



 positium

Recent lessons and developments with Mobile Positioning Data

Marek Rannala, Positium

ITF/UNECE meeting “Exploring new transport data sources”

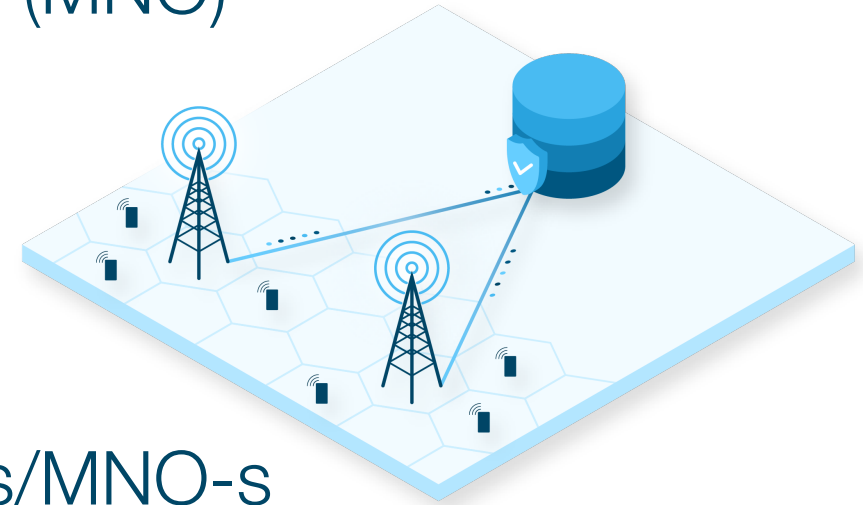
16.09.2020

Positium

- A spin-off company from Tartu University, since 2006
- Human mobility analytics
- Mostly passive Mobile Positioning Data (MPD)
- Focus on official statistics
- Long time cooperation with UN, Eurostat and national SO-s on use of Big Data for official statistics
- Official tourism statistics of Estonia (2008-) and Indonesia (2018-) comes from MPD
- A wide range of applications and use cases in mobility
- COVID-19 mobility MPD tools in Estonia and 2 other countries

Mobile Positioning Data

- Passive data from mobile network operators (MNO)
- All subscribers included
- Continuous log of activities and connections
- Spacial resolution on network cell level*
- Different data across countries/MNO-s
- Different privacy regulations across countries/MNO-s
- Methodologies and regulations are still open



