

**12th World Telecommunication/ICT Indicators Symposium
(WTIS-14)**

Tbilisi, Georgia, 24-26 November 2014



Presentation

**Document C/13-E
25 November 2014**

English

SOURCE: Positium

TITLE: Mobile positioning data for fast statistics



Mobile Positioning Data

new source for administrative statistics

Erki Saluveer
Positium / Mobility Lab
www.positium.com



Majority of the people use mobile phones on daily basis...



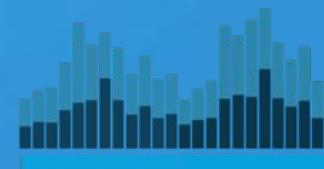
...leaving geographical footprint in the databases of Mobile Network Operators (MNO)



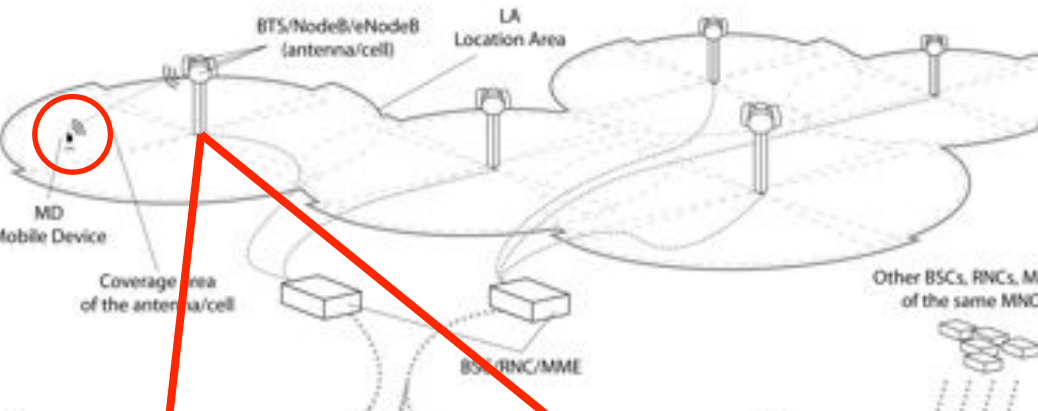
Processing the historical data with the aim of producing collective statistics...



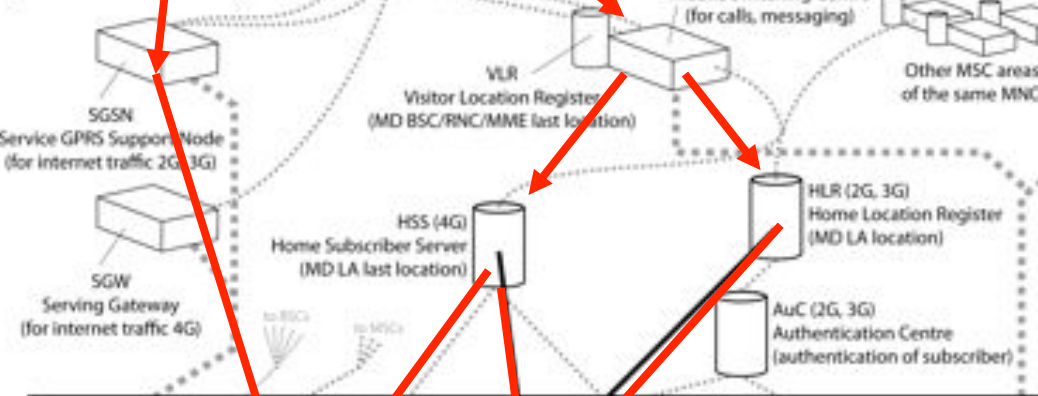
...results in statistical indicators that help understand the mobility of people, e.g. in tourism



