



 positium

Mobile Positioning Data and Data Access

UNECE/EFTA Expert Meeting on Modernizing
Statistical Legislation
Session 1: Access to privately held data

Erki Saluveer

Positium, Estonia

Mobile Positioning Data (MPD) and data access

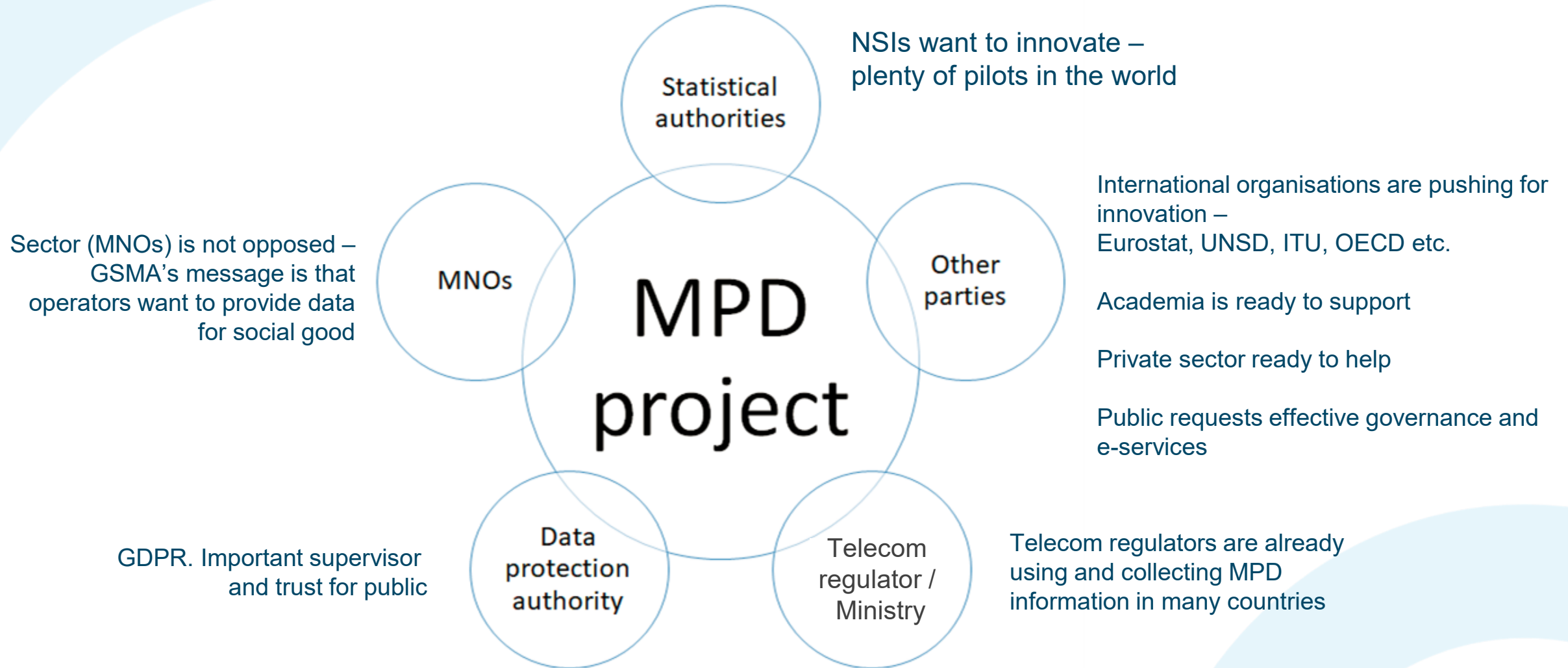
MPD is a valuable data source that can be used in a variety of domains (population, tourism, mobility etc.), but it is owned by private data holder (PHD)

Data is governed by privacy, telecommunication legislation, and MNO internal rules

