Feasibility Study on the Use of Mobile Positioning Data for Tourism Statistics
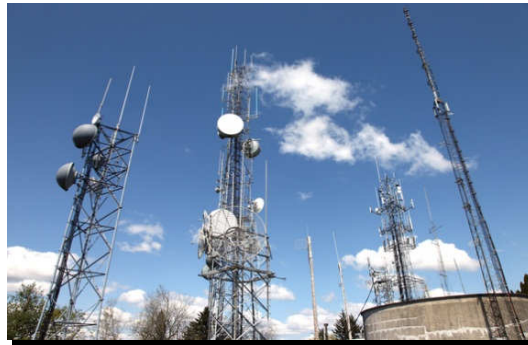
13th Global Forum on Tourism Statistics

Nara, Japan

18.11.2014

eurostat positium UNIVERSITY OF TARTU Statistics Finland eesti statistika IFSTTAR NIT NEW INSIGHTS FOR TOURISM

The Main Objective:

Explore the possibilities and limits of using mobile positioning data in the production of tourism statistics

Project time: January 2013 – June 2014

Project website: mobfs.positium.ee

Project Objectives

- Feasibility to access mobile positioning data

- Feasibility to use mobile positioning data for tourism statistics

- Identify main challenges for implementation

- Assess the potential impact on cost-efficiency of data production

- Assess the use in other domains

Project Tasks

Task 1: Stock-taking

Task 2: Feasibility of Access

Task 3: Feasibility of use – Methodology, Coherence

Task 4: Opportunities and Benefits

Task 1: Stock-taking

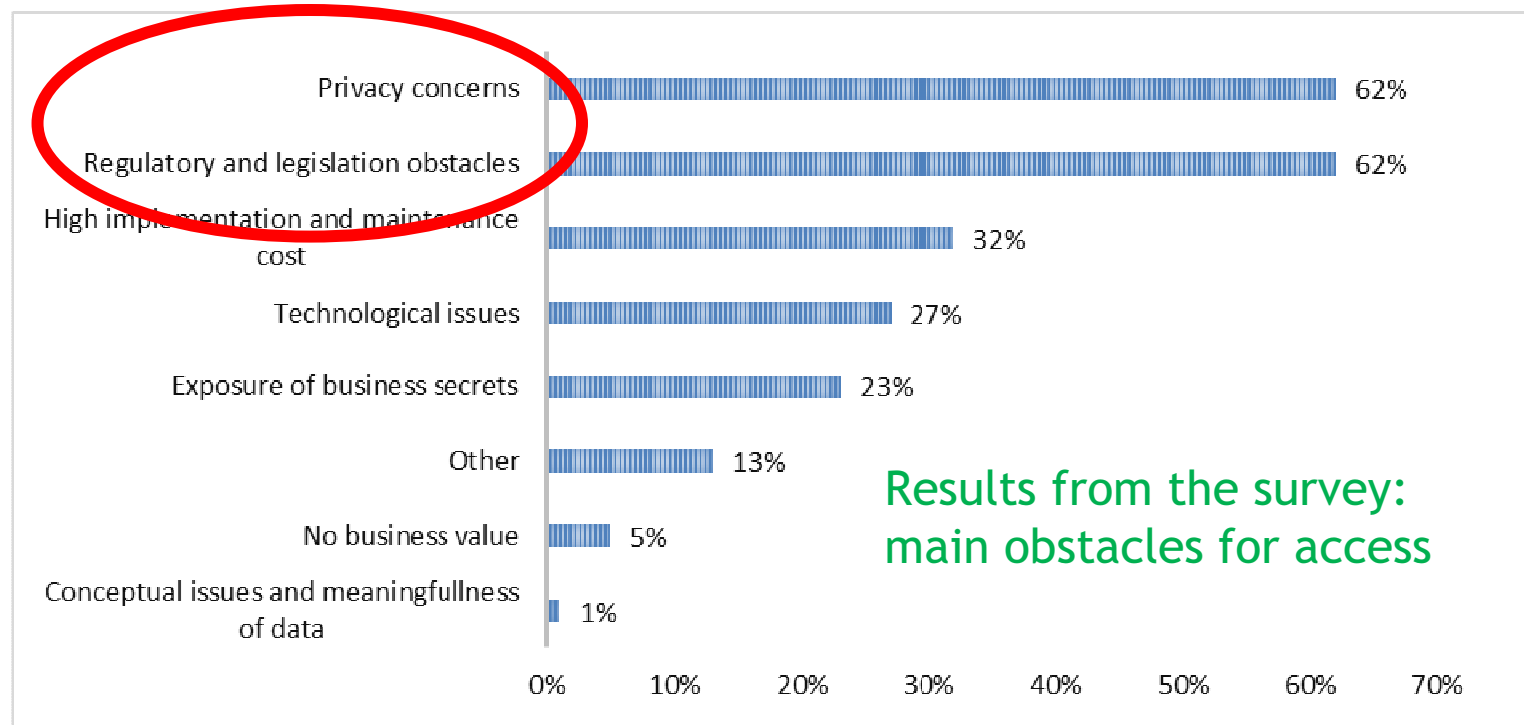Increasing number of projects in tourism statistics

