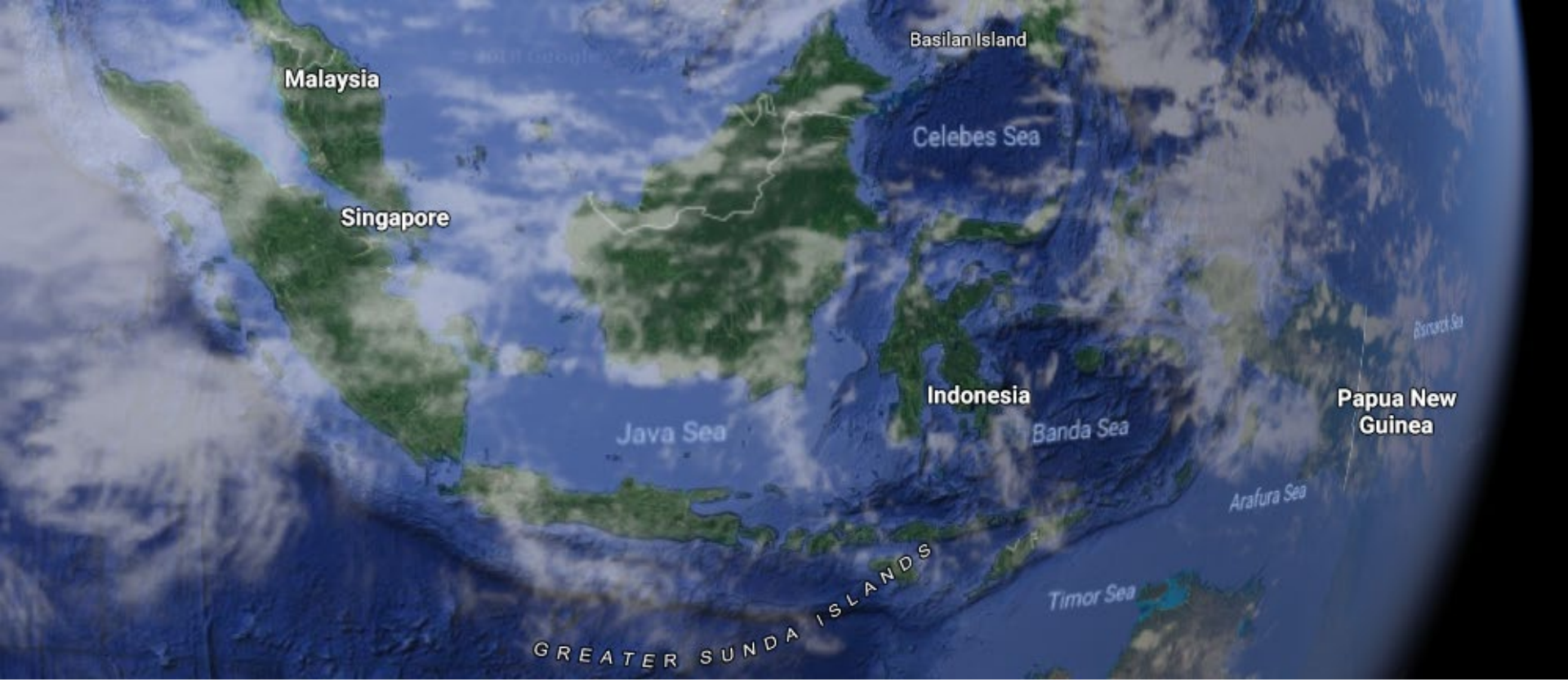


MPD & Indonesia Projects overview

Margus Tiru
Siim Esko
Positium

wonderful indonesia

BADAN PUSAT STATISTIK

TELKOMSEL

positium

Agenda

- Background
- Ministry of Tourism cross-border tourism project 2016-2018
- Ministry of Tourism / BPS domestic tourism project 2018-2019
- Population Census 2020

Background

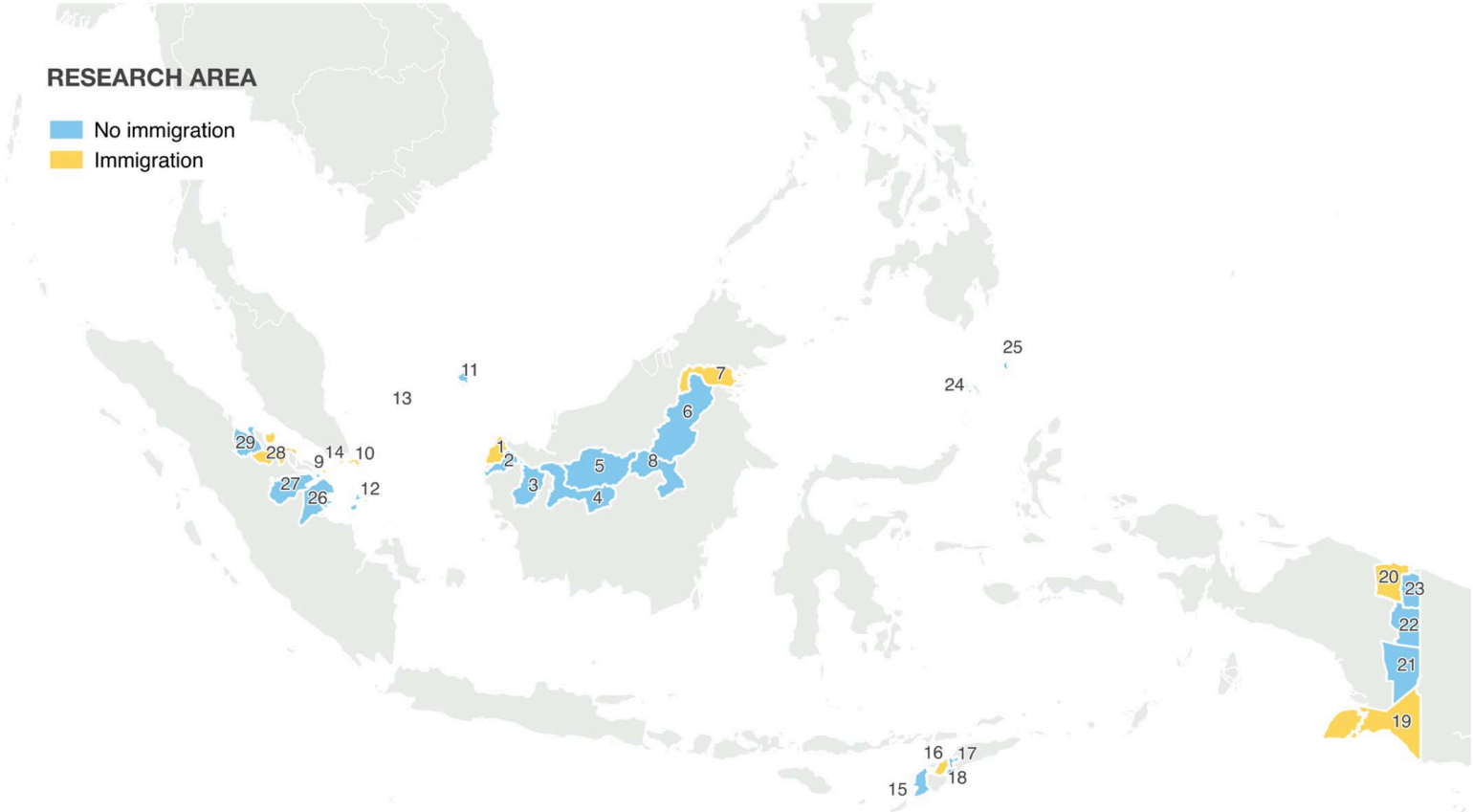
- Indonesia has decided to use MPD for several domains to improve the quality and fill the gaps
- Initial projects focusing on inbound tourism – since October 2016
- Next steps domestic tourism, population census, mobility, etc. – 2018 and onwards