MPD access is still one of the key challenges for government organisations

There are various scenarios how to access the data, but no single truth

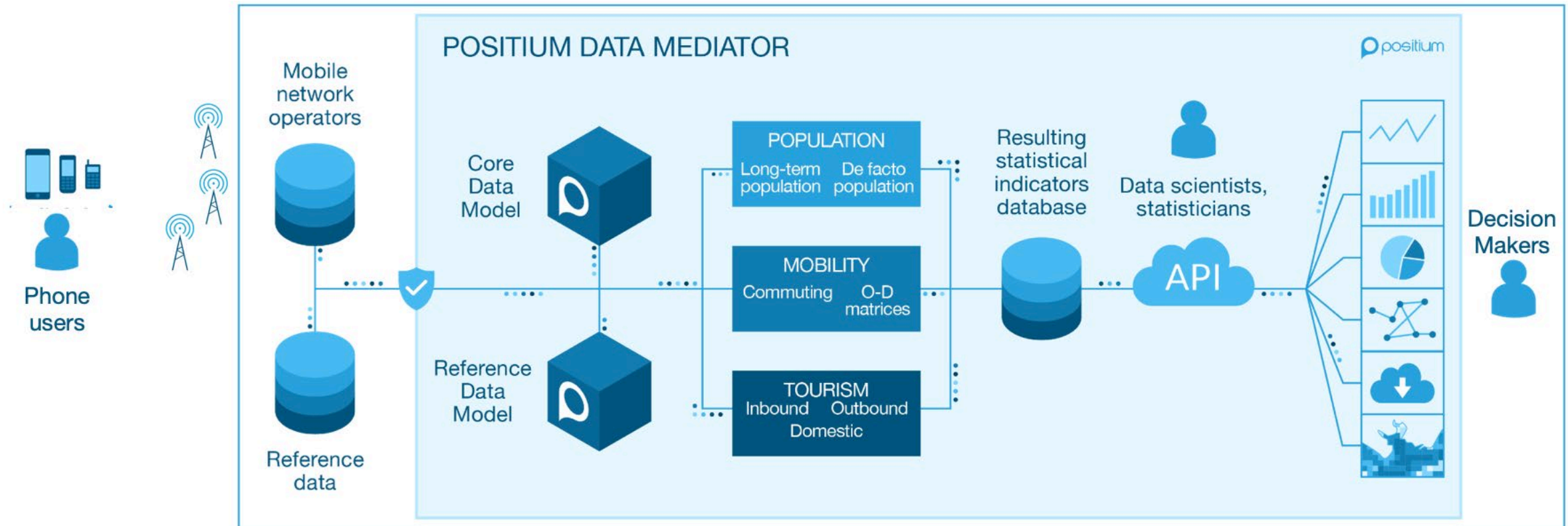
Stakeholders – all in favor



3 perspectives on data privacy

Privacy ePrivacy

Statistical confidentiality



Main dimensions of MPD access

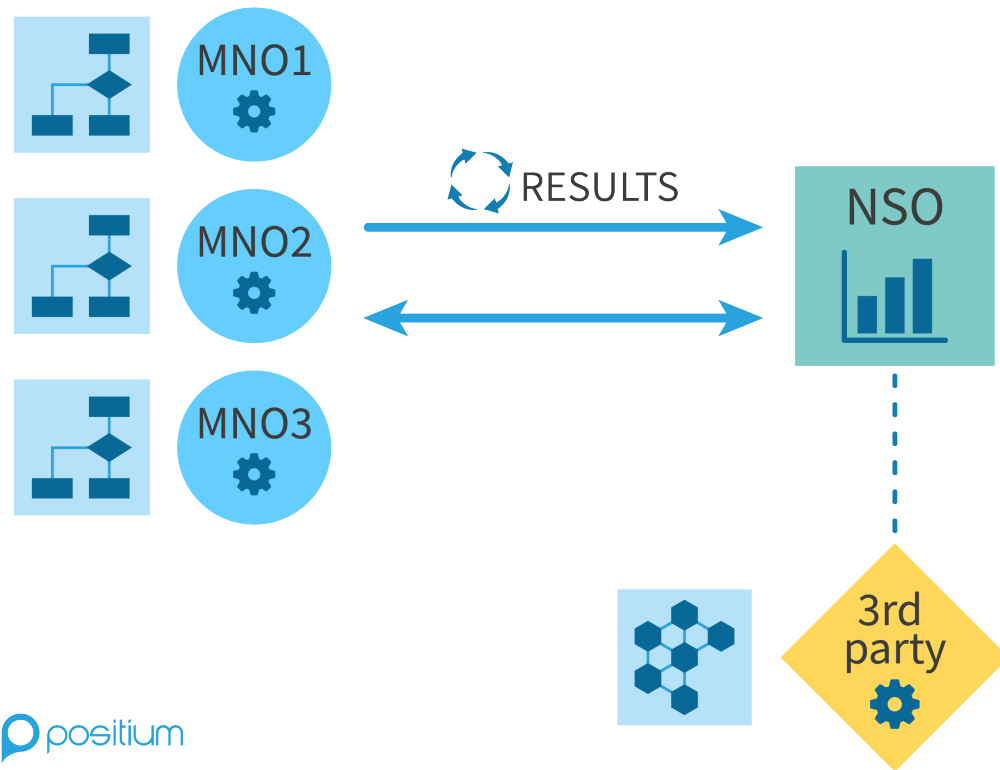
- Data access levels for official statistics
 - Raw microdata – pseudonymised data
 - Aggregated results – anonymous data
- Data access models
 - Voluntary data provision
 - Mandatory provision based on Statistics Act, Telecommunication Act, Mandate, or other legal act
 - Commercial, paid for data or service