Mostly aggregated (not processed) data used in public sectors

Longitudinal microdata used in research

Some business initiatives, but business models difficult

MNOs looking for new revenues

Task 2: Feasibility of Access

Results from the survey: main obstacles for access

Obstacle	Percentage
Privacy concerns	62%
Regulatory and legislation obstacles	62%
High implementation and maintenance cost	32%
Technological issues	27%
Exposure of business secrets	23%
Other	13%
No business value	5%
Conceptual issues and meaningfullness of data	1%

MNOs

Mostly understand the idea, but have concerns with
- Legal restriction and obligations to provide the data
- Public opinion and a possible loss of reputation and customers
- Value for the MNOs if they provide the data

Task 2: Feasibility of Access

1. Privacy and regulations

2. Technological readiness

3. Financial, business and administrative barriers

Regulations

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Data can be processed if one is true (in EU):

1. Consent has been given

2. Data is processed fully anonymously

3. Legal obligation to provide the data

Governing regulations: Privacy protection legislation, Telecommunication data legislation, National statistics act

Regulations (for NSI)

§

Enable legislation:

Get access to (micro-) data

or

Get access to pre-processed and aggregated data

"Voluntary" access provided by MNOs:

Get access to (micro-) data

or

Get access to pre-processed and aggregated data

Technological Readiness

Processing of a large data

Requirements for fast processing = need for resources
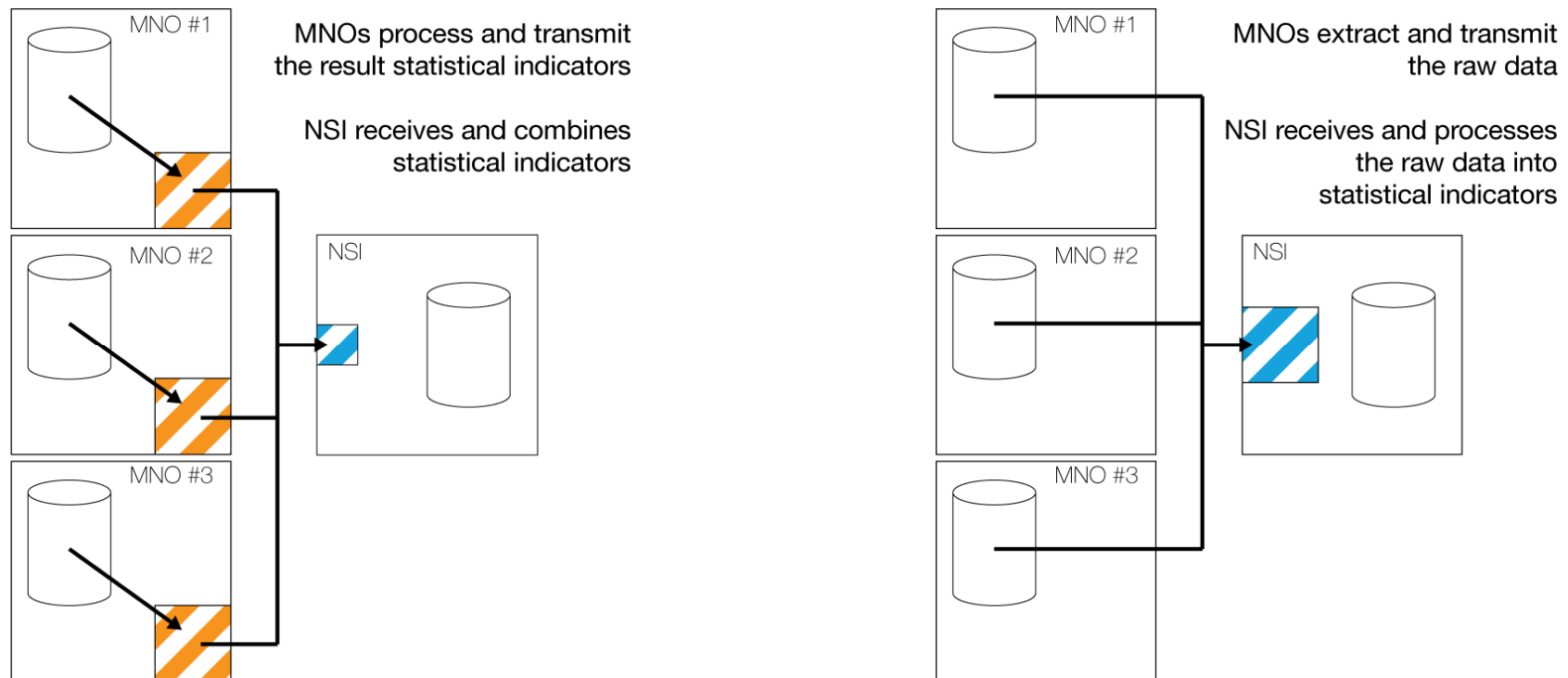
Tightly conne