- Digital methods – MPD and digital surveys have already lessened the burden on the statistical office in terms of tourism surveys – BPS expects to substitute surveys with timely and more accurate digital data collection in the future

Ministry of Tourism cross-border tourism project

MPD to fill the gap for cross-border statistics from neighboring countries

Border areas with and w/o immigration statistics



Sambas 1 | Bengkayang 2 | Sanggau 3 | Sintang 4 | Kapuas Hulu 5 | Malinau 6 | Nunukan 7 | Mahakam Hulu 8 | Karimun 9 | Bintan 10 | Natuna 11 | Lingga 12 | Kepulauan Anambas 13 | Kota Batam 14 | Kupang 15 | Timor Tengah Utara 16 | Belu 17 | Malaka 18 | Mereauke 19 | Jayapura 20 | Boven Digoel 21 | Pegunungan Bintang 22 | Keerom 23 | Kepulauan Sangihe 24 | Kepulauan Talaud 25 | Indragiri Hilir 26 | Pelalawan 27 | Bengkalis 28 | Rokan Hilir 29 |

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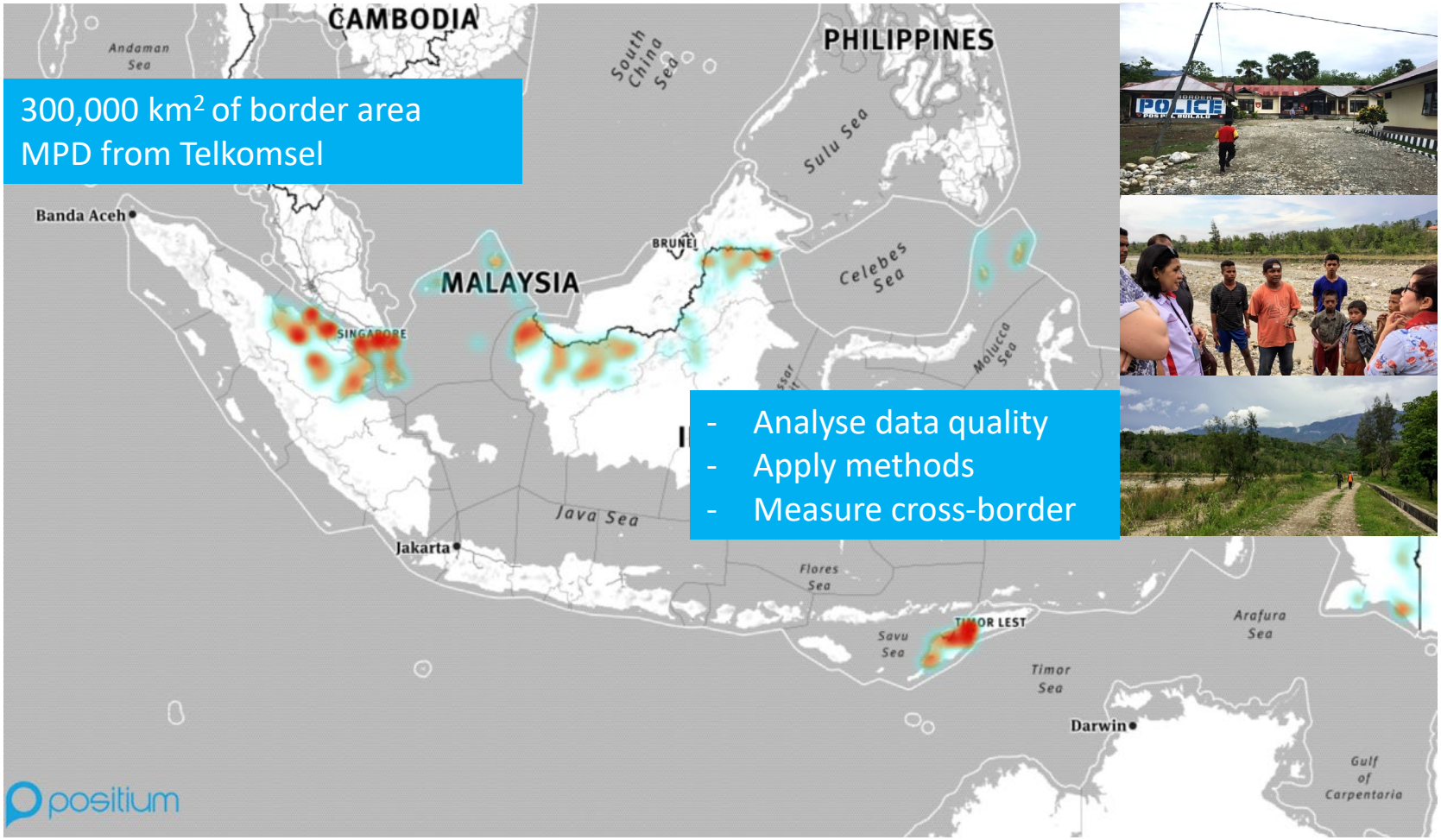
Cross-Border Tourism in Indonesia