| | Voluntary | Mandatory | Commercial |
|------------|--------------------------|--------------------------|---------------------------|
| Raw | Voluntary, raw | Mandatory, raw | Commercial, raw |
| Aggregates | Voluntary, aggregates | Mandatory, aggregates | Commercial, aggregates |

Other dimensions of MPD access

- Key government organisation (NSO?) – professional independence
- Official / non-official product - international comparability
- Domain(s) of use of MPD - necessity
- Author of the methodology and algorithms - commitment to quality
- Number of MNOs involved
- Processing location
- 3rd party involvement

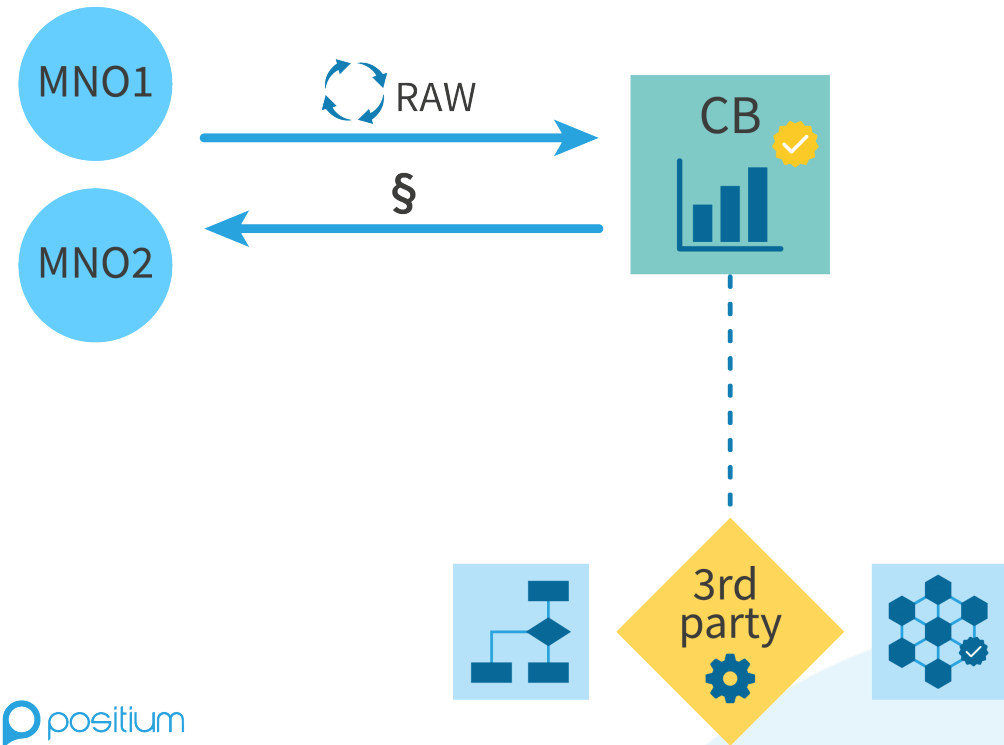
Voluntary, Aggregates: COVID-19