Data update, revisions
system,

Required resources for processing

Cost of resources

| 1 month | 1 week | 1 day | near-real time |

Data processing frequency (time)
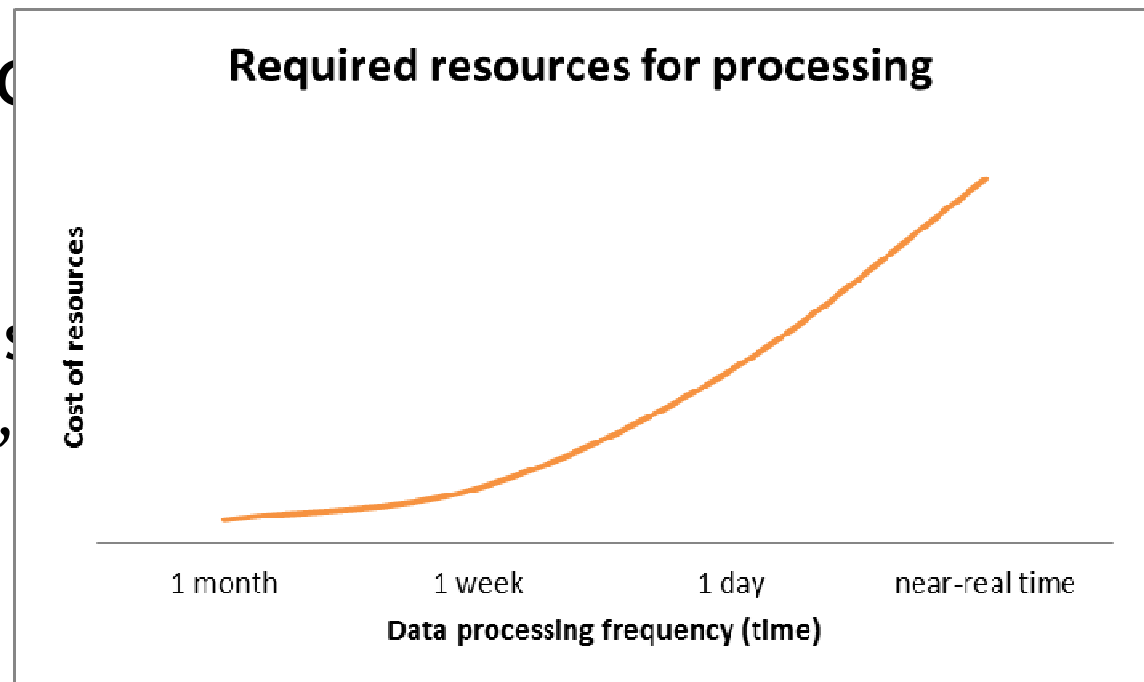
Administrative Issues

Allocation of processing system

Who is paying for implementation?

Responsibility for maintenance / QA

Business Aspects (MNOs)

Burden / benefits for MNOs

Public opinion

Business opportunities for MNOs

Business model questions?

Task 3: Methodology, Coherence

Forms of Tourism:

Domestic tourism ~ domestic subscribers' data

Inbound tourism ~ inbound roaming data

Outbound tourism ~ outbound roaming data
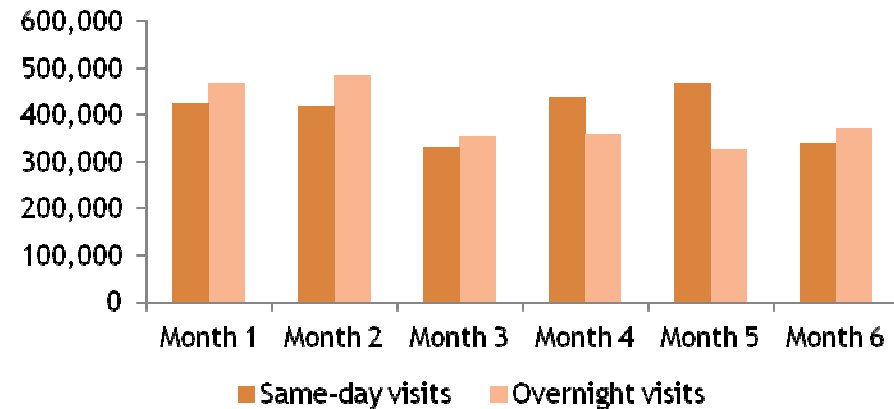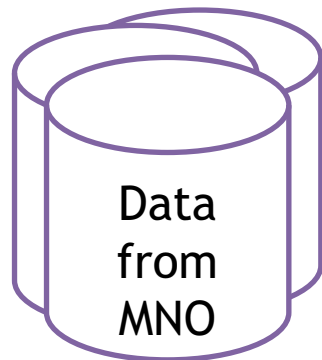
Main Challenges in Methodology

Eliminating bias & outliers

Longitudinal data required

Definitions (e.g. usual environment)

Coverage and other quality issues

Assessing the quality

Assumptions

Indicators

Number of trips

Number of unique travellers

Duration of the visit in a destination country / in a smaller sub-regions

Breakdown by the country of origin for foreign tourists

Breakdown by the home administrative unit within the country

Temporal breakdown: day/week/month

Overall duration of the trips in spent nights, hours, days present

Geographic accuracy: country, lower level administrative units
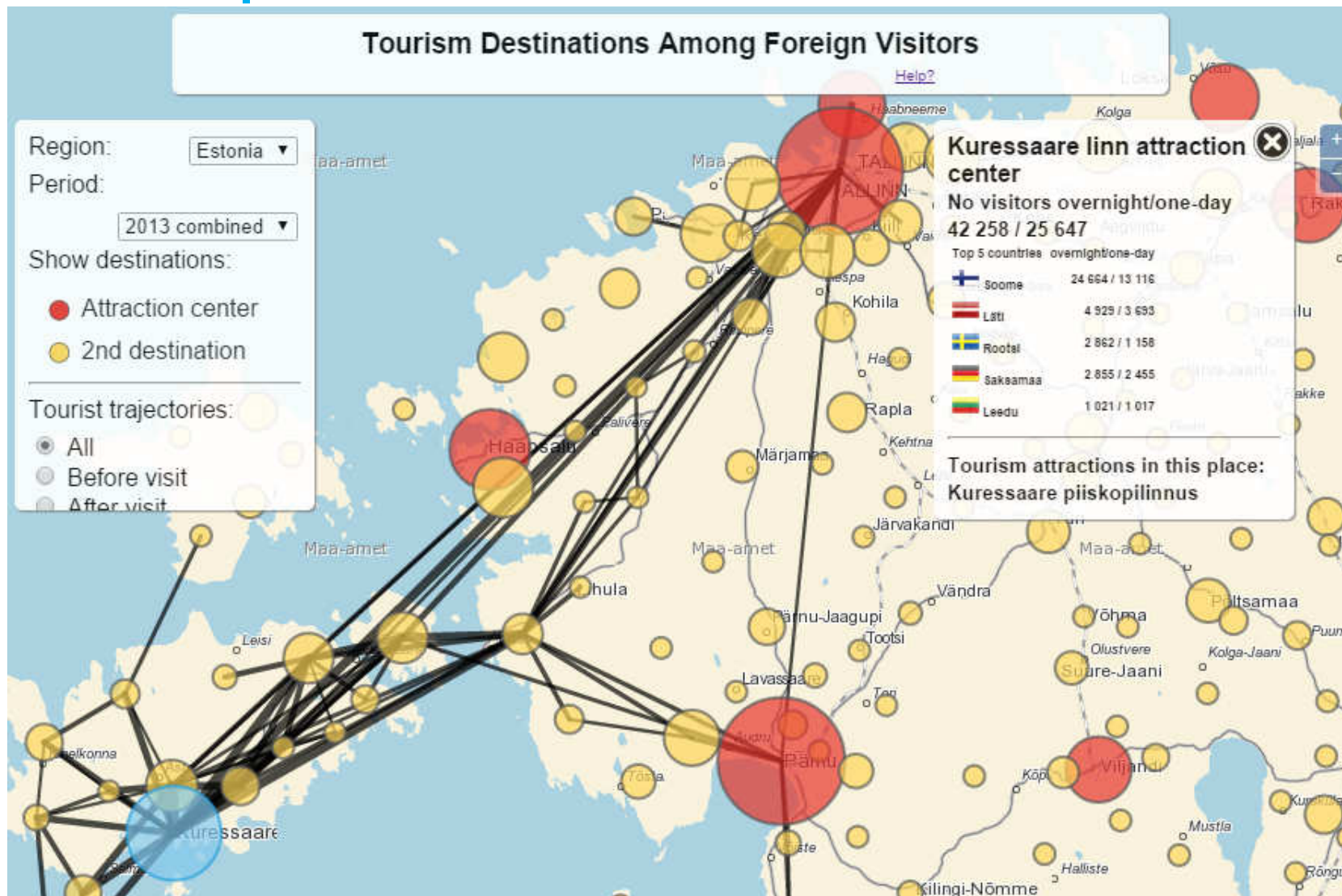
Trajectories of tourism trip