300,000 km^2 of border area
MPD from Telkomsel

- Analyse data quality
- Apply methods
- Measure cross-border

Summary

- Cross-border tourism (from neighbouring countries):
  - Before (Timor-Leste, Malaysia, Singapore): 7%
  - With MPD 30%
- Timor-Leste became TOP 3 country of origin (before TOP10++)
- 2017:
  - no MPD: 12,480,492
  - + MPD: 14,039799 (increase 12.5%)
- Regular updates starting from 2017, improved methodology in 2018

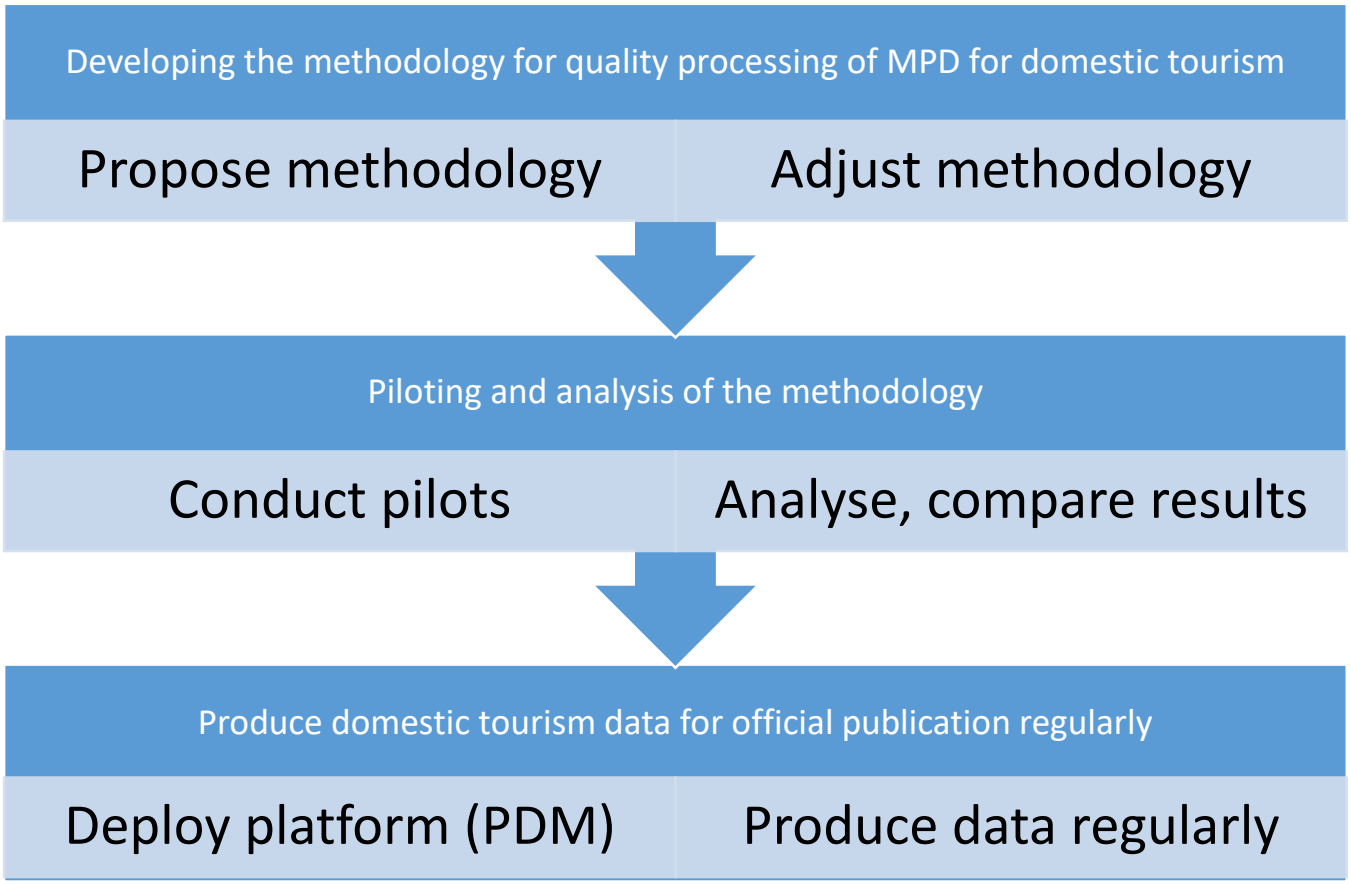
Ministry of Tourism / BPS domestic tourism project

MPD for calculating domestic tourism trips

Overview

Objective	Implement the methodology and technological platform to produce domestic tourism statistics from MPD
Key Outcomes	• Prepare methodology and technology to fully engage MPD in domestic tourism statistics, anchor points, usual environment, domestic tourism trips • Two pilots • Compare results to traditional domestic tourism survey • Increase the quality (level of disaggregation and accuracy) • Build the technological platform for regular updates

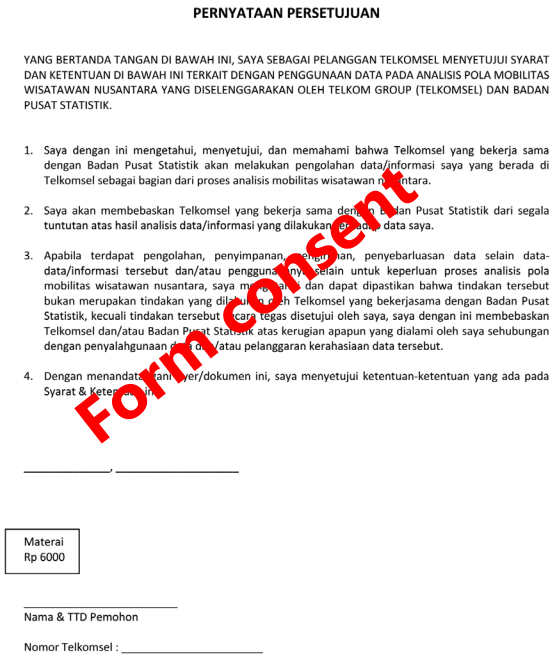
Scope of Work



Summary

- Monthly data of Domestic Tourism up to Kabupaten Level (even Kecamatan/District level) can be published monthly
- Reduce respondent and work burdent
- Number of trips will be more accurate (no recalling problems)
- Household survey can only published up to provincial level (sampling issue) and annually. Number of trips possible under (recalling problems), the survey asked number of trips during six months