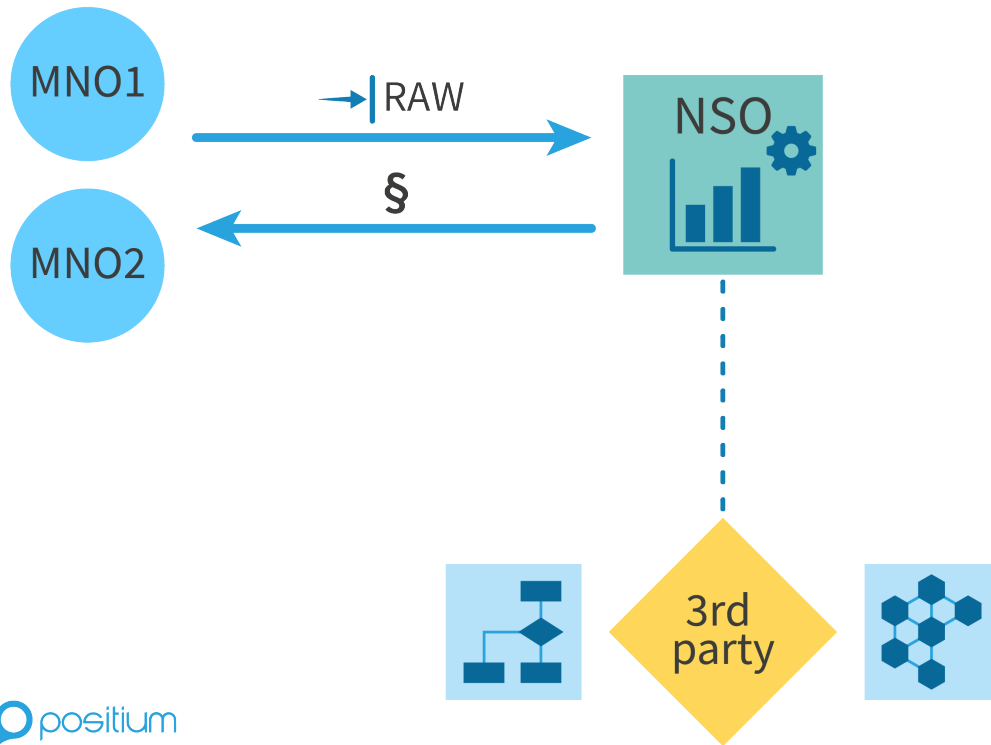
- National Statistics Office obtains daily aggregates from all MNOs regarding the effect of COVID restrictions on population mobility
- Methodology was developed by a third party
- Algorithms and processing are conducted by MNOs
- Algorithms are developed by MNO
- Only few indicators are provided on a regular basis (daily)

Mandatory, Raw: Estonia

- Central Bank obtains raw MPD from 2 MNOs using Statistics Act
- Methodology, algorithms and processing are conducted by a third party (paid service)
- Aggregated results are provided on a regular (monthly) basis
- Official BoP statistics, part of official tourism statistics