Repeating visits

Destination, secondary destinations, transits
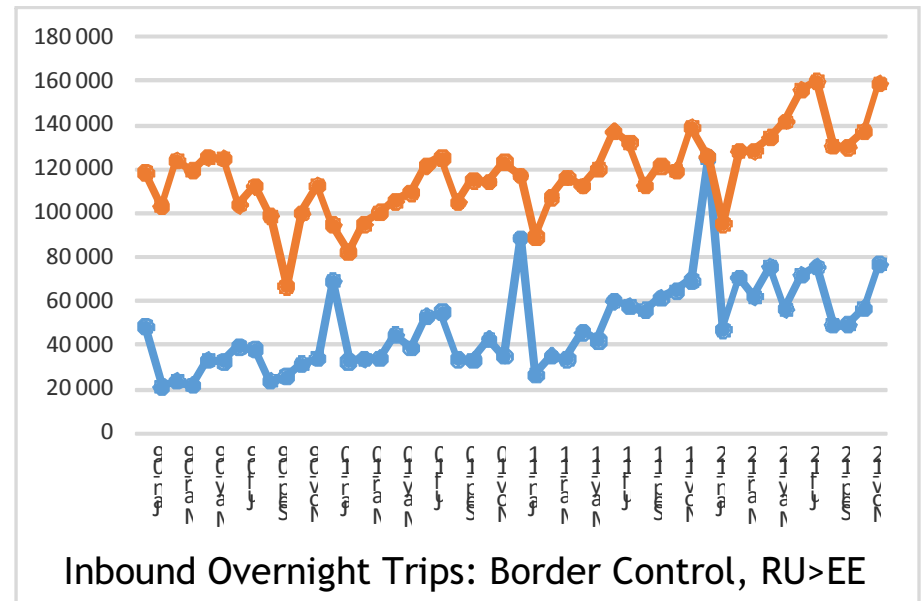
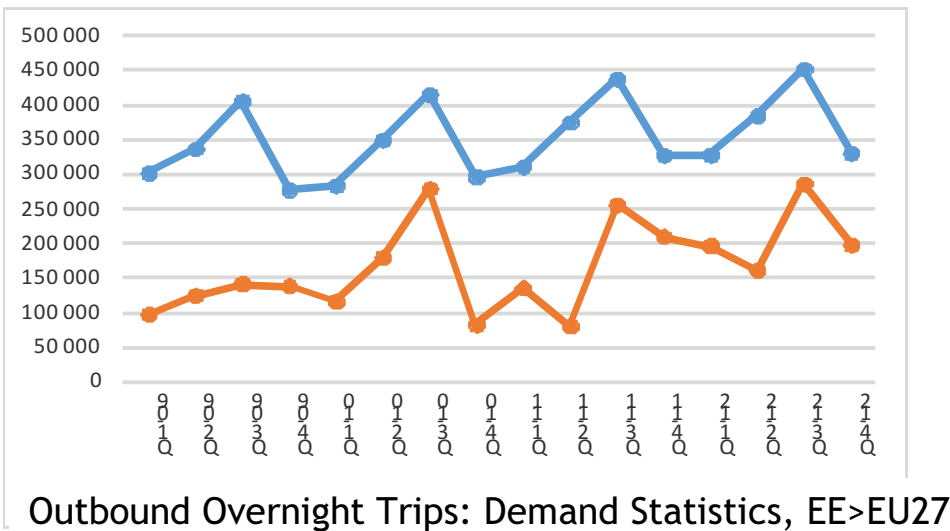Destination country, transit countries