Volunteers



PERNYATAAN PERSETUJUAN

YANG BERTANDA TANGAN DI BAWAH INI, SAYA SEBAGAI PELANGGAN TELKOMSEL MENYETUJUI SYARAT DAN KETENTUAN DI BAWAH INI TERKAIT DENGAN PENGGUNAAN DATA PADA ANALISIS POLA MOBILITAS WISATAWAN NUSANTARA YANG DISELENGGARAKAN OLEH TELKOM GROUP (TELKOMSEL) DAN BADAN PUSAT STATISTIK.

1. Saya dengan ini mengetahui, menyetujui, dan memahami bahwa Telkomsel yang bekerja sama dengan Badan Pusat Statistik akan melakukan pengolahan data/informasi saya yang berada di Telkomsel sebagai bagian dari proses analisis mobilitas wisatawan nusantara.
2. Saya akan membebaskan Telkomsel yang bekerja sama dengan Badan Pusat Statistik dari segala tuntutan atas hasil analisis data/informasi yang dilakukan terhadap data saya.
3. Apabila terdapat pengolahan, penyimpanan, pengalihan, penyebarluasan data selain data-data/informasi tersebut dan/atau penggunaannya selain untuk keperluan proses analisis pola mobilitas wisatawan nusantara, saya menyatakan dan dapat dipastikan bahwa tindakan tersebut bukan merupakan tindakan yang dilakukan oleh Telkomsel yang bekerjasama dengan Badan Pusat Statistik, kecuali tindakan tersebut secara tegas disetujui oleh saya, saya dengan ini membebaskan Telkomsel dan/atau Badan Pusat Statistik atas kerugian apapun yang dialami oleh saya sehubungan dengan penyalahgunaan data dan/atau pelanggaran kerahasiaan data tersebut.
4. Dengan menandatangani layer/dokumen ini, saya menyetujui ketentuan-ketentuan yang ada pada Syarat & Ketentuan ini.

Form consent

_____, _____

Materai
Rp 6000

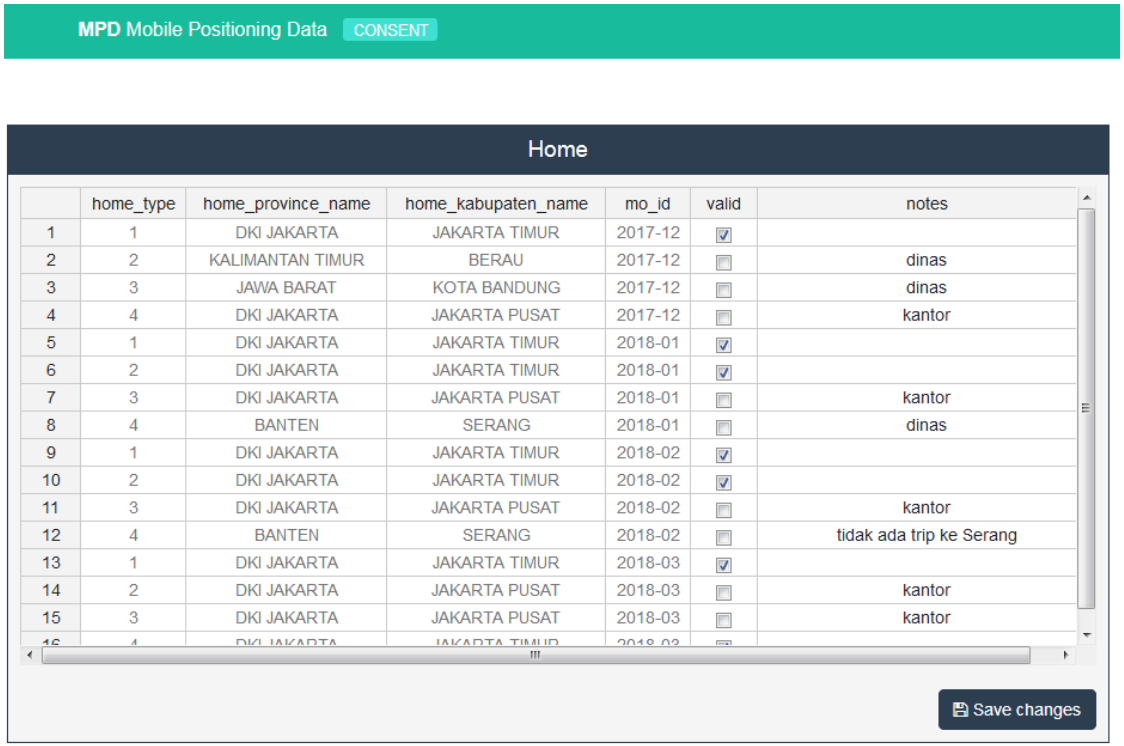
_____
Nama & TTD Pemohon

Nomor Telkomsel : _____

65 orang volunteers, all BPS staffs.