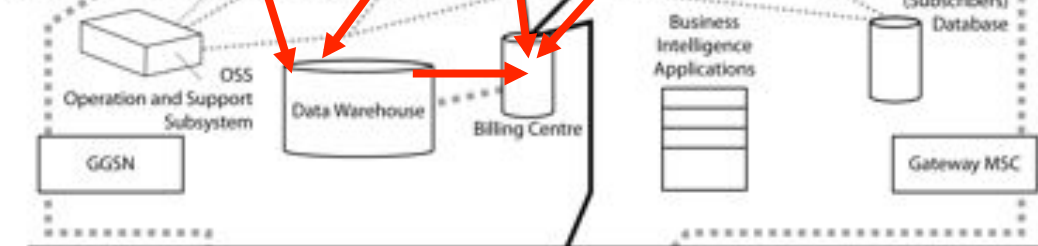
[BSS Base Station Subsystem]



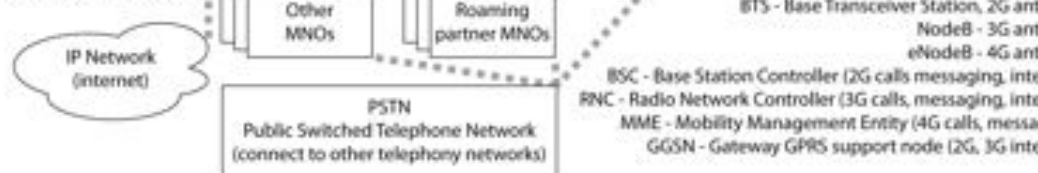
[NSS Network Subsystem]



[NMS Network Management System]



[Outside World]



Subscriber	Activity	Time	Cell
244211964246	Data	07.04.2014 12:15:00	43879
244121965188	LU	07.04.2014 12:15:02	43879
206201963365	Call	07.04.2014 12:15:04	44866
244121965188	Call	07.04.2014 12:15:04	43879
244121965188	Call	07.04.2014 12:15:05	43879
244211964246	LU	07.04.2014 12:15:06	43877
244121965188	Data	07.04.2014 12:15:09	43879
24405239944	LU	07.04.2014 12:15:09	48512
244211548784	Data	07.04.2014 12:15:10	48987
244121964444	SMS	07.04.2014 12:15:12	45559
244051604891	Data	07.04.2014 12:15:15	45601
24201725641	LU	07.04.2014 12:15:18	45463
244051965315	Data	07.04.2014 12:15:20	48987
244211963912	Call	07.04.2014 12:15:20	43570
244051605773	SMS	07.04.2014 12:15:23	35550
244211914278	Data	07.04.2014 12:15:26	48987
24421417297	Call	07.04.2014 12:15:26	48987
24421838967	LU	07.04.2014 12:15:27	43951
244051965316	Data	07.04.2014 12:15:29	43909
244121964762	LU	07.04.2014 12:15:30	46844
23802964803	Data	07.04.2014 12:15:30	46424
244121197162	LU	07.04.2014 12:15:30	46977
24421768224	Data	07.04.2014 12:15:32	43878
260021793995	LU	07.04.2014 12:15:35	43880
24405447807	Data	07.04.2014 12:15:37	38867
21670369602	SMS	07.04.2014 12:15:40	48302
22603714049	Data	07.04.2014 12:15:42	43878
234151962580	SMS	07.04.2014 12:15:44	43948
240081819893	SMS	07.04.2014 12:15:44	45464
244051160625	LU	07.04.2014 12:15:44	48987
244121965280	SMS	07.04.2014 12:15:46	7430