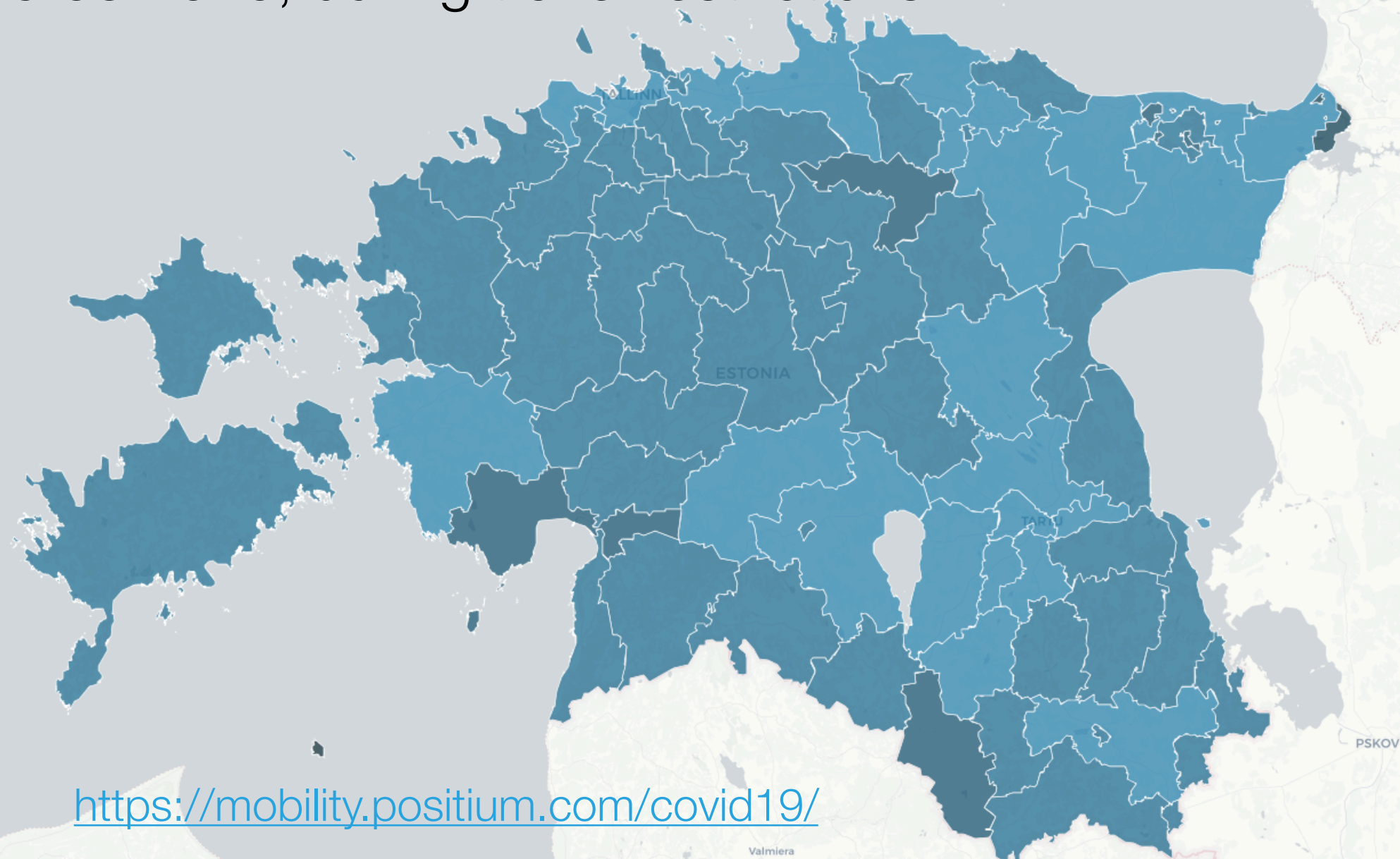
Old news below:

The share of local and 95% local cell phones 29.03.2020, during travel restrictions