HOME Validation (Verification)

- Home is correct?



	home_type	home_province_name	home_kabupaten_name	mo_id	valid	notes
1	1	DKI JAKARTA	JAKARTA TIMUR	2017-12	☑	
2	2	KALIMANTAN TIMUR	BERAU	2017-12	☐	dinas
3	3	JAWA BARAT	KOTA BANDUNG	2017-12	☐	dinas
4	4	DKI JAKARTA	JAKARTA PUSAT	2017-12	☐	kantor
5	1	DKI JAKARTA	JAKARTA TIMUR	2018-01	☑	
6	2	DKI JAKARTA	JAKARTA TIMUR	2018-01	☑	
7	3	DKI JAKARTA	JAKARTA PUSAT	2018-01	☐	kantor
8	4	BANTEN	SERANG	2018-01	☐	dinas
9	1	DKI JAKARTA	JAKARTA TIMUR	2018-02	☑	
10	2	DKI JAKARTA	JAKARTA TIMUR	2018-02	☑	
11	3	DKI JAKARTA	JAKARTA PUSAT	2018-02	☐	kantor
12	4	BANTEN	SERANG	2018-02	☐	tidak ada trip ke Serang
13	1	DKI JAKARTA	JAKARTA TIMUR	2018-03	☑	
14	2	DKI JAKARTA	JAKARTA PUSAT	2018-03	☐	kantor
15	3	DKI JAKARTA	JAKARTA PUSAT	2018-03	☐	kantor

WORK Validation/Verification

- Work is correct?

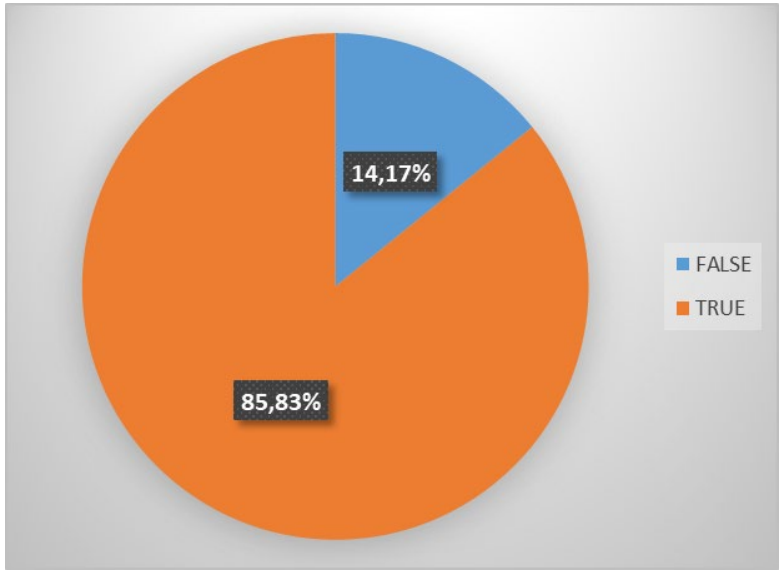
Logout (628111012582)

Work

	work_type	work_province_name	work_kabupaten_name	mo_id	valid	notes
1	1	KALIMANTAN TIMUR	BERAU	2017-12	☐	dinas
2	2	JAWA BARAT	KOTA BANDUNG	2017-12	☐	dinas
3	3	DKI JAKARTA	JAKARTA TIMUR	2017-12	☐	rumah
4	4	DKI JAKARTA	JAKARTA PUSAT	2017-12	☑	
5	1	DKI JAKARTA	JAKARTA TIMUR	2018-01	☐	dinas
6	2	BANTEN	SERANG	2018-01	☐	dinas
7	3	DKI JAKARTA	JAKARTA PUSAT	2018-01	☑	
8	4	DKI JAKARTA	JAKARTA TIMUR	2018-01	☐	rumah
9	1	DKI JAKARTA	JAKARTA TIMUR	2018-02	☐	rumah
10	2	DKI JAKARTA	JAKARTA PUSAT	2018-02	☑	
11	3	BANTEN	KOTA TANGERANG	2018-02	☐	tidak ada trip ke Tangerang
12	4	DKI JAKARTA	JAKARTA TIMUR	2018-02	☐	rumah
13	1	DKI JAKARTA	JAKARTA TIMUR	2018-03	☐	rumah
14	2	DKI JAKARTA	JAKARTA PUSAT	2018-03	☑	
15	3	DKI JAKARTA	JAKARTA TIMUR	2018-03	☐	rumah
16	4	DKI JAKARTA	JAKARTA PUSAT	2018-03	☑	

