

MOBILE PHONE DATA (MPD)

Mobile Phone Data or Mobile Positioning Data (MPD) is the data generated by mobile devices which contains information of event data that includes a subscriber identifier, time attribute and location.

Source: Handbook on the Use of Mobile Phone Data for Official Statistics



TYPES OF DATA

Active

Generated by positioning the mobile subscriber through device- or network-centric methods, as well as via satellite (i.e. GPS).

Mobile Positioning System

Billing memory; hand-over between network cells, Home Location Register

- Accurate positioning
- High granularity, detailed user behaviour data

- Sporadic coverage, dependent on user activity
- Require individual agreement

Passive

Automatically generated by the mobile network as it tracks the connection status of mobile devices including timestamps, user identifiers and transaction specifics.

Cell activity, Call Detail Record (CDR) and Probes/signalling

Calls, messaging, internet usage, SMS, call log

- Continuous coverage in data points created
- Provide near real-time tracking
- Greater coverage of subscribers identifier

- Less detailed
- Not routinely stored for long period of time

DEFINITION

DATA SOURCE

EXAMPLE

PROS

CONS

MPD FOR OFFICIAL STATISTICS



Dynamic Population Mapping

Tracking resident, daytime, de facto populations, and monitoring population redistributions.



Tourism Statistics

Measuring internal and cross-border tourism movements.



Migration Statistics

Enhancing timeliness and granularity of migration data.



Displacement and Disaster Statistics

Estimating displacement and transportation disruption in disaster-affected areas.



Commuting/ Transport Statistics

Analyzing travel patterns and infrastructure use.



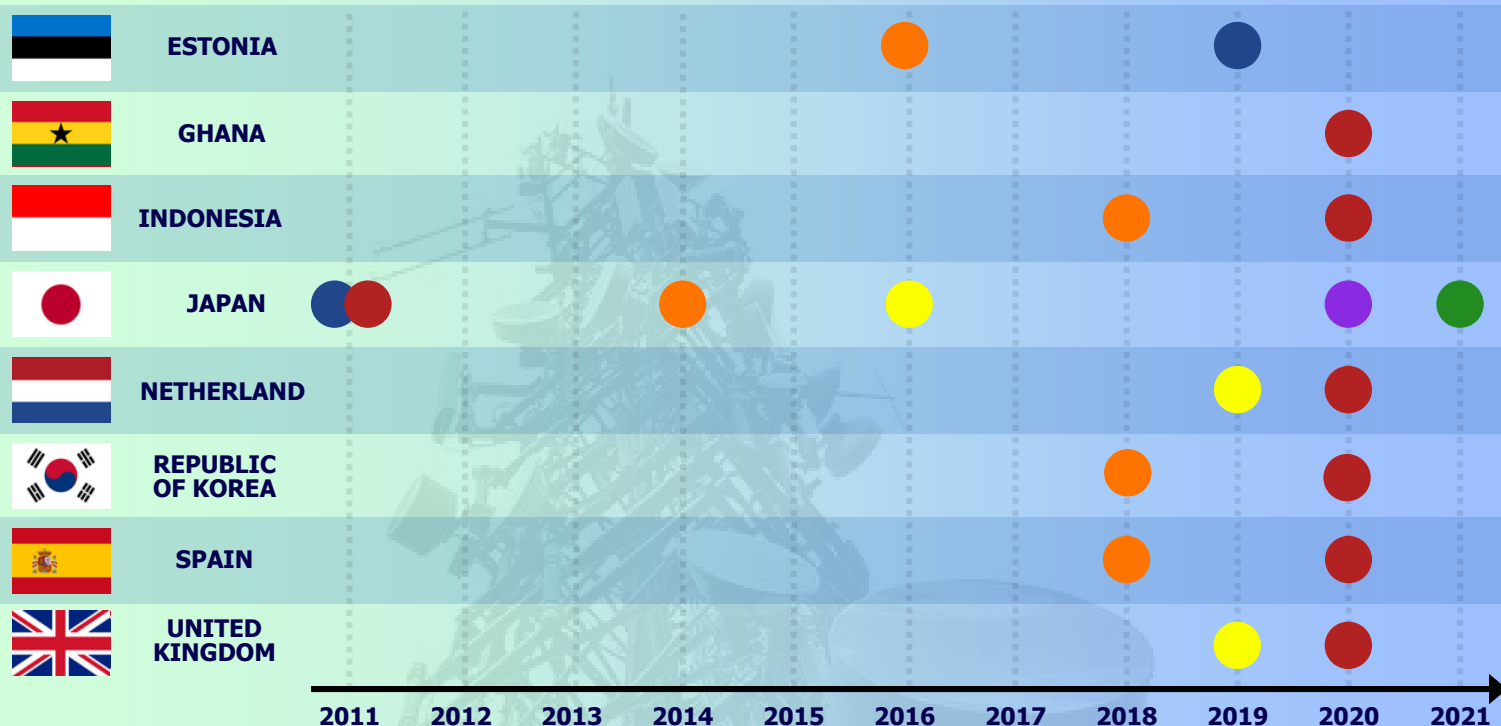
Information Society Indicators

Measuring ICT-related indicators to monitor progress on Sustainable Development Goals (SDGs).

Notes : These applications utilise the near real-time and comprehensive nature of MPD to provide timely, accurate and detailed statistical insights across various domains.