Example: Inbound Tourism
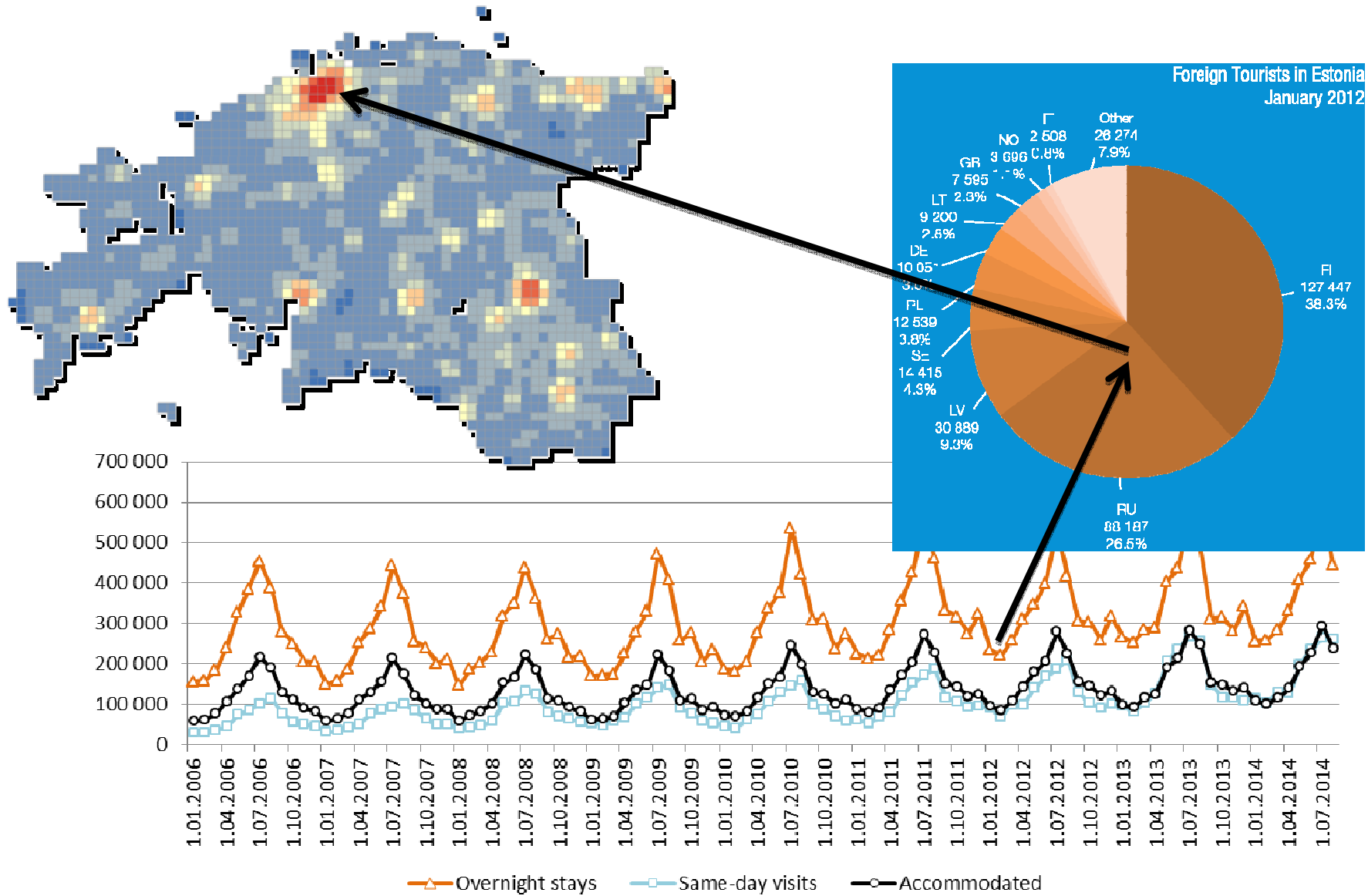
Example: Tourist Attraction Centres

