Mobile Positioning Data (MPD) Case Study

Helping Indonesia Measure Tourism and Achieve Sustainable Development Goals

Objective

Measure cross-border tourism using mobile positioning data (MPD)

Challenges of Ministry of Tourism

1. Use data from two mobile network operators

2. Use an internationally recognised method

3. Gain trust in data from stakeholders

Solution by Positium

1. Understand mobile positioning data and identify the bias in the data

2. Fix problematic aspects of bias

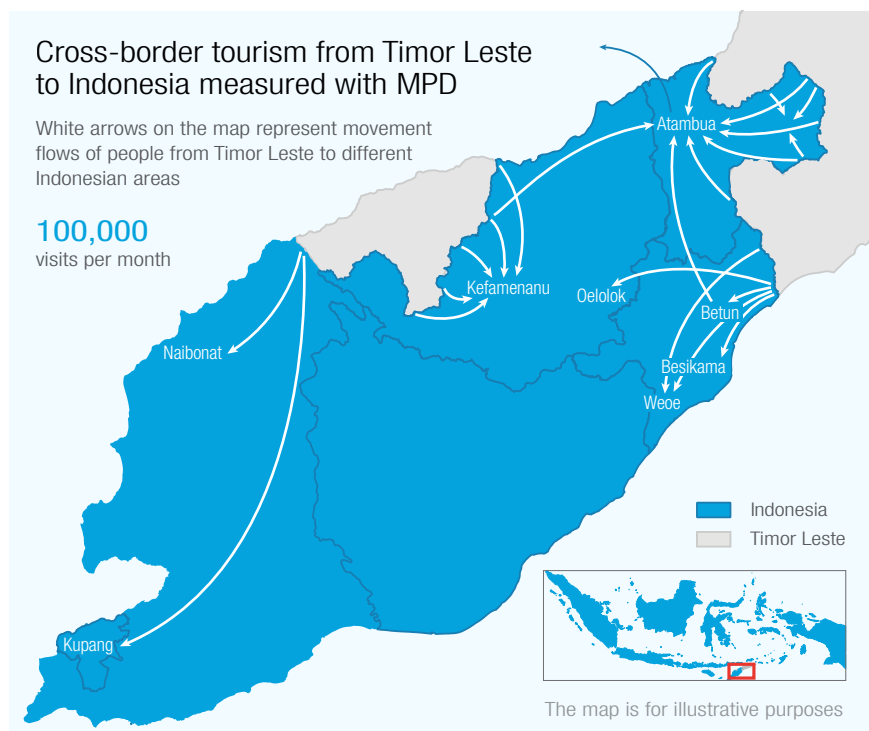3. Create a method that produces reliable data every month

Results

1. Increased accuracy and timeliness of tourism statistics

2. Mobile positioning data recognised as part of official visitor arrival statistics

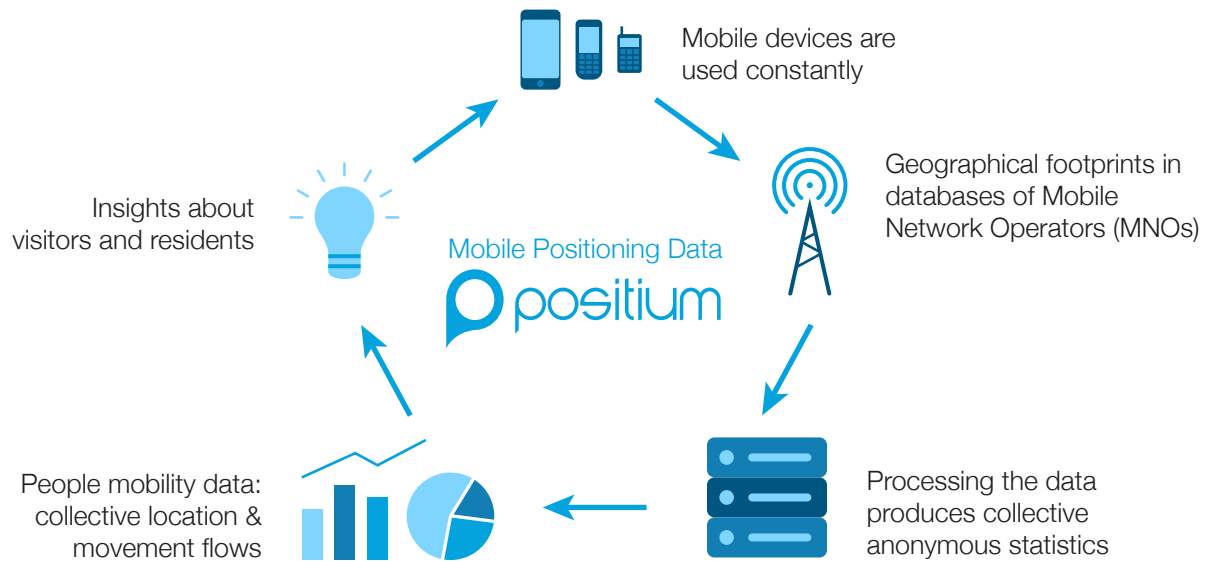3. Thanks to better measurement, proportion of tourists from neighbouring countries increased from 7% to 30%

The goal for Indonesia is to increase Indonesia's annual influx of tourists from 14 million to 20 million a year. To do that, the tourism sector needs accurate and timely data. However, in a country with 17,000+ islands and vast land borders, it is difficult to measure inbound tourism at all entry points to the country. This is why Indonesian official statistics did not include all tourists who were coming from Indonesia's directly neighbouring countries. That is until recently when Indonesia tapped into a unique big data source – mobile positioning data (MPD).