UTILISATION OF MPD FOR OFFICIAL STATISTICS IN SELECTED COUNTRIES



Indicator :

- Dynamic Population Mapping (Blue dot)
- Tourism Statistics (Orange dot)
- Migration Statistics (Green dot)
- Displacement and Disaster Statistics (Red dot)
- Commuting/Transport Statistics (Yellow dot)
- Information Society Indicators (Purple dot)

Notes : MPD also used for experimental purposes by other countries such as Brazil, Canada, Georgia, Germany, Oman and Slovakia.

LIMITATIONS

Precision limited by cell tower density

Access requires agreement with MNOs

One subscription may not represent one individual, and vice versa

Representativeness of mobile phone subscriptions

Large datasets requiring suitable data infrastructure

PUBLICATIONS ON THE UTILISATION OF MPD



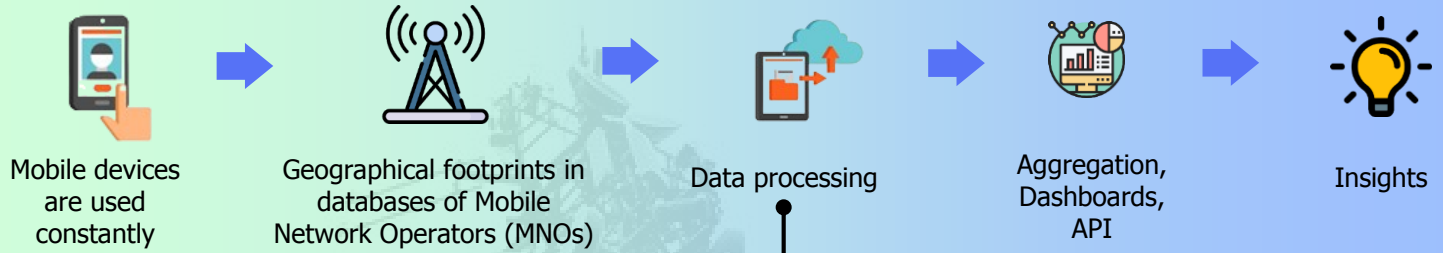
WHAT'S NEXT?

Recognized as one of the most promising big data sources, MPD provides near real-time, detailed insights into human mobility patterns, which is crucial for informed policy-making. The **Department of Statistics Malaysia (DOSM)**, in collaboration with the **Ministry of Tourism, Arts & Culture (MOTAC)** and **Malaysian Communications and Multimedia Commission (MCMC)** is currently leveraging Mobile Phone Data (MPD) to enhance tourism statistics in Malaysia. Pilot projects will be conducted to refine methodologies, defining clear specifications and validation processes to ensure quality assurance (QA). QA is a continuous process throughout the MPD data lifecycle, essential for ensuring high-quality official statistics.

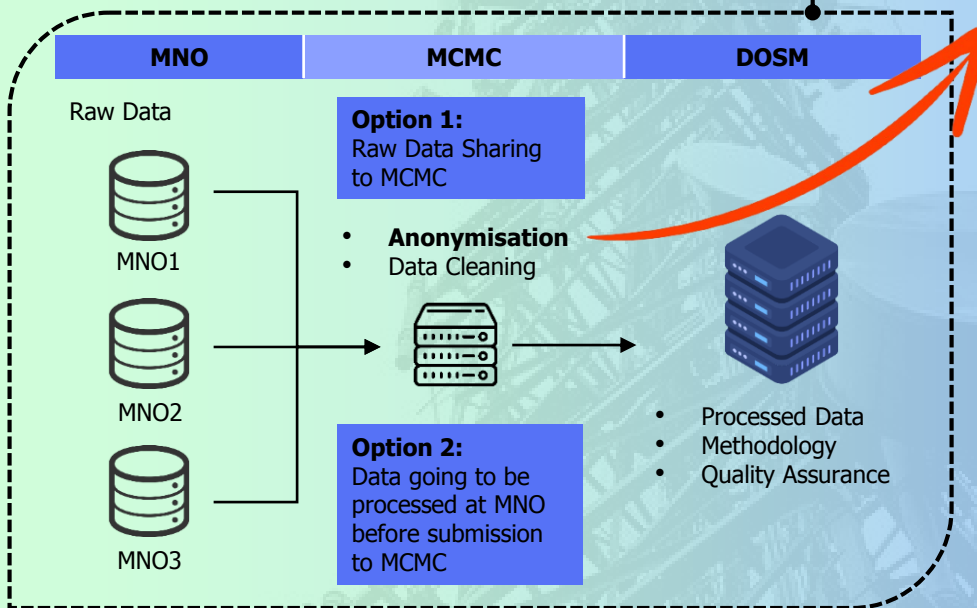


PROPOSED FRAMEWORK AND METHODOLOGY

Solution Overview – Mobile Positioning Data



Mobile Positioning Data (MPD) Eco-System



WHAT IS ANONYMISATION?

Anonymisation is the process of removing or altering personal data so that individuals cannot be readily identified from the data. This is crucial in protecting privacy and ensuring compliance with data protection regulations



Anonymisation helps in:

- **Protecting Privacy:** Ensures that individuals' privacy is maintained even if the data is shared or breached.
- **Compliance:** Meets legal and regulatory requirements for data protection.

MPD PROGRESS IN MALAYSIA