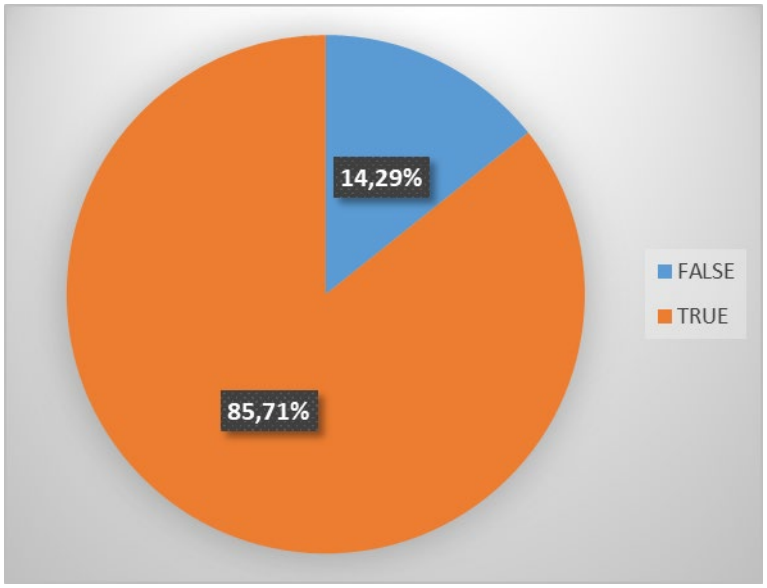
Save changes

Accuracy of Home Detection of the Volunteers



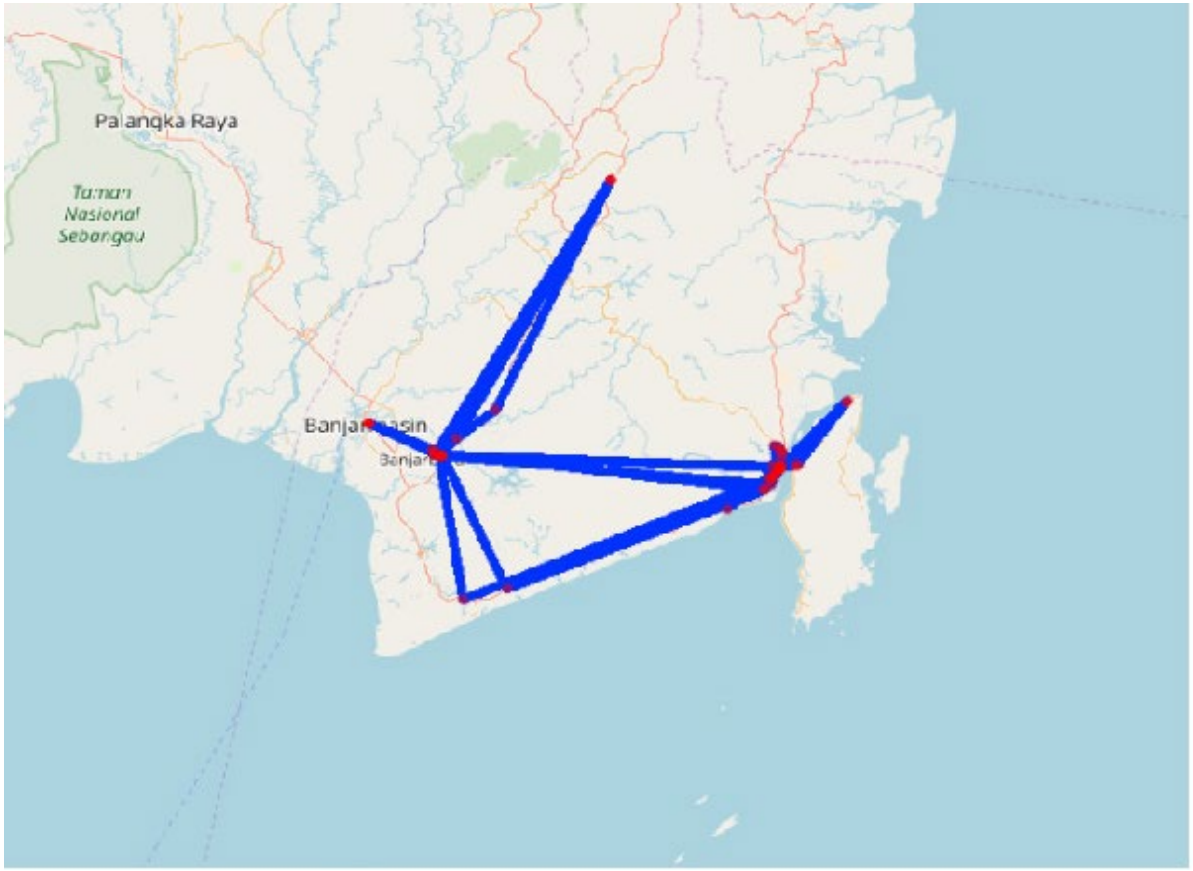
- Accuracy of home detection is 85,83% (rank 1)
- Accuracy of home candidate rank
  - 2 : 58,92 %
  - 3 : 58,02 %
  - 4 : 51,50 %

Accuracy of Work Detection of the Volunteers

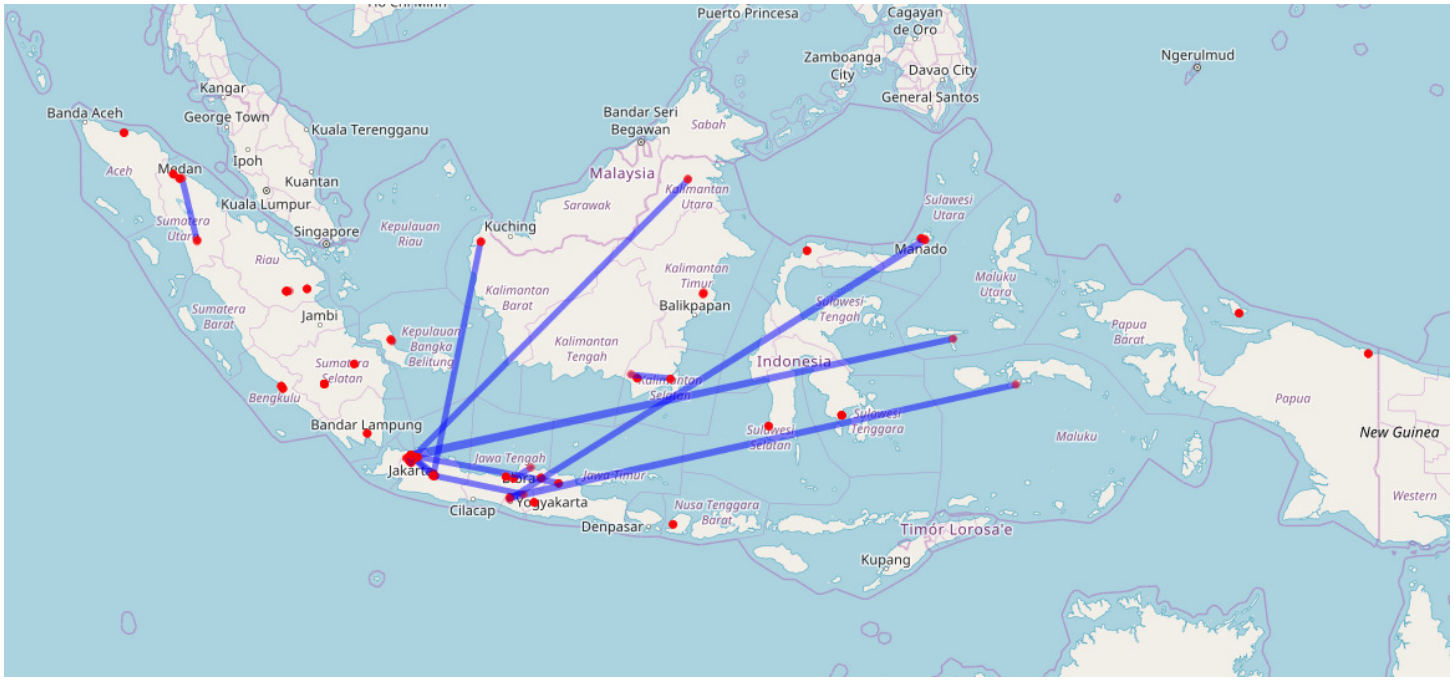


- Accuracy of Work detection is 85,71 %
- Accuracy of Work candidates rank
  - 2 : 60,16 %
  - 3 : 48,51 %
  - 4 : 50,44 %