http://demo.positium.ee/tourism

Coherence

Inbound Overnight Trips: Accommodation Statistics

Inbound + Outbound: Ferry passengers, FI <-> EE

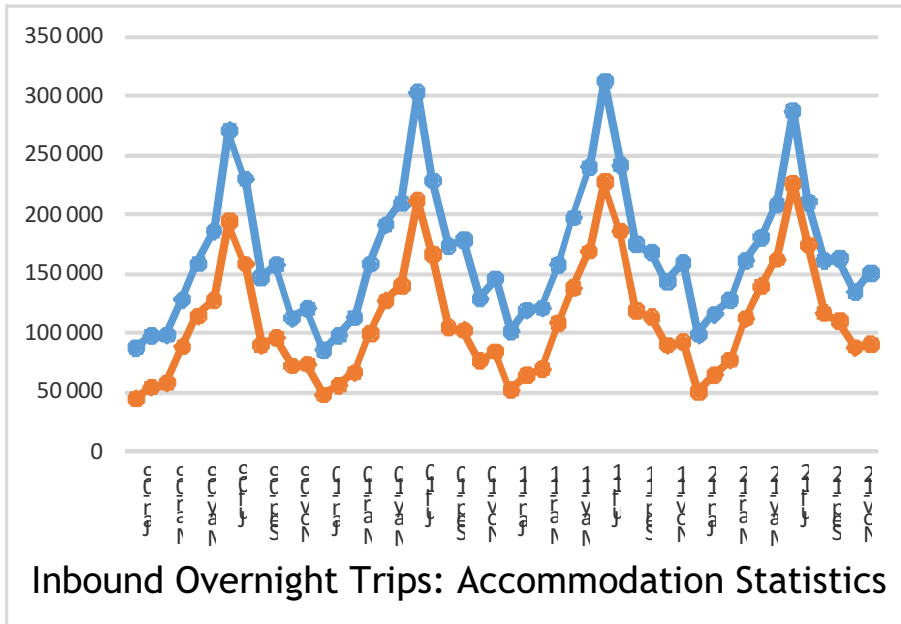Outbound Overnight Trips: Demand Statistics, EE>EU27

Inbound Overnight Trips: Border Control, RU>EE
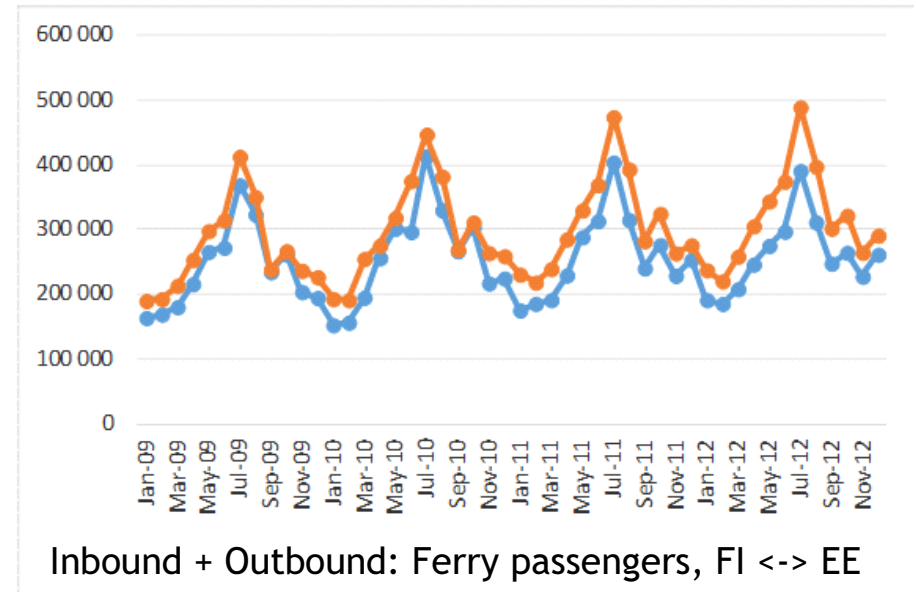
Findings: Synergies

Analysis has shown that specific opportunities can be found with regard to

1. The Balance of Payments Statistics

2. Transport Statistics

3. Population statistics: migration and commuting statistics

But more possibilities seen also in other domains (non-official): marketing, urban/regional planning, traffic, risk assessment, academic research, etc.

Task 4: Opportunities & Benefits

Completeness	No complete coverage of any sector relevant for tourism statistics → No replacement of traditional sources	⊖
Timeliness	Full integration and automatisation → Much quicker than traditional sources	⊕
Validity	No specific advantages/disadvantages	±
Accuracy	Advantages over traditional sources (smaller sampling error, no memory gaps). 'Usual environment' needs redefining	⊕
Consistency	High grade of consistency compared to traditional sources.	⊕
Resolution	Finer granulation of space and time → new possibilities (again, 'usual environment' needs redefining)	⊕

At present, mobile positioning data **cannot replace** traditional sources of tourism statistics **but could deliver** additional information ...
1. Quick indicators (key tourism statistics indicators faster than today)
2. Finer spatial and timely resolution than possible today
3. Source of calibration for traditional sources (to quantify bias)

Strengths and weaknesses of mobile positioning data

• Very good consistency	• Access/continuity of access
• Superior coverage compared to supply statistics	• No information on the purpose, expenditure, means of transport
• Breakdowns by region and nationality	• Bias between some classifications (e.g. same-day/overnight)
• Various quantitative criteria for definitions	• Possible misclassification of actual tourism events
• Improved timeliness	• Over- and under-coverage issues concerning the phone usage patterns
• Automation level of statistical production	• Difficulty to assess the accuracy of data as mobile phone usage on travel is unknown
• Possible positive cost effects	
• Pan-European travel network statistics	

