

# **8th ITF TRANSPORT STATISTICS MEETING**

**Paris, 19-20 September 2022**

## **UN-CEBD Task Team on Mobile Phone Data: a multi-stakeholder approach**

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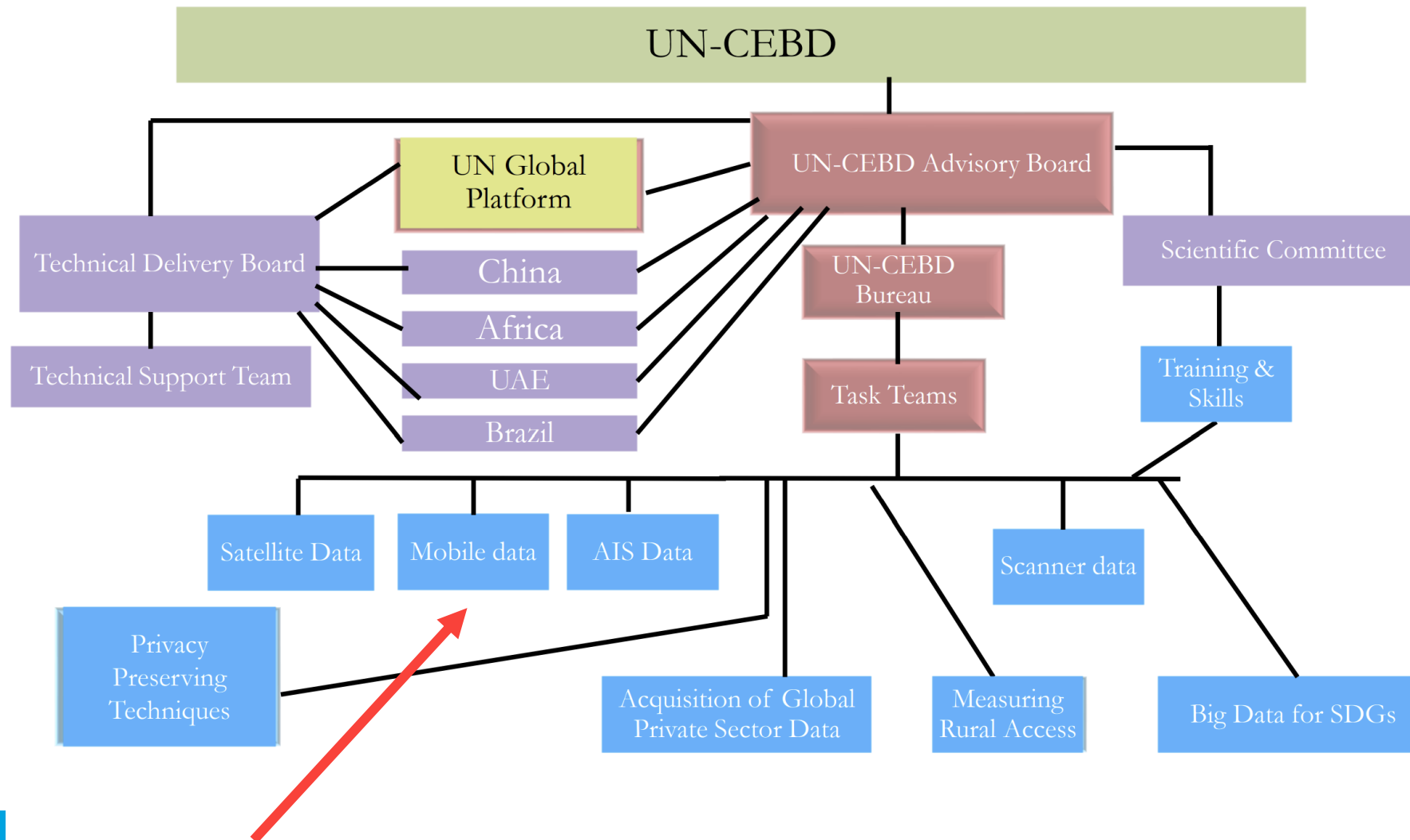
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# Outline