Example of mobility of one subscriber



Example of trips of 1 subscriber



Population Census 2020

Using MPD for population estimates as input for field strategy and prediction of population census results

Population Census 2020 Indonesia

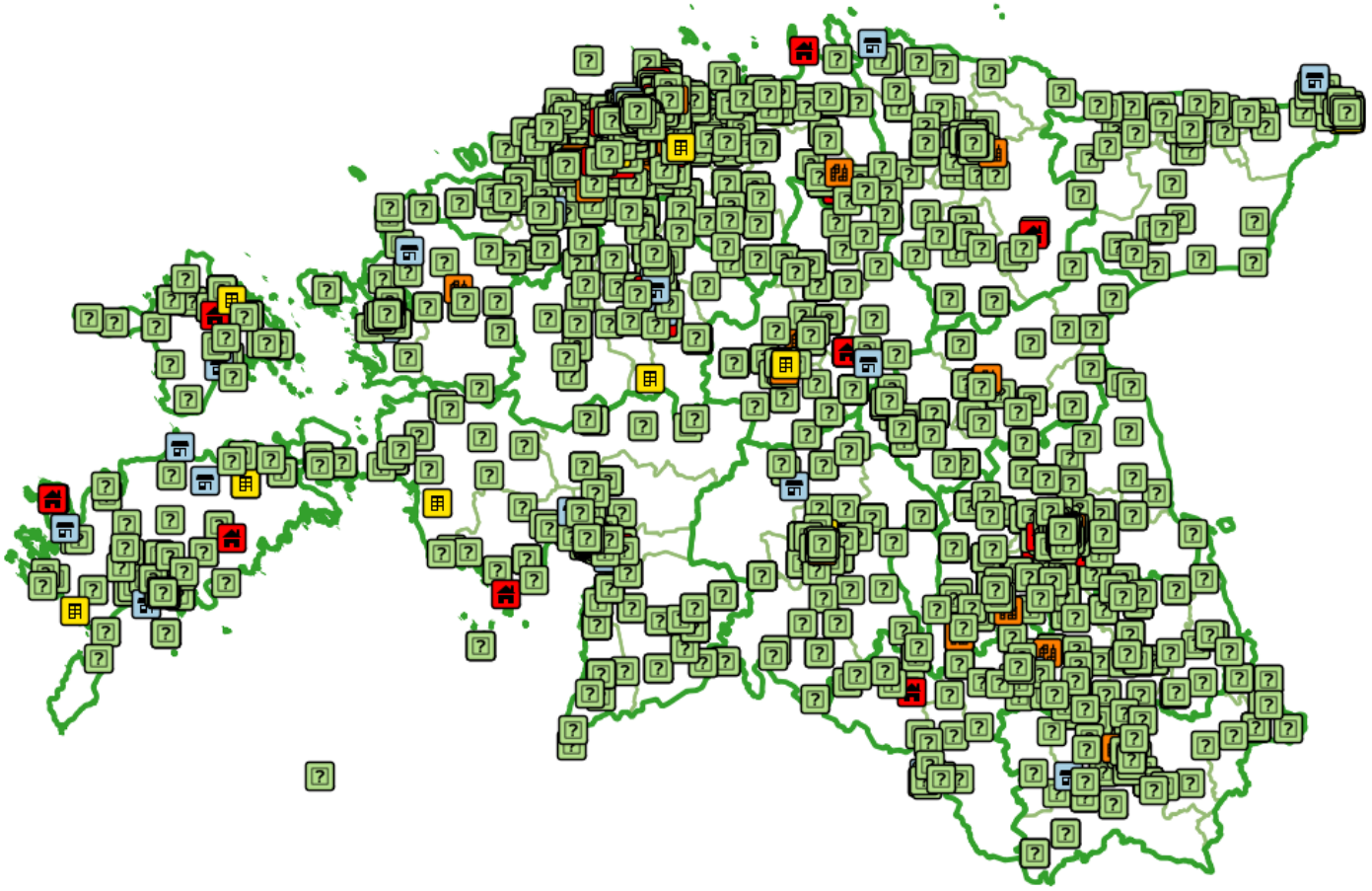
Innovations planned for this round of census:

- Use of geospatial technology for mainframe and on-the-ground data collection
- **Explore the utilization of BIG DATA in the population census**
- Development of a command center