Thank You!

http://epp.eurostat.ec.europa.eu/portal/page/portal/tourism/methodology/projects_and_studies

http://mobfs.positium.ee

Just One Last Slide

Simulation Mekong
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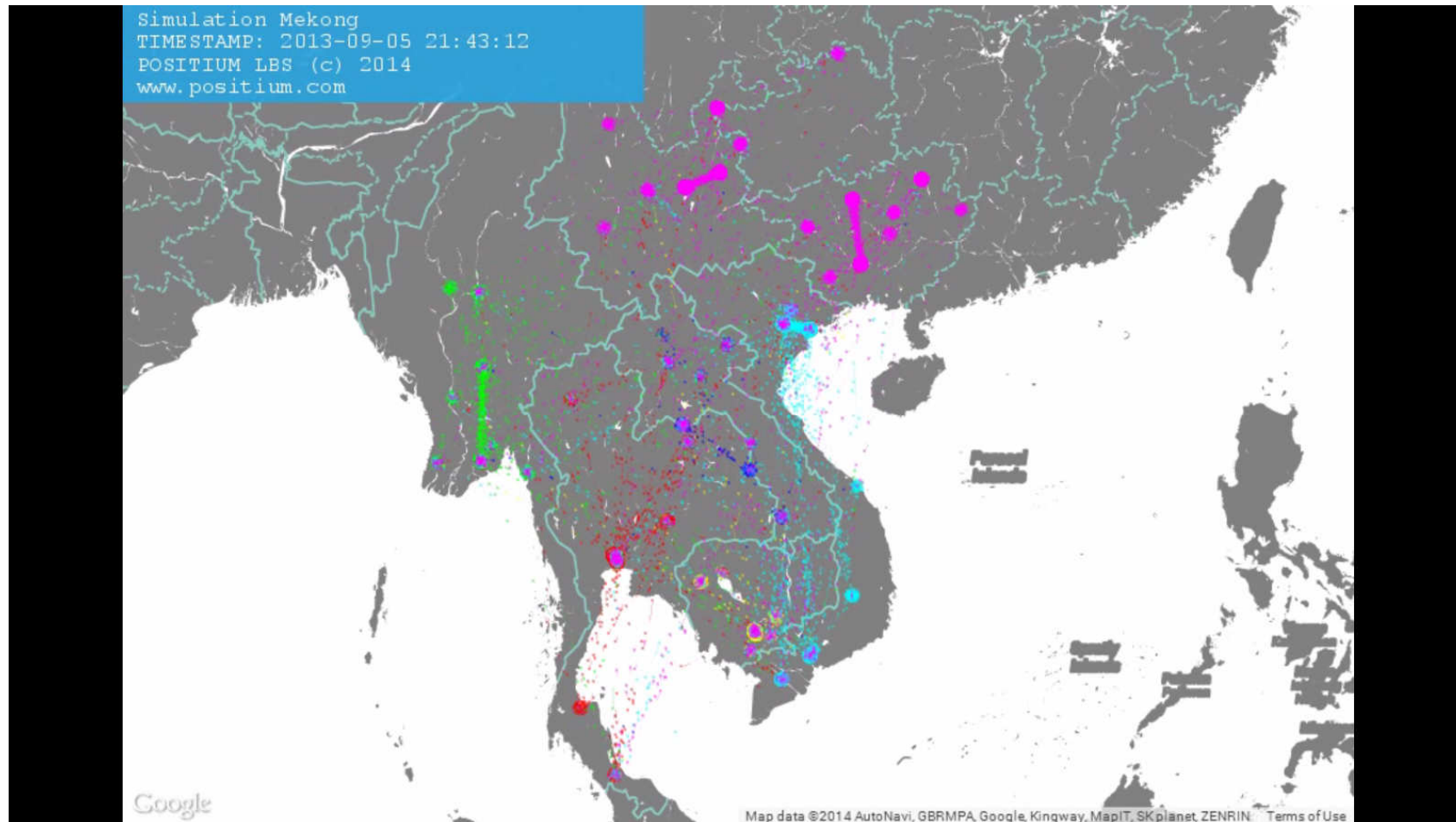
And One More

Tokyo Nov 19-20

Singapore Nov 21-22

Kuala Lumpur Nov 23-24

Jakarta Nov 25

Denpasar, Bali Nov 26

Bangkok Nov 27 - Dec 1