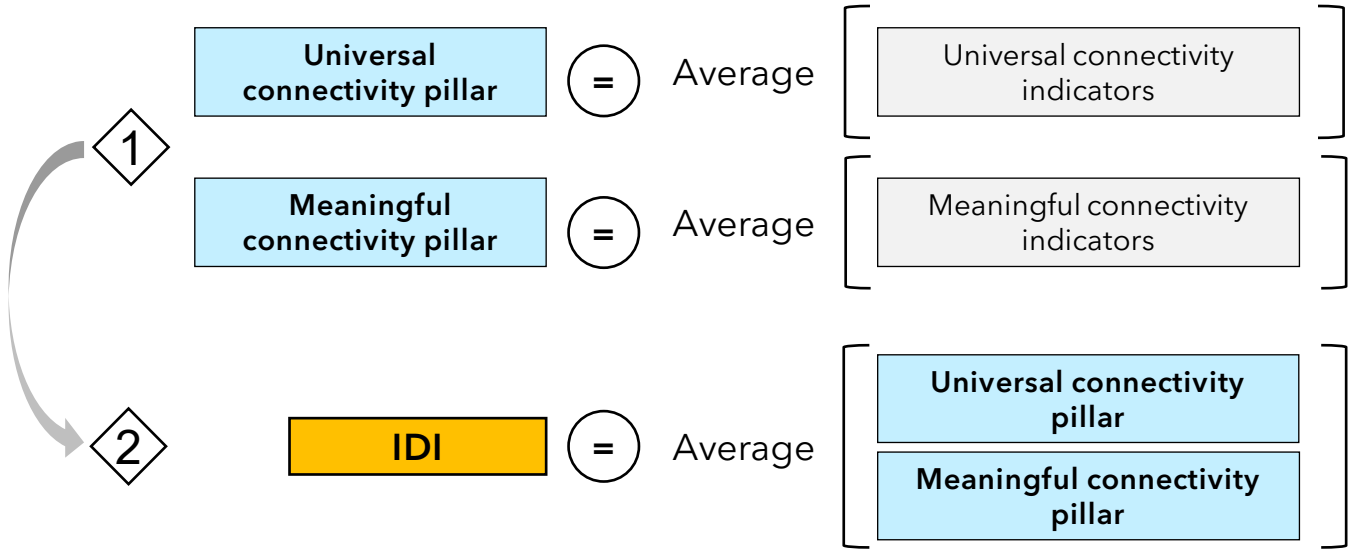
Correlation

Analyse correlation patterns to assess the statistical coherence of the framework.

Highlight trade-offs, complementarities, compensability between indicators.

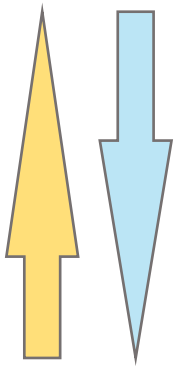
Weighting and aggregation

- In absence of clear conceptual and statistical justifications, neutral approach applying equal weights at each level of aggregation is preferred.
- Weighting scheme mirrors the two dimensions of the UMC concept.

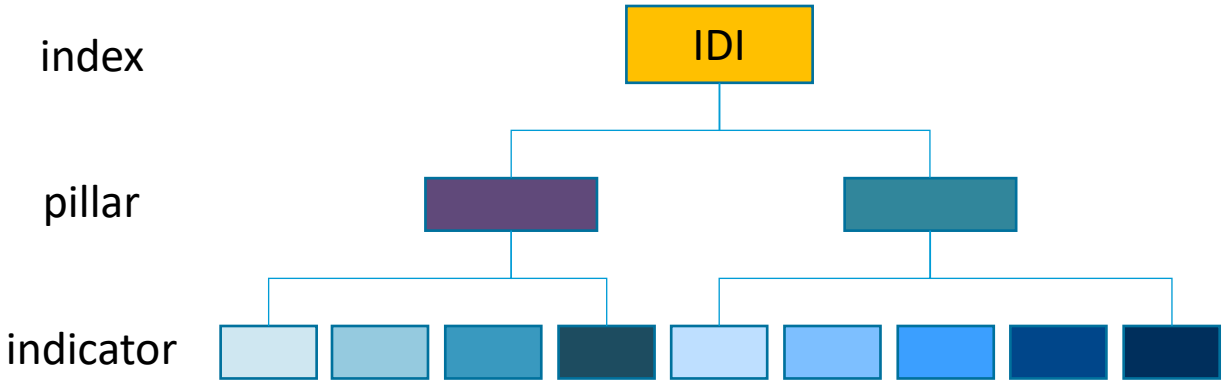


How to interpret an index and its limitations?

composite scores = simplification



richer details in individual indicators



Index scores are entry points

- Advocacy role
- High-level view of current state (and later, trends)
- Look for details in individual indicators for analyses

Recognize uncertainty

- An index is sensitive to the methodological choices
- Sensitivity analysis highlights how assumptions influence scores
- Uncertainty analysis indicates possible scores ranges

Thank you!