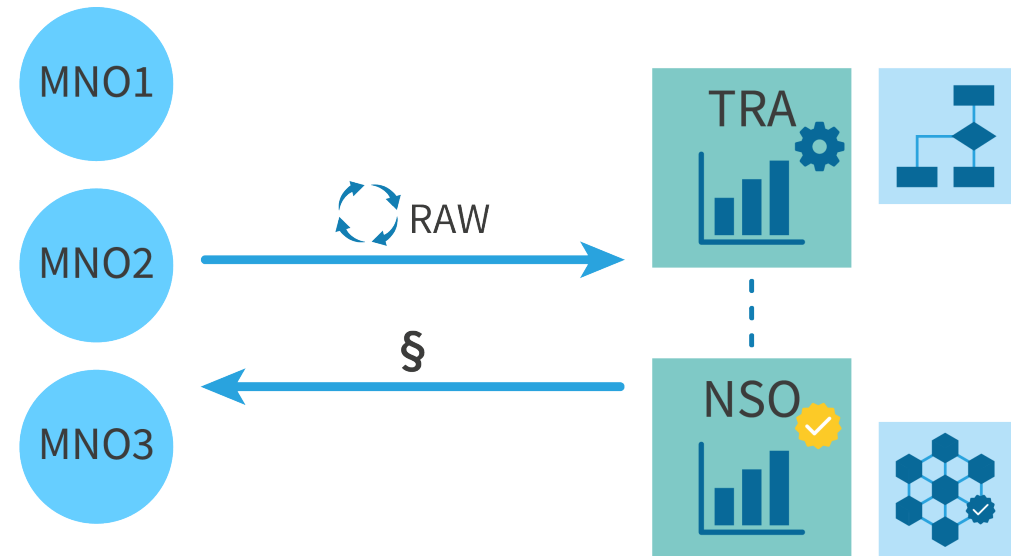
Mandatory, Raw: Oman



- National Statistics Office obtains raw MPD from all MNOs (2)
- Currently a pilot project (plan to establish continuous data update)
- Methodology and algorithms were developed by a third party
- Processing of the data is done within the infrastructure of NSO but run by a third party
- Many indicators covering population, tourism and mobility
- Will be official statistics

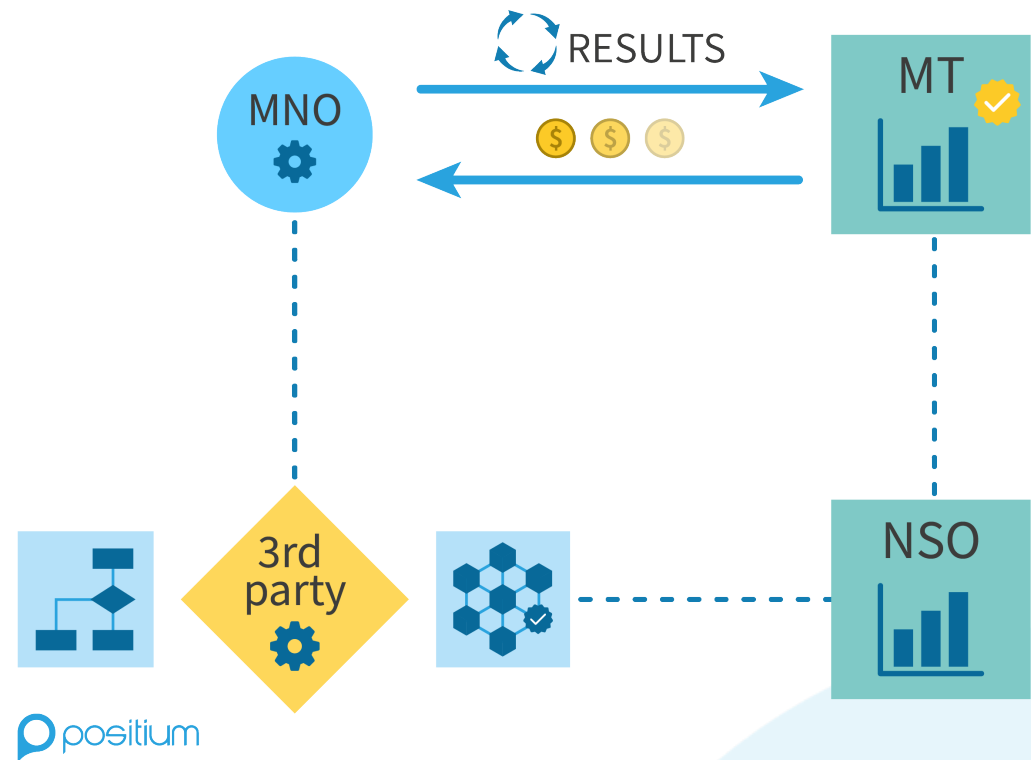
Mandatory, Raw: Georgia

- Telecommunication Act is used by TRA to obtain raw MPD from all MNOs
- Methodology is developed and approved by NSO
- Processing is done within the infrastructure of TRA
- Results are provided to NSO based on Statistics Act
- Not official statistics