• Municipality
• County

Choose a date
29.märts.2020

Info



Kuusalu vald

Moving cell phones	43%
Moving and Non-moving cell phones	57%

Local cell phones
%
29.03.2020

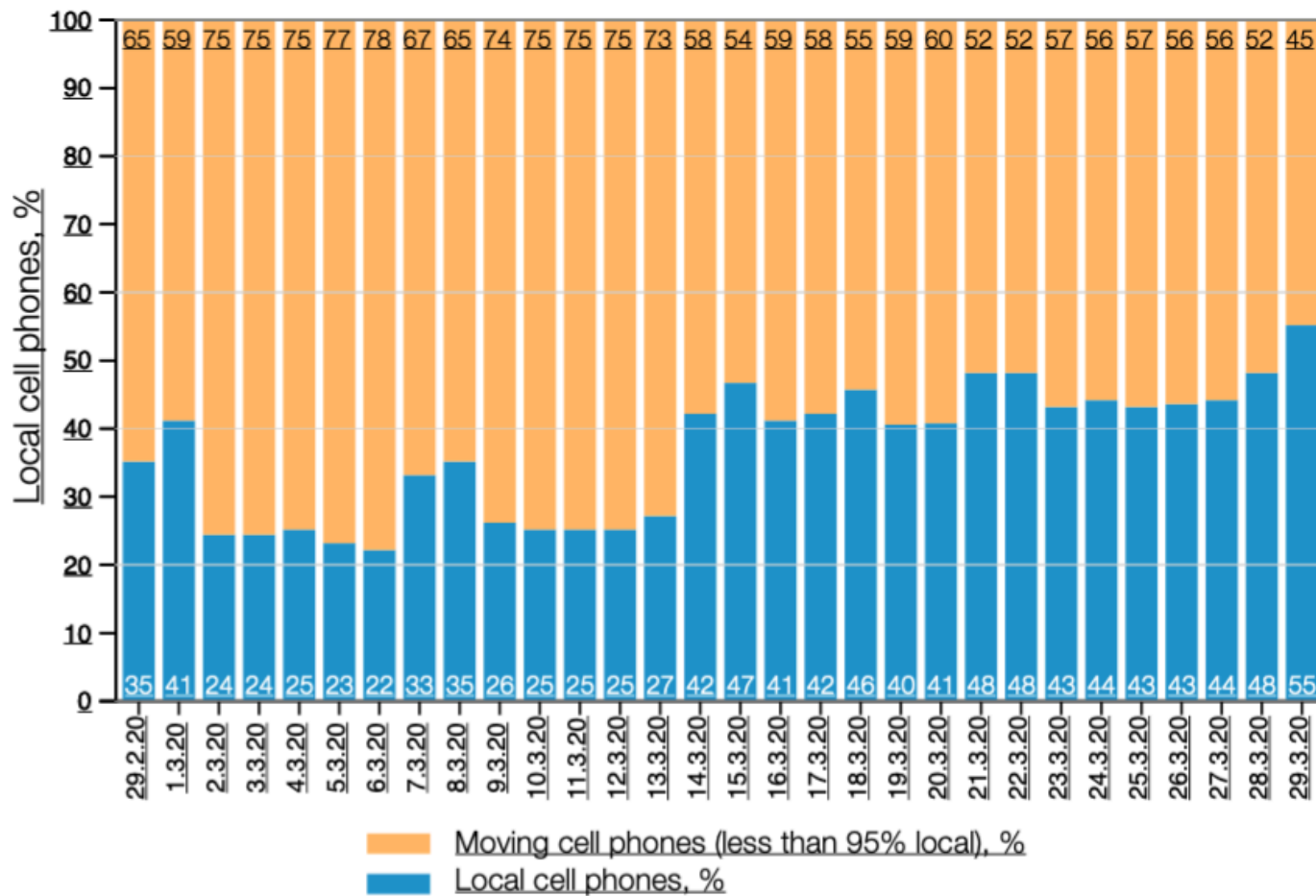
■	Data missing
■	1 – 10%
■	11 – 20%
■	21 – 30%
■	31 – 40%
■	41 – 50%
■	51 – 60%
■	61 – 70%
■	71 – 80%
■	81 – 90%
■	91 – 100%

elisa
TELE2
Telia
EESTI STATISTIKA
positium

<https://mobility.positium.com/covid19/>

■ Stationary + 95% stationary cell phones
■ Actively moving cell phones

Tallinn



New since June 2020?

- COVID mobility tools for governments in 2 countries
- Dashboard format
 - Mobility index
 - Mobility flows
 - Origin-Destination Matrices
- Daily update

Below is an example of the tool based on Estonian 2018 data:

ESTONIA MOBILITY ANALYSIS

Choose layer
Domestic OD matrices

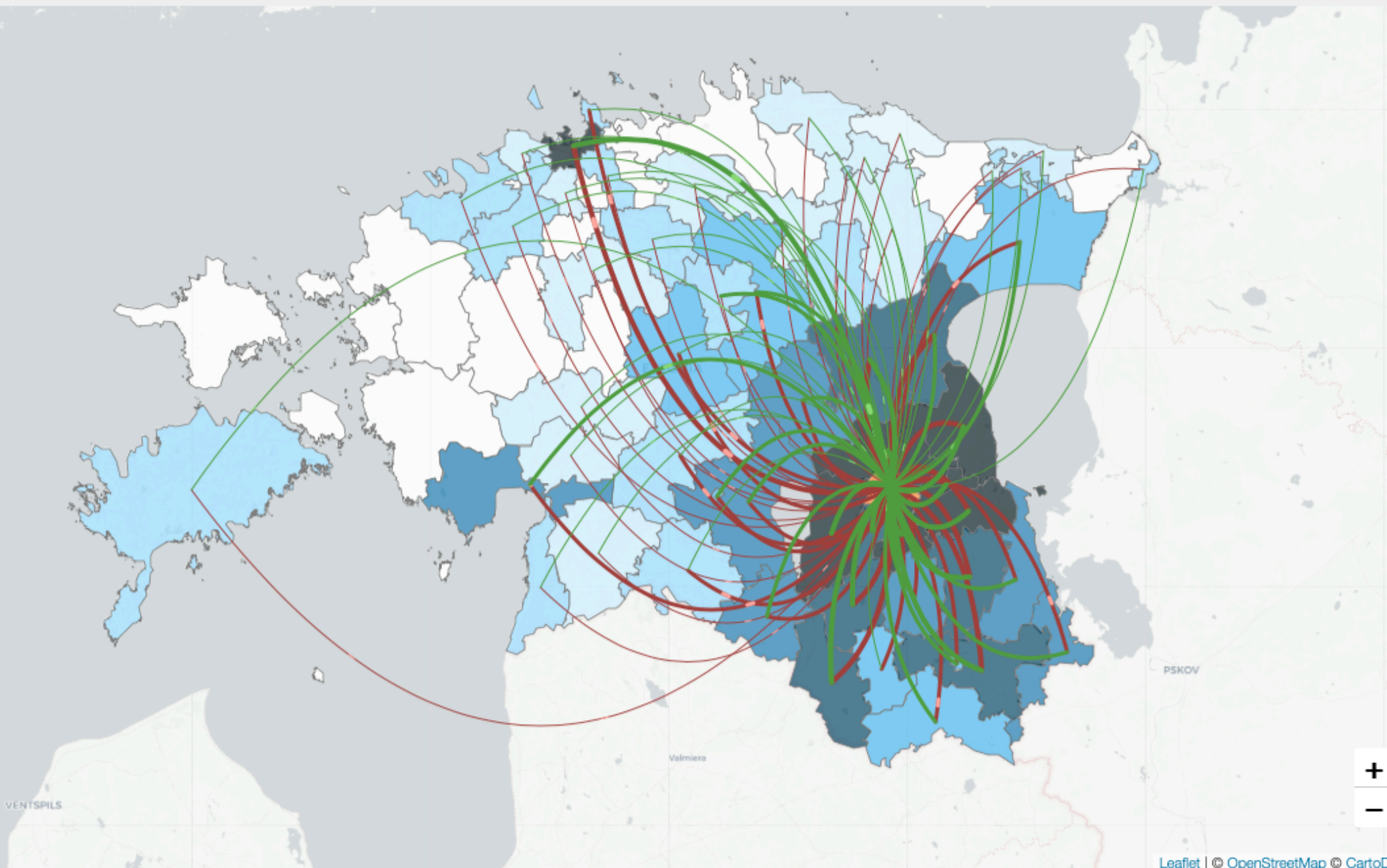
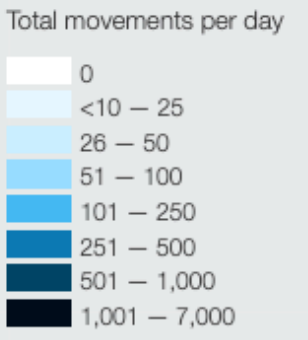
Choose a date
16.06.2018