- **Introduction (task team, sub-groups)**
- **Sub-groups and areas of focus**
- **Methodologies**
- **MPD for transport statistics**

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



# UN-CEBD Task Team on Mobile Phone Data (MPD)

- Established since the inception of the UN Committee of Experts on Big Data and Data Science for Official Statistics (UN-CEBD)
- Explore the use of mobile phone big data for the different areas of statistics and develop methodologies
- Composed of around 50 individual members/ 30 entities - international and regional agencies, countries, academia, private agencies/companies
- Meets (virtually) once a month to discuss issues related to the deliverables, events, and other activities

## Lead: ITU

## Members:

- Brazil
- Colombia
- Gambia
- Georgia
- India
- Indonesia
- Italy
- Japan
- Korea
- Malaysia
- Mexico
- Netherlands
- Oman
- Philippines
- Romania
- Saudi Arabia
- United Arab Emirates
- EU JRC
- Eurostat
- IMF
- IOM
- UNFPA
- UNGP Jakarta
- UNSD
- World Bank
- OECD-ITF
- UN-ECE
- Flowminder
- GSMA
- Positium
- Telenor

# Sub-groups and areas of focus

**1) Tourism statistics**  
(lead: BPS Indonesia)

**2) Migration statistics**  
(Lead: GeoStat, Georgia)

**3) Census and dynamic population** (lead: Positium)

**4) Displacement in disaster context** (lead: University of Tokyo)

**5) Information society indicators** (lead: ITU)

**6) Transport and commuting statistics**

**7) Training and capacity building**

# Activities of UN-CEBD MPD Task Team

## 2022:

- Big data conference – November 2022
- Awareness raising training course – Q42022
- Release of Guidelines – Nov 2022
- MPD Promotional video – June 2022
- Mobile Tartu – 29-30 June 2022
- UNECE – MPD for Transport Statistics - 15 June 2022
- WSIS Forum 2022 – MPD for information society session – May 2022
- EXPO2020 – MPD session, Dubai, January 2022

## 2021:

- Data and Policy Journal 2021 – Guiding principles for MPD
- UN World Data Forum 2021 – Oct 2021
- Road to Expo2020 – Nov 2021
- Invited Paper Sessions on the use of MPD for official statistics at the ISI (July)
  - Use of Mobile Phone Data to measure SDG ICT Indicators
  - Exploring Statistics on Tourism, Migration, Population and Displacement by Using MPD
- Measuring the information society using new data sources, WSIS Forum 2021 (May)
- Oman's Experience in Utilizing MPD for official statistics (April)
- MPD for official statistics – addressing data accessibility, privacy and regulatory issues (UN ESCAP StatsCafé, April)

## Previous events:

- 6th International Conference on the Use of Big Data 2020 (hosted by Korea)
- Mobile Tartu Conference, Asia Pacific Statistics Week 2020
- ITU World Telecommunication/ICT Indicators Symposium 2020
- Conducted workshops in Colombia (2017), Rwanda (2019) and Indonesia (2019)
- Organized the International meeting on measuring human mobility in Georgia (2019)

# Five key principles for maintaining public trust

- when using of mobile phone data:

1. Necessity and proportionality
2. Professional independence
3. Privacy-conscientiousness
4. Commitment to quality
5. International comparability

In general, processing MPD for statistical purposes shall be subject to:

- appropriate safeguards,
- privacy best practices, and
- relevant laws, including GDPR, to protect the rights and freedoms of the data subject.

Those safeguards shall ensure that technical and organizational measures are in place to comply with the principle of data protection. Those measures may include, but are not limited to, pseudonymization. Pseudonymized data remains personal data, and relevant data protections laws continue to apply.