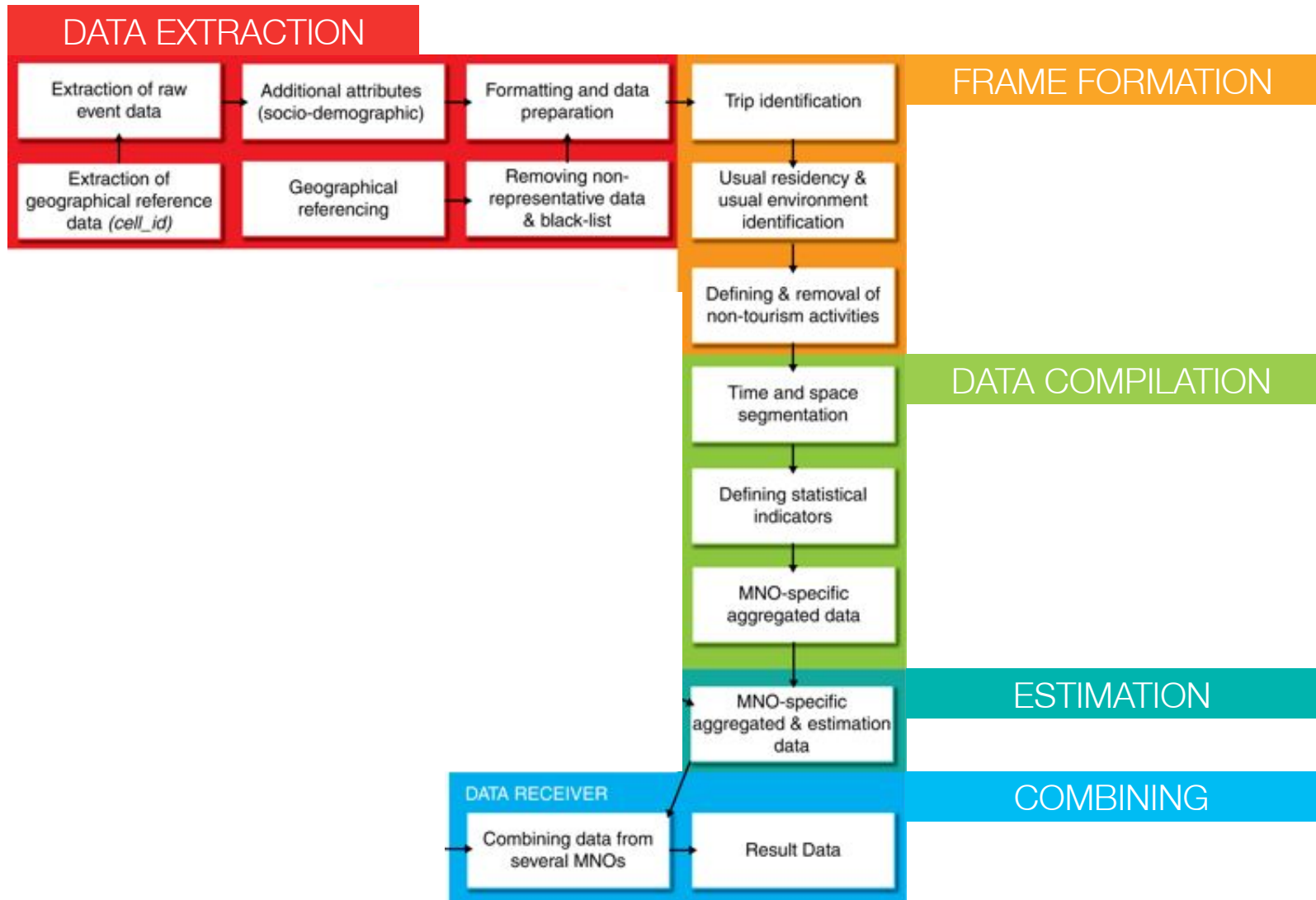
Domestic – locals and domestic tourists

Inbound – inbound roaming - foreign tourists

Outbound – outbound roaming - local people
abroad



Data Processing



Results