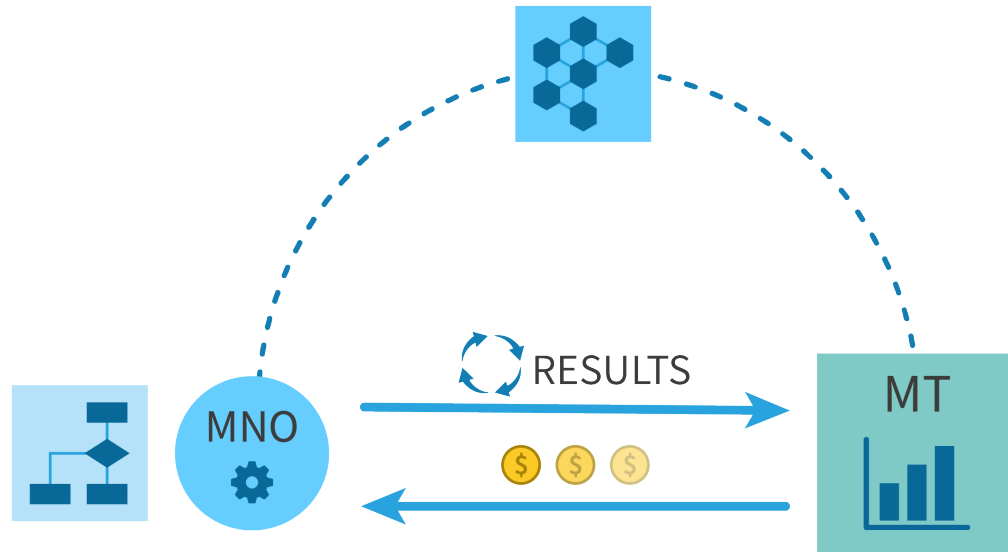


Commercial, Aggregates: Indonesia

- Ministry of Tourism (MT) has commercial agreement with one MNO
- Methodology and algorithms are developed by a third party
- Methodology is approved by NSO
- MNO processes the data
- Aggregated inbound tourism results are provided on a regular (monthly) basis
- Monthly results are assessed by NSO to give approval for publishing
- Official statistics



Commercial, Aggregates: Saudi Arabia

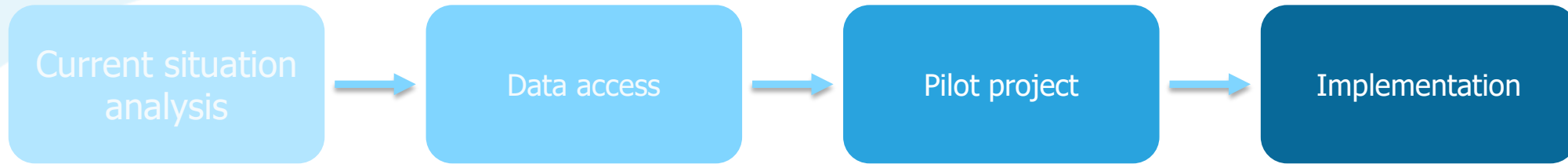


- Ministry of Tourism (MT) has commercial agreement with one MNO
- Methodology (business rules) are provided by MT
- Algorithms developed by MNO
- Aggregated domestic tourism results provided on a regular basis (weekly, monthly, quarterly)
- Not official statistics

Examples of data Access

| Country | Base for data collection | Data received from MNOs | Key organisation | Number of MNOs | Methodology developer | Algorithms developer | Processing location | Domains | MPD is official statistics |
|--------------|--------------------------|-------------------------|----------------------------|----------------|-----------------------|----------------------|---------------------|-------------------------------|----------------------------|
| Estonia | Voluntary | Aggregates | NSO | 3 (all) | 3rd party | MNO | MNO | Mobility (epidemiology) | No |
| Estonia | Statistics act | Raw, pseudonymised | Central Bank | 1-3 | 3rd party | 3rd party | 3rd party | Tourism / travel (BoP) | Yes |
| Oman | Statistics act | Raw, pseudonymised | NSO | 2 (all) | 3rd party | 3rd party | NSO | Population, mobility, tourism | No |
| Georgia | Telecommunication act | Raw, pseudonymised | TRA | 3 (all) | TRA | TRA | TRA | ICT data | No |
| Saudi Arabia | Commercial | Aggregates | Ministry of Tourism | 1 | Key organisation | MNO | MNO | Tourism | No |
| Indonesia | Commercial | Aggregates | Ministry of Tourism | 1 | 3rd party | 3rd party | MNO | Tourism | Yes |
| Netherlands | Commercial | Aggregates | NSO | 1 | Key organisation | MNO | MNO | Population | No |
| Finland | Commercial | Aggregates | Ministry of Transportation | 1 | MNO | MNO | MNO | Transportation | No |