Today, almost everyone on the move has a mobile phone. Roaming MPD-based statistics can be used to measure cross-border tourism, so that the decision-makers of the state would have the most up-to-date and reliable statistics. With the help of Positium, Indonesia's Ministry of Tourism developed a system to count tourists in these excluded border areas and thus support United Nations Sustainable Development Goal (SDG) 8 (sustainable growth and job creation) – through accurate data.
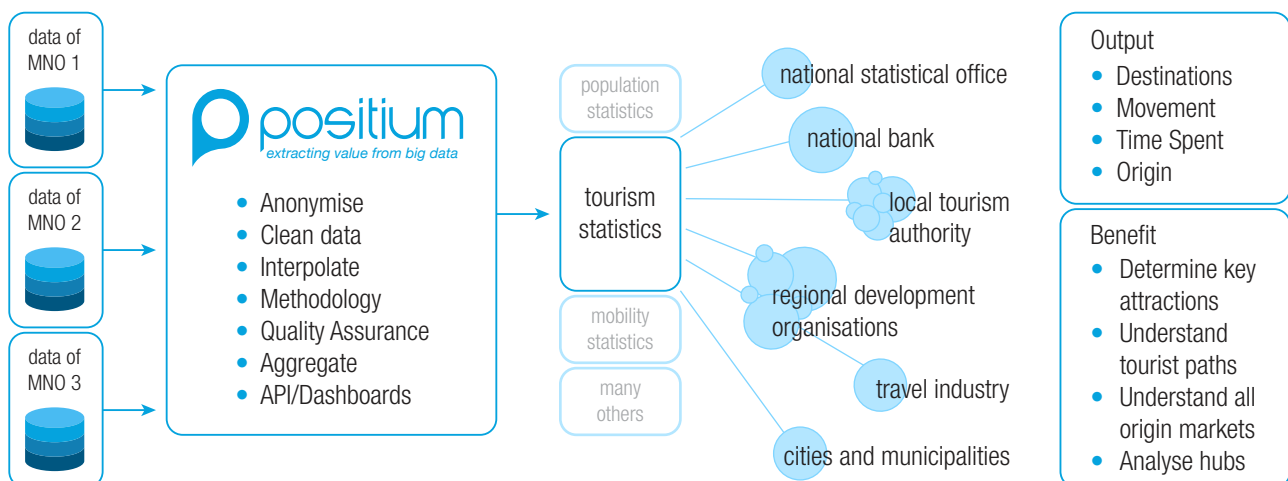
Indonesia quickly found that, in line with international bench-marks, the share of tourists from neighbouring countries was 30% of all tourists instead of the previous 7% measured with traditional methods. For example, MPD shows that, between Indonesia and Timor Leste alone, close to 100,000 visitors cross the border every month for for shopping, visiting relatives and fellow tribes-men. Consequently, Timor Leste established its place among the top 5 contributors to visitor arrivals in Indonesia after MPD measurement was put in place. This knowledge has been relevant in directing new invest-ments to infrastructure, tourism development and cross-border events in the country's border areas.

Cross-border tourism from Timor Leste to Indonesia measured with MPD

White arrows on the map represent movement flows of people from Timor Leste to different Indonesian areas

100,000 visits per month

Indonesia
Timor Leste

The map is for illustrative purposes

Mobile Positioning Data (MPD): Introduction

Mobile devices are used constantly

Geographical footprints in databases of Mobile Network Operators (MNOs)

Mobile Positioning Data

Processing the data produces collective anonymous statistics

People mobility data: collective location & movement flows

Insights about visitors and residents

Mobile Positioning Data (MPD): Ecosystem

data of MNO 1

data of MNO 2

data of MNO 3

positium extracting value from big data

- Anonymise
- Clean data
- Interpolate
- Methodology
- Quality Assurance
- Aggregate
- API/Dashboards

population statistics

tourism statistics

mobility statistics

many others

national statistical office

national bank

local tourism authority

regional development organisations

travel industry

cities and municipalities

Output
- Destinations
- Movement
- Time Spent
- Origin

Benefit
- Determine key attractions
- Understand tourist paths
- Understand all origin markets
- Analyse hubs

Positium

Positium is an Estonian registered limited liability company. Positium analyses anonymous mobile positioning data to produce insights into the quantities and movements of tourists and the population.

- Our tools are used in various areas, such as tourism marketing, urban planning, safety and security, geo-targeted marketing, official statistics (tourism, population, etc.), academic research, and many others

- Over 100 projects with mobile data completed

- Cooperation with mobile network operators since 2006

- Analysed mobile data from 10+ countries

- Official analytics partner to the GSM Association

- MPD consultant for the United Nations Statistics Division (UNSD), International Telecommunication Union (ITU), the Organisation for Economic Co-operation and Development (OECD), European Commission

- The only company in the world that produces official statistics based on mobile positioning data

- Proud to be an Affiliate Member of the United Nations World Tourism Organization (UNWTO)