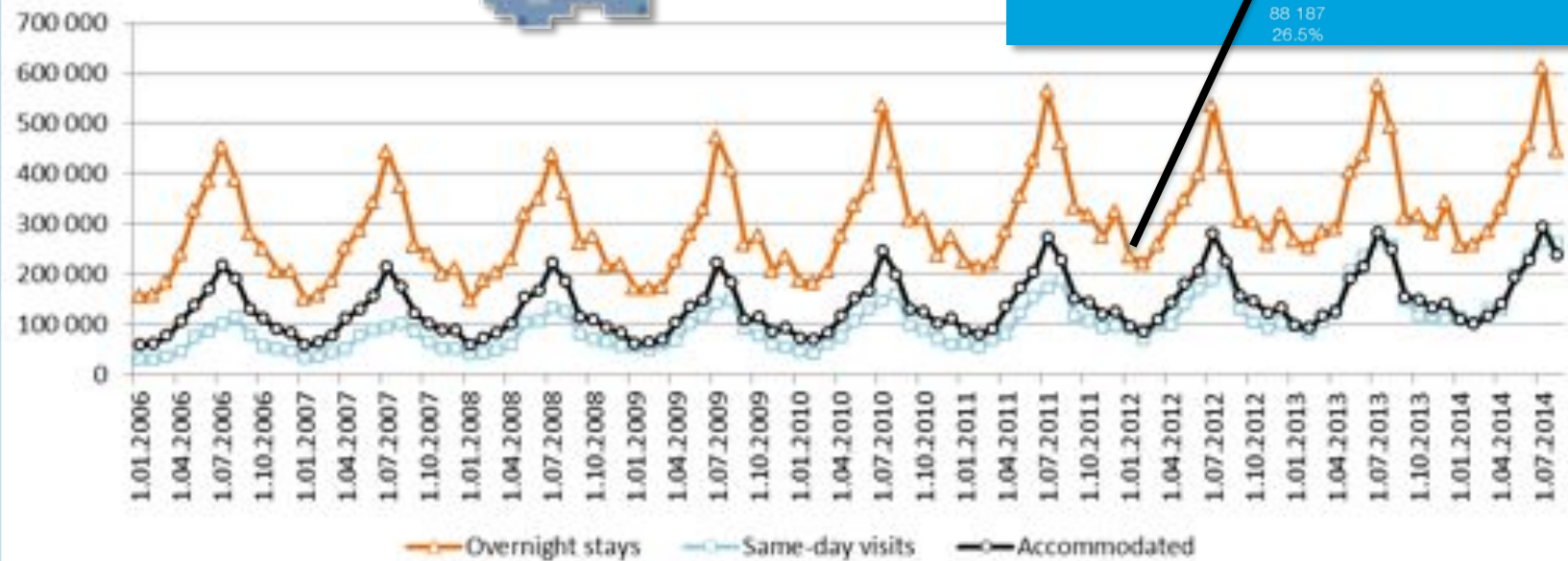
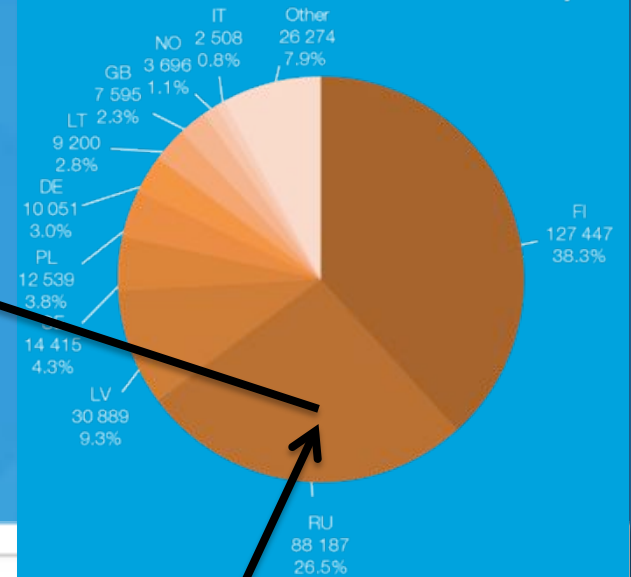
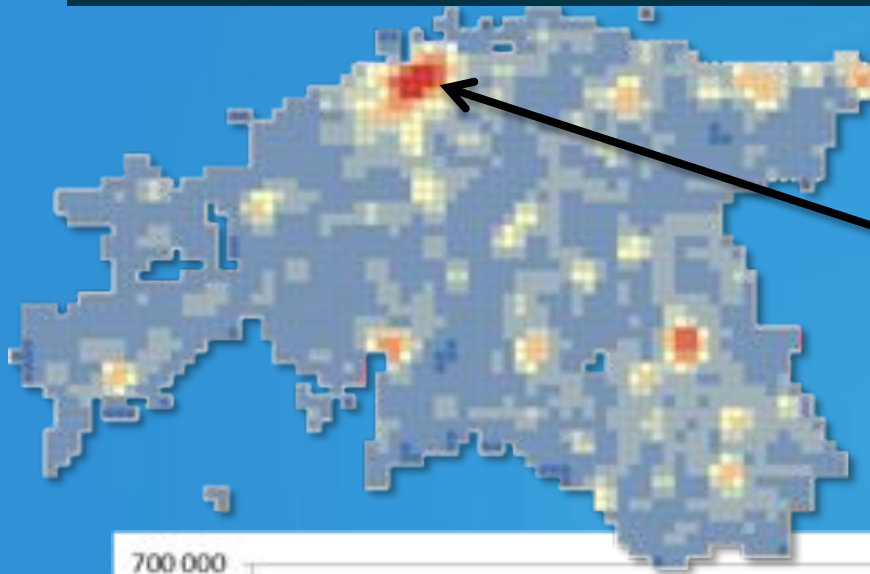
- Tourism statistics
- Population statistics
- Mobility statistics (Traffic and Transportation)