# Methodologies



Handbook on the Use of Mobile Phone Data for Official Statistics – released in September 2019 (v1)

*Applications*

*Data sources*

*Concepts/Methods/processing/data quality assurance*

*Data access and partnership models*



Guidelines on the Use of Mobile Phone Data for Official Statistics – to be available

November 2022 (v2)

▪ *Elaboration of previous version*

▪ *Cover six areas of statistics*

▪ *Includes use cases*

▪ *Will be the basis of the training materials to be prepared by the MPD task team*



# Example: Guideline on Big Data for measuring the SDG Information society indicators (Lead: ITU)

1. Introduction
2. Background
3. Access and preparations
4. Data sources (description of mobile operator data, quality assurance of raw data)
5. Reference data (local admin units, world population, cell data, digital elevation, household survey data)
6. Data processing (models, data protection guidelines)
7. Calculating the indicators (rationale, definition, indicators calculation, quality assurance)
8. Quality assurance
9. Conclusions

- with experiences and examples from country pilots



# 2022/23 – Planned activities of the MPD Task Team

## Publish

Launch of the six Guidelines - November 2022

Launch of the awareness raising course - November 2022

## Prepare

Prepare training materials based on the Handbooks

## Produce

Produce promotional video on the work of the task team

## Conduct

Conduct training workshops to support regional capacity development, in collaboration with UN- CEBD Regional Hubs

## Organize

Organize events to disseminate the MPD Handbooks and raise awareness

# Sub-group on MPD for transport statistics

## Members:

- World Bank
- The University of Tokyo
- Statistics Italy
- UC Berkley
- Indonesia Statistics
- UNSD
- Positium
- Eurostat
- UNECE
- OECD-ITF
- Started work in 2020
- Outline of guidelines
- Early draft of Guidelines available (needs more input, country contributions, experiences)
- Mandate of the sub-group until 2023

# Guidelines on MPD for Transport Statistics

- Introduction (Purpose and advantages of using MPD, Target audience, link with SDG indicators)
- Applications/Use cases of Mobile Phone Data (country examples needed)
  - Transport and mobility
  - Transport and urban planning
  - Commuting statistics
- Data Sources/reference data (country examples needed)
  - Mobile phone data (data access, etc)
  - Traditional transport data
  - Sensor Data
- Methods (country examples needed)
  - Data processing
  - Integration with other data sources
  - Trips generation
  - Origin and destination generation
  - Transport mode detection
  - Routing
  - Evaluation and validation
- Quality assurance (country examples needed)
  - Raw data
  - Indicators based on MPD
  - Limitations of MPD

**Economic Commission for Europe  
Working Party on Transport Statistics**

**Geneva, 15–17 June 2022**

# MPD for transport statistics – way forward

- **Harmonize** methodologies on data gathering and data processing
  - Experiences for methodology and data collection (example: Licensed vs unlicensed spectrum, use of SIM cards, e-SIMs, agencies collecting the data)
- **Finalize** the Guidelines on MPD for transport statistics – **Q4 2022**
  - How is your country using big data to complement or supplement traditional sources?
  - What are the benefits/limitations of MPD, particularly in terms of measuring quality?
  - Do you have examples of using MPD for transport statistics that could be integrated into a forthcoming guidelines?
- **Need members** in the sub-group on transport statistics (countries/experts to be involved)

# Strengths and limitations of Mobile Phone Data

## Strengths

- High penetration globally
- High quality data
- Near-real-time
- High granularity
- Already generated by organisations

### **Engagement of multiple stakeholders is important:**

- Sharing experiences and methodologies
- Avoiding duplication
- Efficient use of resources
- Targeted pilots

## Limitations

- Precision limited by cell tower density
- Representativeness of mobile phone subscriptions
- One subscription may not represent one individual, and vice versa
- Access requires agreement with MNOs
- Large datasets requiring suitable data infrastructure



# 7<sup>th</sup> International Conference on Big Data

## 7-11 November 2022



INTERNATIONAL  
CONFERENCE  
ON  
**BiG DATA**

**Global Challenges and the Importance  
of Relevant and Timely Data**

7th International Conference on  
Big Data and Data Science for Official Statistics

📍 Yogyakarta, Indonesia

📅 7-11 November 2022

🐦 #UNBigData2022

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**Please contact: magpantay[at]itu.int**

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

**<https://unstats.un.org/bigdata/task-teams/mobile-phone/index.cshtml>**

**Thank you!**