Roadmap to MPD project

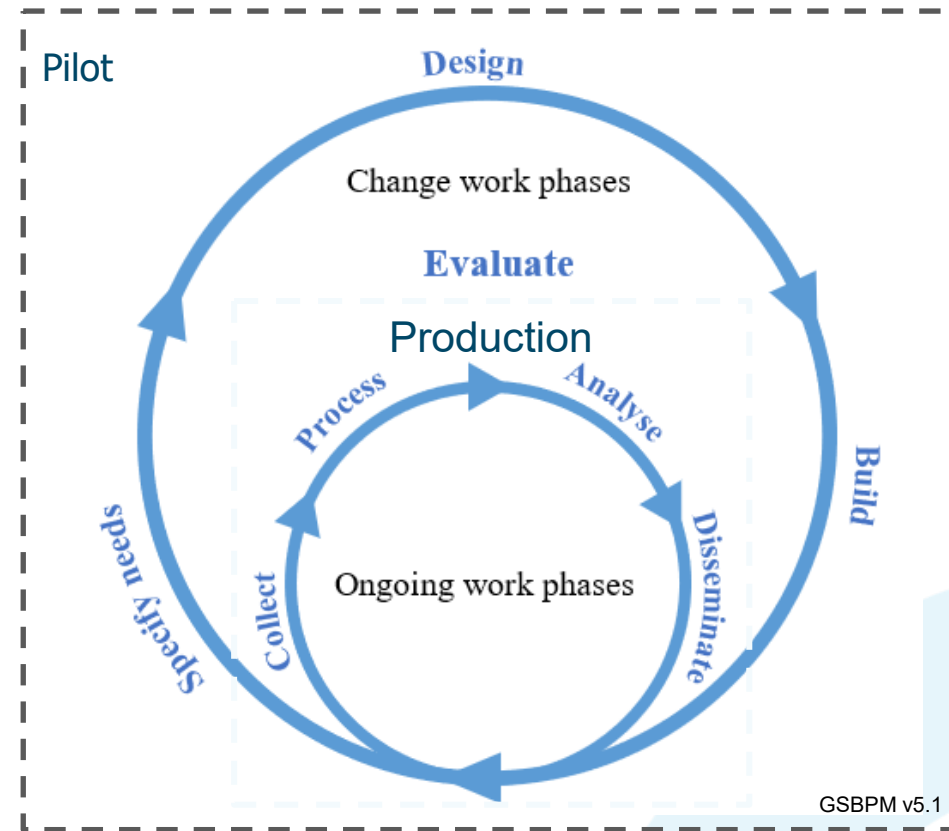


Pre-Project activities

- Specifying Needs
- Success criteria
- Legal situation assessment
- Business model
- Choosing the right partner(s)

Preparations for the Pilot Project

- Discussions with MNOs
- Hosting environment agreements and set-up
- Preliminary data validation (QA)



GSBPM v5.1

Quality Assurance & Metadata

FIVE PRINCIPLES TO ENSURE TRUST

FOLLOWING THE FUNDAMENTAL
PRINCIPLES OF OFFICIAL STATISTICS



NECESSITY & PROPORTIONALITY



PROFESSIONAL INDEPENDENCE



PRIVACY PROTECTION



COMMITMENT TO QUALITY



INTERNATIONAL COMPARABILITY

Source: Jansen, R., Kovacs, K., Esko, S., Saluveer, E., Söstra, K., Bengtsson, L., . . .
Magpantay, E. (2021). Guiding principles to maintain public trust in the use of mobile
operator data for policy purposes. *Data & Policy*, 3, E24. doi:10.1017/dap.2021.21



Guiding principles to maintain public
trust in the use of mobile operator data
for policy purposes (*Data & Policy*
ISSN: 2632-3249)

<https://tinyurl.com/mpdprinciplesarticle>



Positium delivers software and services to analyse mobile positioning data for official statistics



Email: erki.saluveer@positium.com