Measuring digital development

using big data

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Areas of work – big data

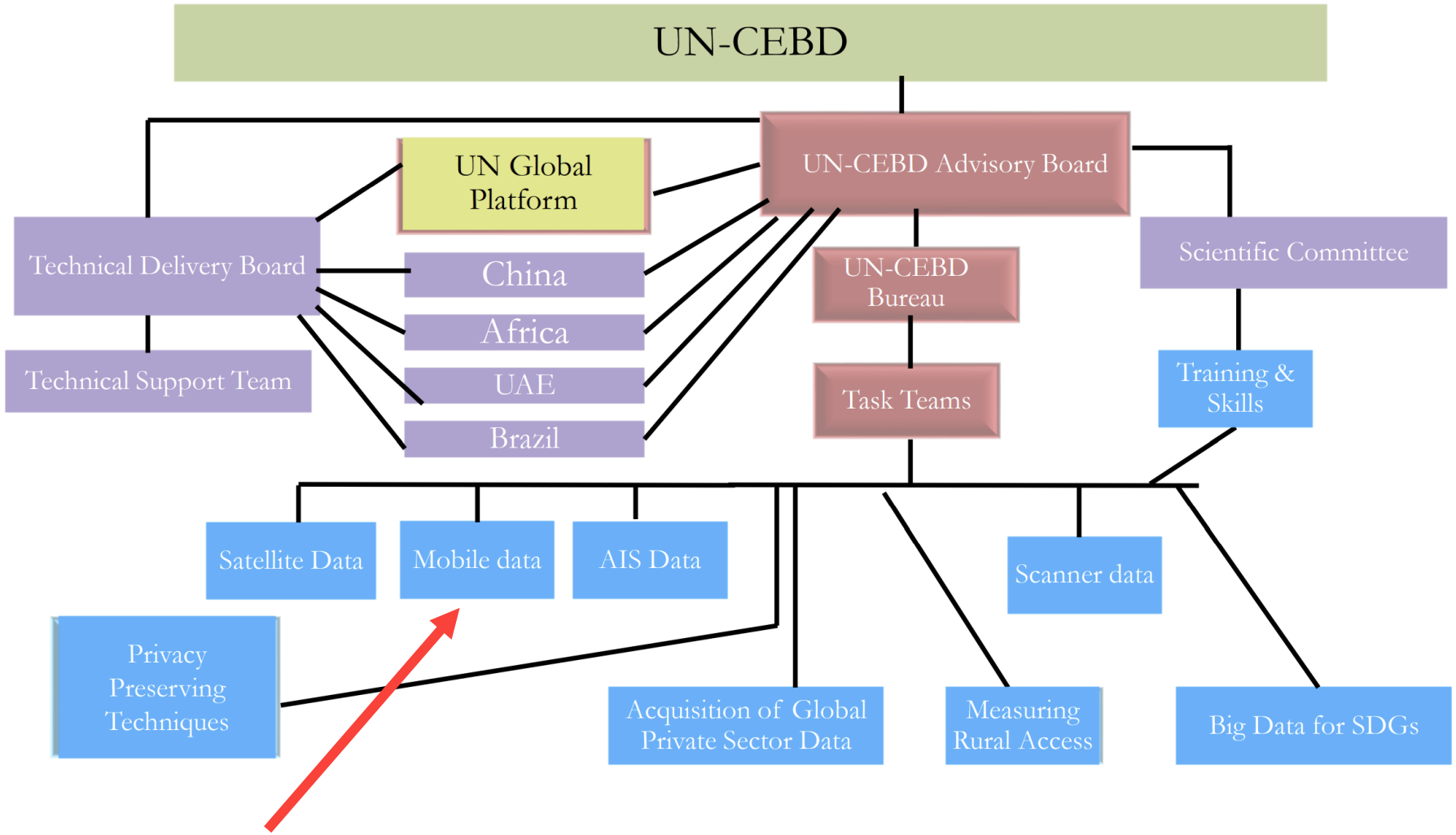
1. Using mobile phone data

(UN Committee of Experts on Big Data and Data Science for Official Statistics (UN-CEBD)

2. Using other data sources

(Partnership with University of Warwick, UK)

1) Using mobile phone data



1) Using mobile phone data

- ITU leads the UN-CEBD Task Team on mobile phone data (MPD)
  - ITU leads the sub-group on information society (Handbook on SDG ICT Indicators)
  - Paper "*Guiding principles to maintain public trust in the use of mobile operator data for policy purposes*" to be published in the Data and Policy Journal (https://www.cambridge.org/core/journals/data-and-policy)
  - UN World Data Forum 2021 – "*How to adhere to the fundamental principles of official statistics when compiling data during the Covid-19 pandemic*" (5 October 2021, 15h00-16h00) (*https://unstats.un.org/unsd/undataforum/)*

- Finalizing the Handbook on MPD for measuring the information society
- Training on MPD
  - piloted in Malaysia in May 2021
  - online training materials currently being finalized
  - will be made available in the ITU Academy