- Choose a country
- > 250 movements
 - > 50 movements
 - > 10 movements

 - Incoming
 - Outgoing

Tartu linn
16.06.2018

Total	23,013
● Incoming	12,487
● Outgoing	10,526



ESTONIA MOBILITY ANALYSIS

Choose layer

Mobility flows

Choose a date

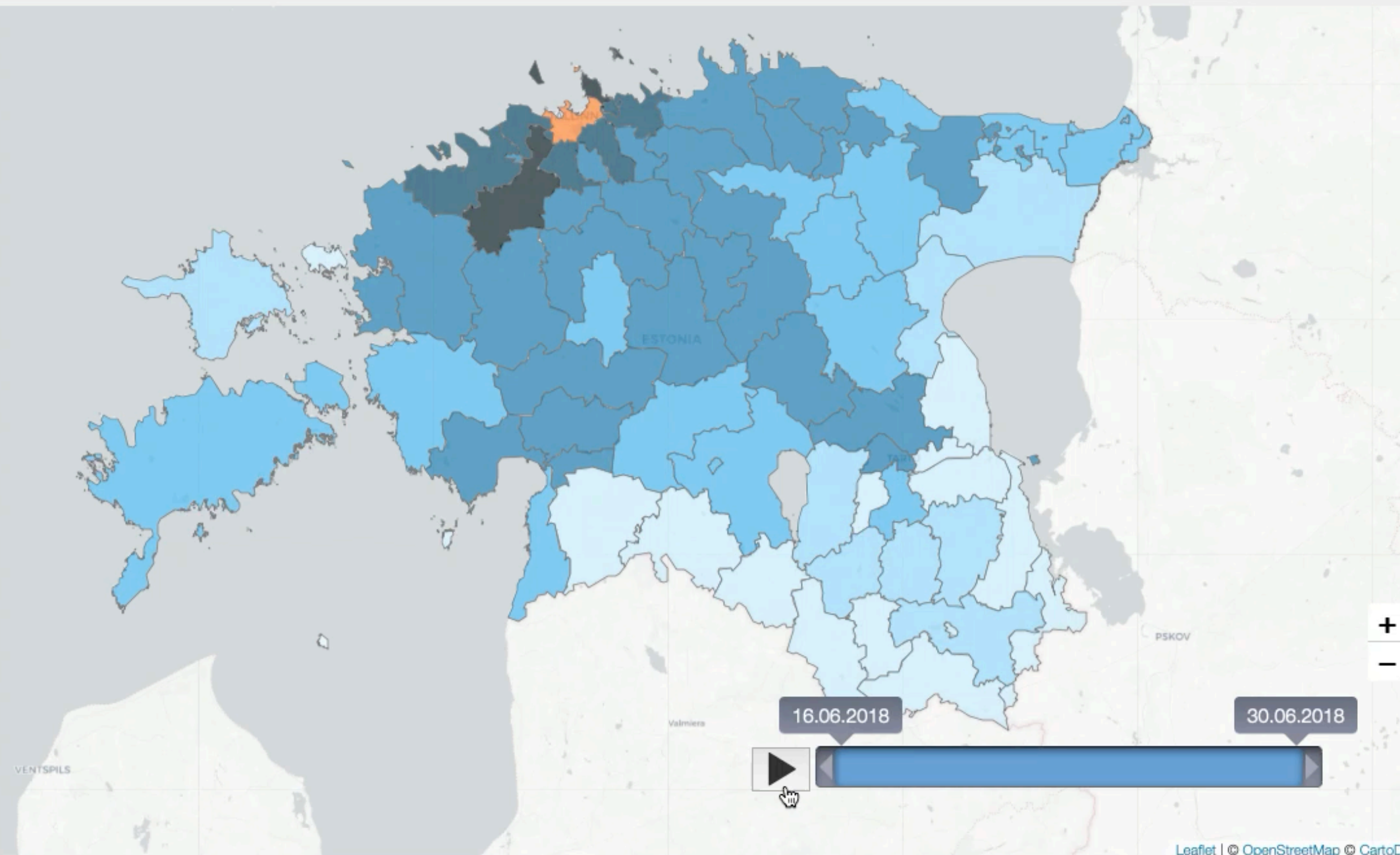
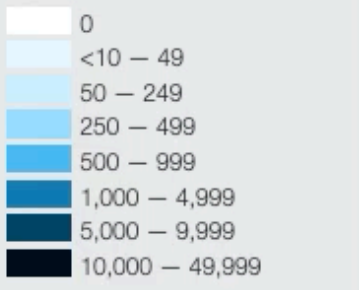
16.06.2018

Choose a country

Saaremaa vald
716

Click on administrative units to see animation

Number of subscribers from selected administrative unit



Lessons and developments

- There is a lot more that MPD can provide for transportation/mobility/statistics
- Doing all that requires to build and maintain trust:
 - Society
 - Mobile data providers
 - Statistical community

Guidelines on maintaining trust

- Principles of official statistics
 - Fundamental Principles of Statistics
 - Code of Practice
 - Statistics Act
- Data Protection Guidelines (society and private sector)
 - GDPR
 - UN guidelines on data protection
 - GSMA guidelines
- Professional quality standards
 - Quality standards from statistical community
 - Quality standards from private sector

Guidelines on maintaining trust

- Proportionality (fit-for-purpose) principle
- Confidentiality (privacy protection) principle
- Quality assurance principle
 - Input quality
 - Accuracy and Validity
 - Reproducibility
 - Coherence and consistency
 - Follow scientific methods
 - Transparency principle
- Impartiality and non-discrimination principle
- International comparability principle

Thank You!

Questions and comments welcome!

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