Areas of use:

- Tourism monitoring
- Urban / regional planning
- Transportation and traffic planning
- Geomarketing
- MNO internal-planning
- Scientific research
- ...

Inbound Tourism

Foreign Tourists in Estonia
January 2012



Example: Bank of Estonia (BoP)

Eesti Pank • Bank of Estonia

Bank of Estonia > Statistical indicators > External sector statistics > International travel statistics

Country: display all Step: quarter From: 2013 To: 2013
 Indicator: display all G1 Q4

1. Inbound travel Updated 14/02/2014

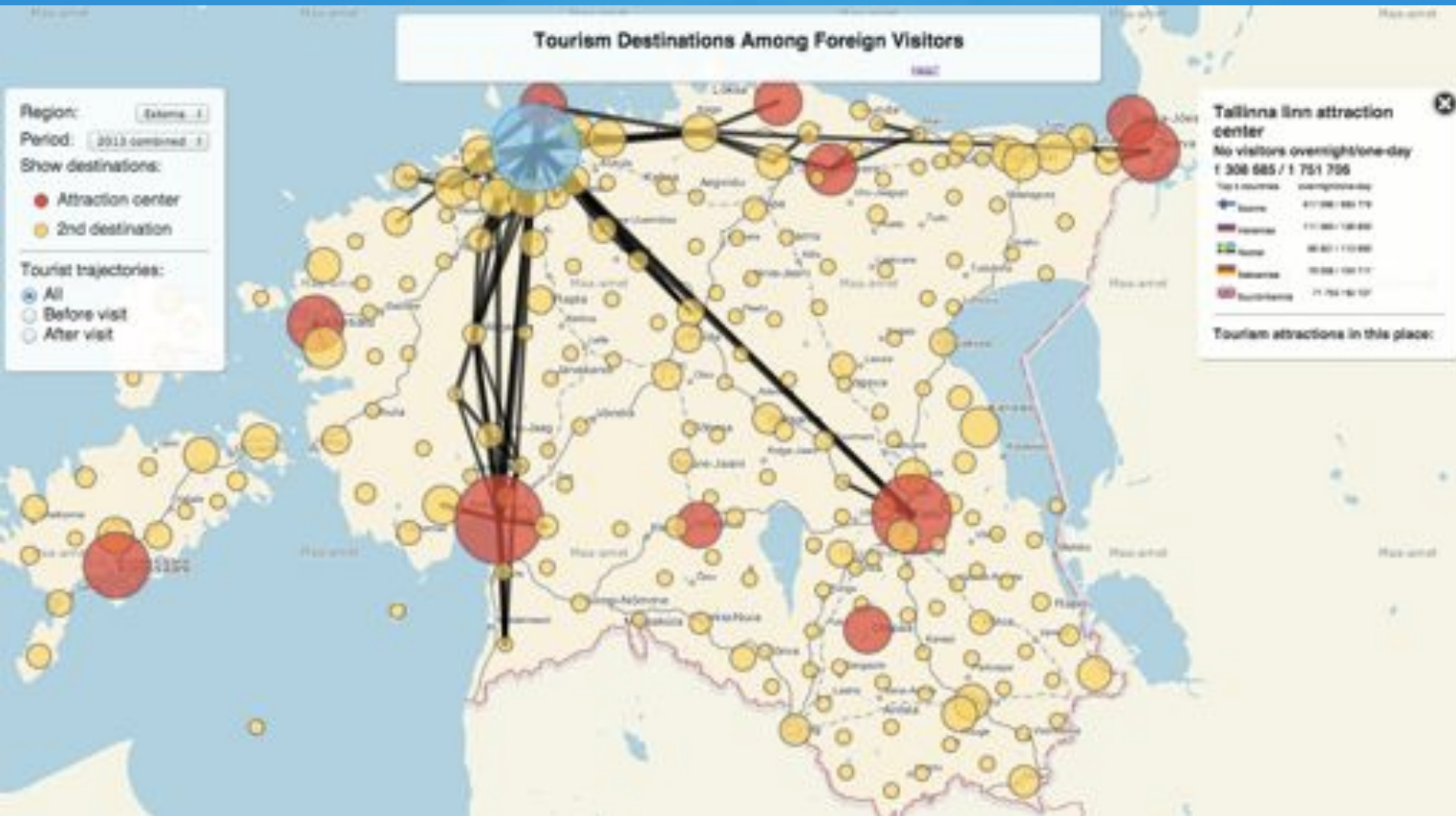
	Q3/2013				Q4/2013			
	Total number of visits	Number of overnight visits	Total length of visits (days)	Length of overnight visits (days)	Total number of visits	Number of overnight visits	Total length of visits (days)	Length of overnight visits (days)
TOTAL	2,010,609	916,775	5,036,767	3,940,933	1,236,394	647,164	3,336,607	2,748,377
EU 28	1,506,522	740,653	3,931,337	3,166,468	939,991	492,518	2,630,584	2,583,111