(https://academy.itu.int/main-activities/capacity-development/big-data-and-statistics)

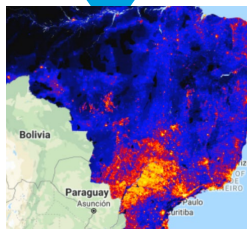
2) Using other data sources - Mapping the World's Offline Population

- **ITU Partners:** University of Warwick, Giga, UNICEF (June to August 2021)

- **Use case:** Supporting Giga's mission to connect all schools by 2030, the project provides a sound rationale for prioritization of schools to be connected as community hubs; the decision criteria can be tuned depending on national realities and priorities and the model can provide a customized information for connecting more people sooner, optimizing deployment costs and impact.

- **Goal:** a) Develop a model to estimate the offline population living in close proximity to schools. The estimates would be used to prioritize schools to be connected. b) To be able to estimate country-level data on Internet use by aggregating connected population around the schools.

2) Using other data sources – Mapping the World's Offline Population



Global Human Modification

Nighttime

Vegetation Index

Google Earth Engine

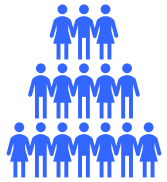
Ookla Internet Speedtest

OOKLA SPEEDTEST

Cell Tower Data

unwiredlabs OpenCellid

Facebook Users

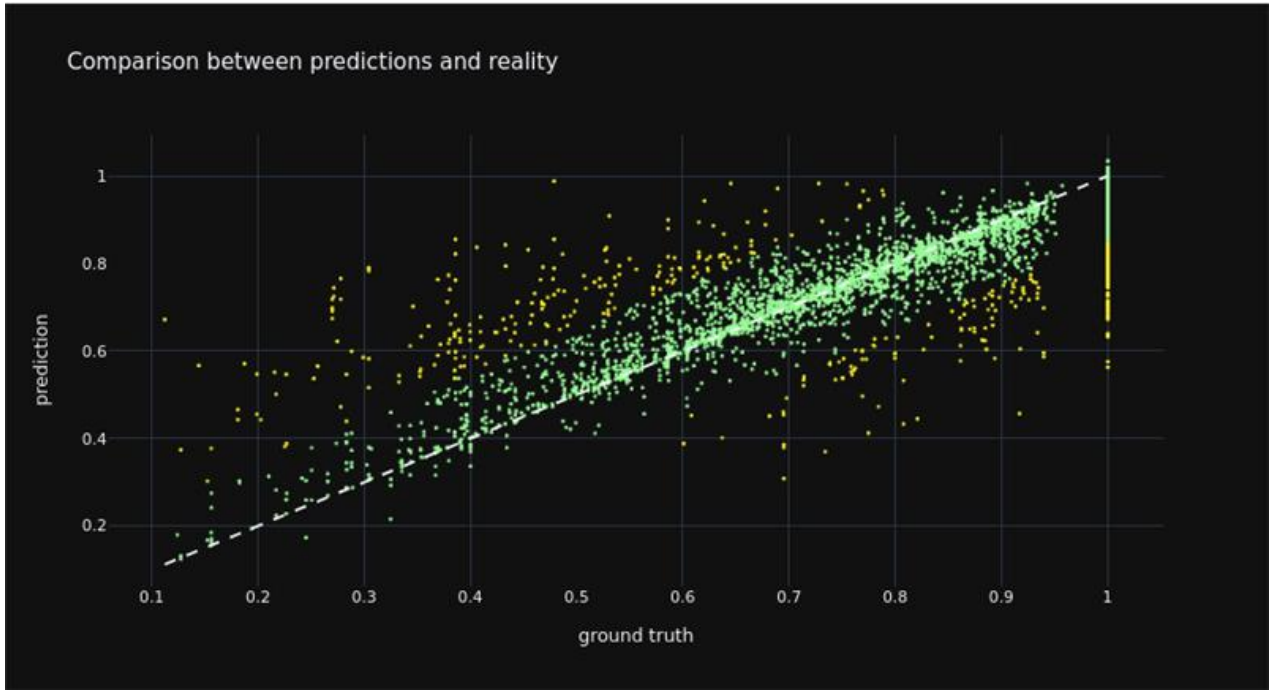


Population WorldPop

NSO household survey data

2) Method

- Train and test machine learning models using data from Brazil
- Identify important features that will help measure connectivity
- Test resulting machine model – (Thailand and Philippines)



2) Next steps

- Train multi-national model
  - get household survey microdata from as many countries as possible
  - have a model that can be applied in countries where there is no survey data
- Explore other datasets that can be used to refine the model

- Present results in the EGTI/EGH meeting

Conclusion

- Use the online training materials when it gets available
- Explore use of mobile phone big data
- Share microdata from household surveys (from different regions) to help train the machine learning model(s)

Contact indicators@itu.int

Thank you!

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