CIS	275,321	104,735	515,165	476,572	234,556	87,659	515,077	422,846
AU Australia	8,758	3,519	19,706	15,812	1,831	511	5,611	4,822
AT Austria	11,889	4,894	26,339	21,581	3,155	59	8,919	17,507
BY Belarus	3,751	1,988	7,171	7,815	3,850	1,772	7,977	8,739
BE Belgium	9,219	5,060	30,043	26,084	4,914	3,067	18,106	14,259
CA Canada	14,872	3,557	25,984	17,820	3,015	1,363	22,026	9,857
CN China	16,580	4,929	31,171	19,943	3,658	1,211	10,011	6,377
CZ Czech Republic	6,313	3,388	19,173	18,828	2,835	1,588	10,011	8,804
DK Denmark	10,827	5,719	21,171	24,512	6,485	1,121	12,011	18,751
FI Finland	769,734	406,834	2,034,059	1,671,159	589,445	311,583	1,564,804	1,288,941
FR France	24,312	12,318	76,885	68,071	9,894	6,849	44,930	41,885
DE Germany	151,413	65,874	387,984	302,245	38,294	22,853	134,312	118,871
HU Hungary	4,484	1,988	11,437	8,931	1,914	992	5,828	4,906
E Ireland	4,875	2,718	18,138	18,181	1,744	1,234	7,573	7,063
IT Italy	39,540	21,965	108,401	90,826	9,817	6,173	39,696	36,054
JP Japan	20,689	5,665	33,695	18,891	8,171	2,261	14,573	8,683

4x faster

12x countries breakdown

100% less burden on tourists

Statistics for Tourism Managers

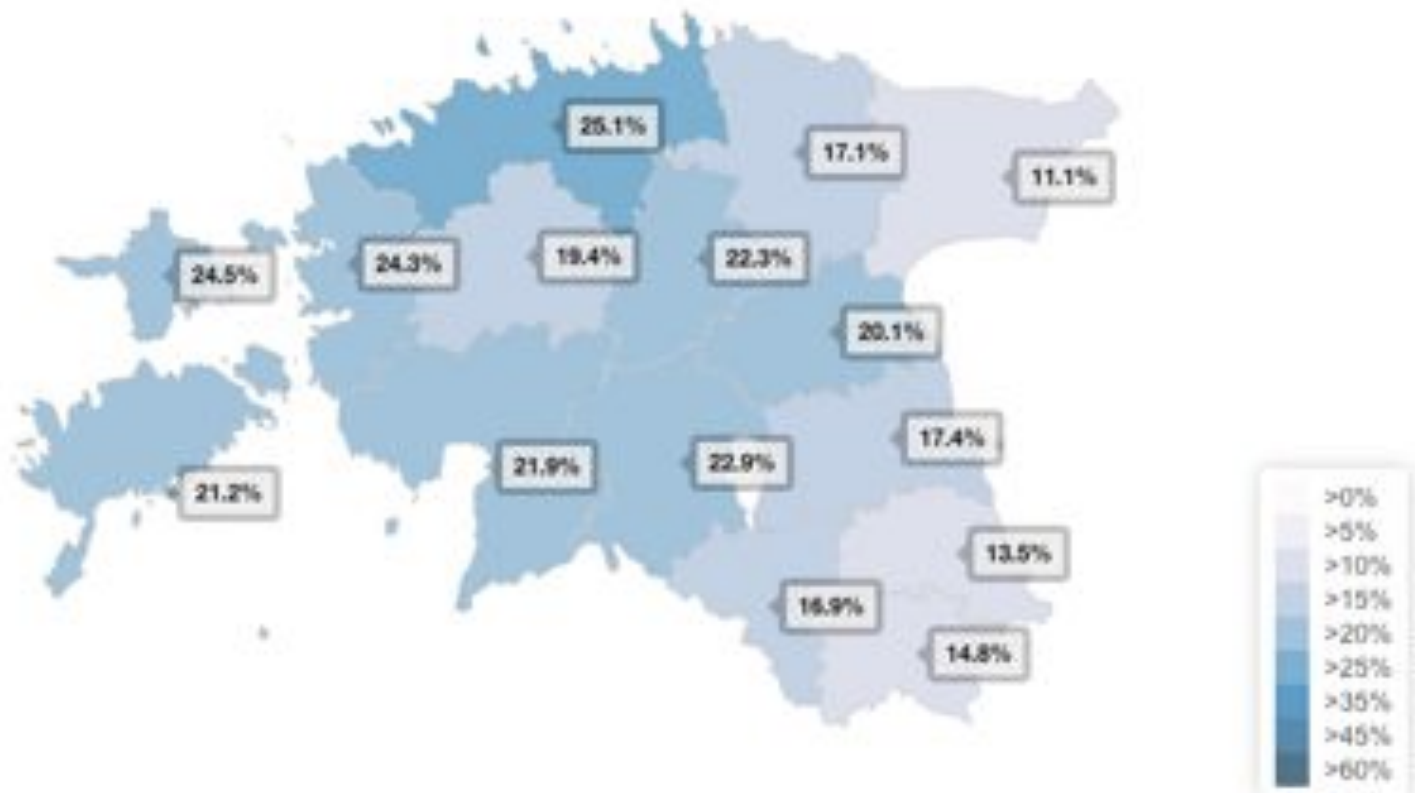


Statistics for MNO's

Geographical distribution of subscribers and visitors

Number of subscribers / number of visitors

Hover over a county



Powered by Leaflet

Time distribution of the proportion of subscribers compared to number of visitors

Number of subscribers / number of visitors

Countries where mobile positioning data is in use

- Austria
- Belgium
- Brazil
- Chile
- Czech Republic
- Estonia
- Finland
- Ireland
- Israel
- Japan
- Mexico
- Netherlands
- Slovenia
- Spain
- Sri Lanka
- UK
- USA
- ...



UNIVERSITY OF TARTU



Statistics Finland



IFSTAR



STATISTICS
ESTONIA

Feasibility study on the use of
mobile positioning data for
tourism statistics

Advantages in a nutshell

Mobile positioning can be a supplement to existing tourism statistics:

- Automation
- Timeliness
- Good coverage over time and space
- New statistical indicators that are often previously immeasurable

Challenges

- Access of the data (legislation and ownership of the data)
- Privacy protection aspects and methodological aspects of processing highly sensitive data
- Mobile phone usage - representativeness of the data (cultural, socio-economic and geographical, M2M)



Thank You!

Erki Saluveer
erki.saluveer@positium.ee

<http://mobfs.positium.ee/>