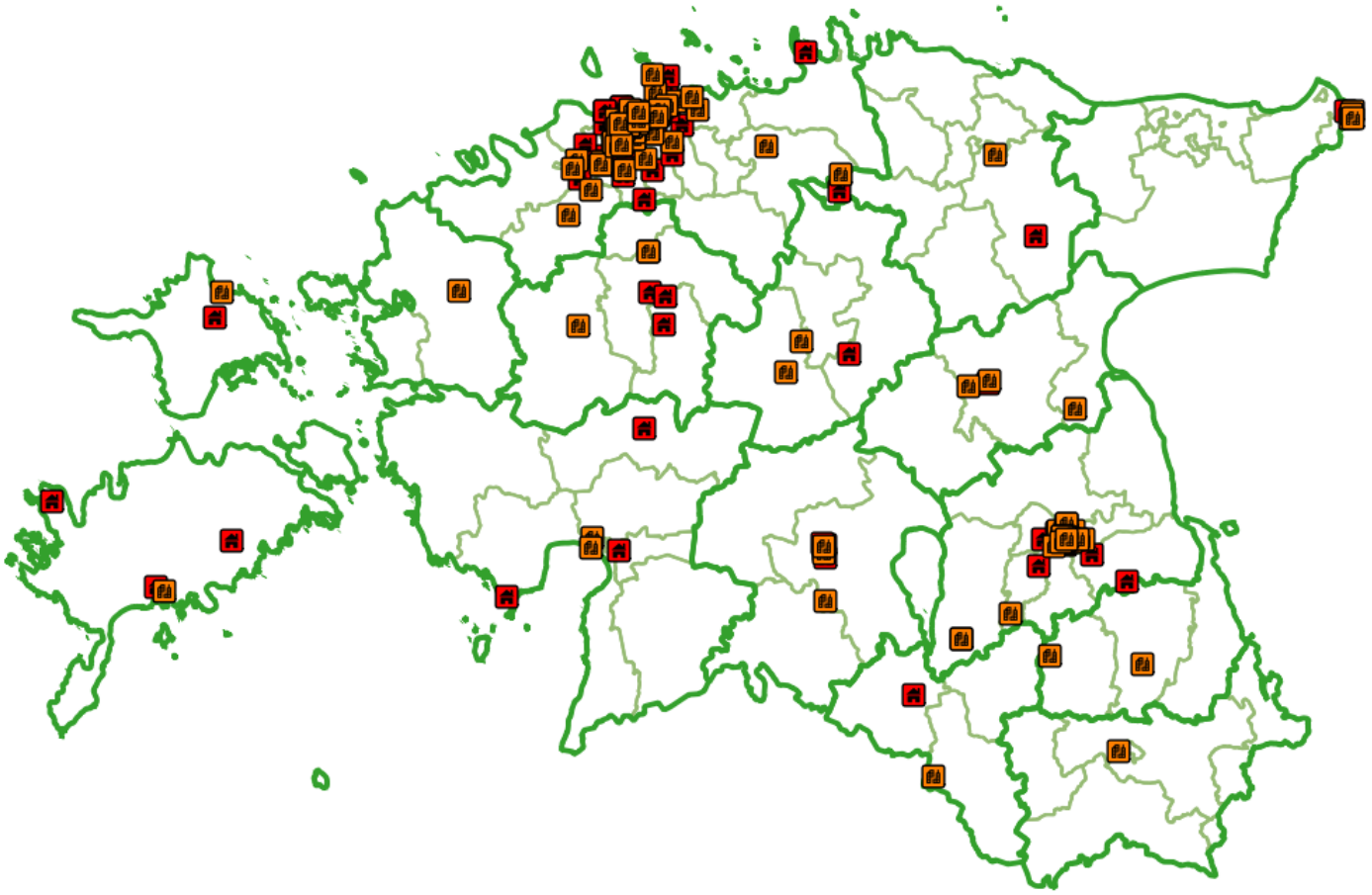
Some options for MPD in Population Census

- Estimation of population counts by census tract for enumerator planning
- Validation of pop-registry home via MPD home anchor point
- Smart identification of home from several potential locations

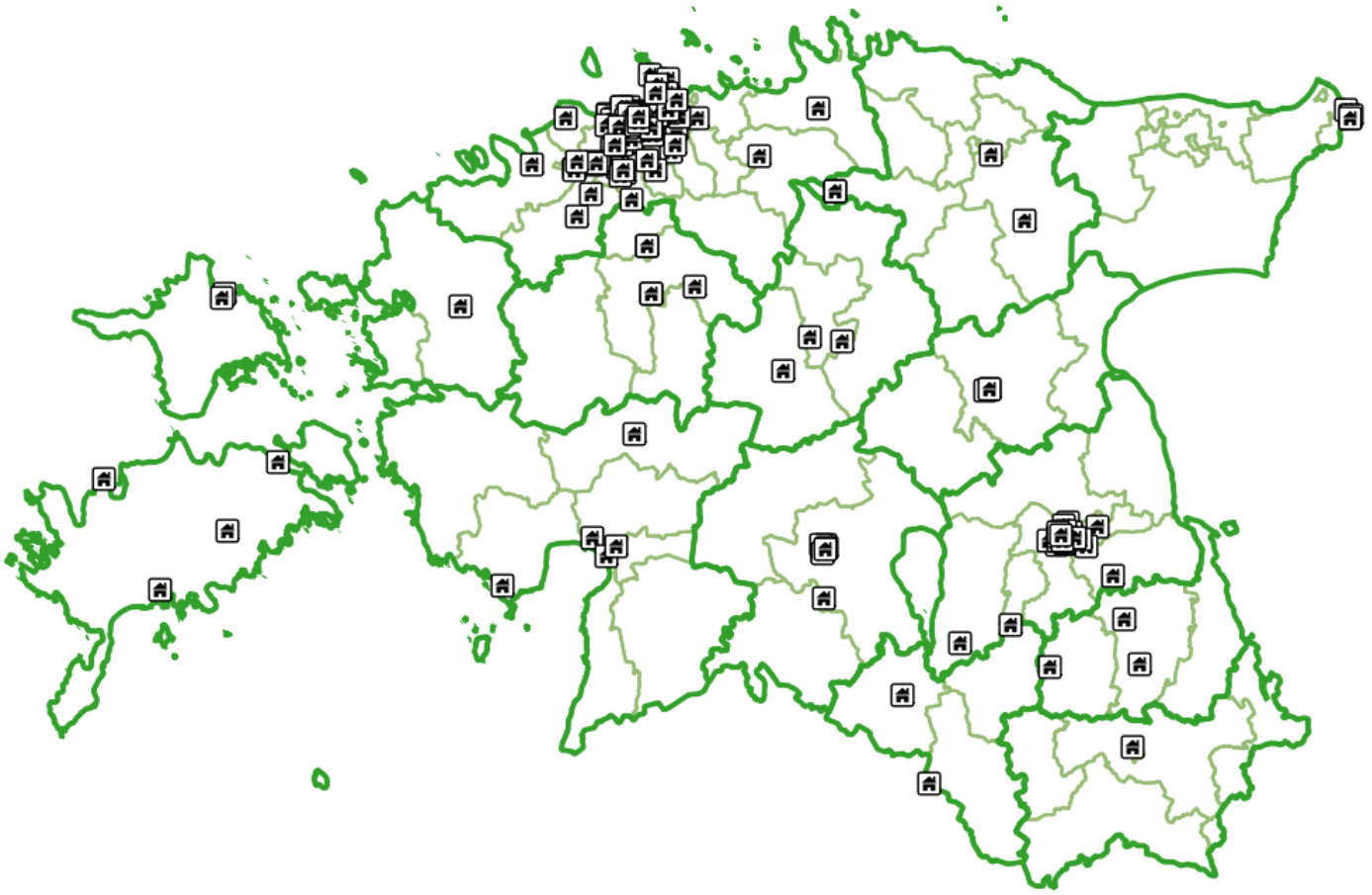
Test case: All anchor points



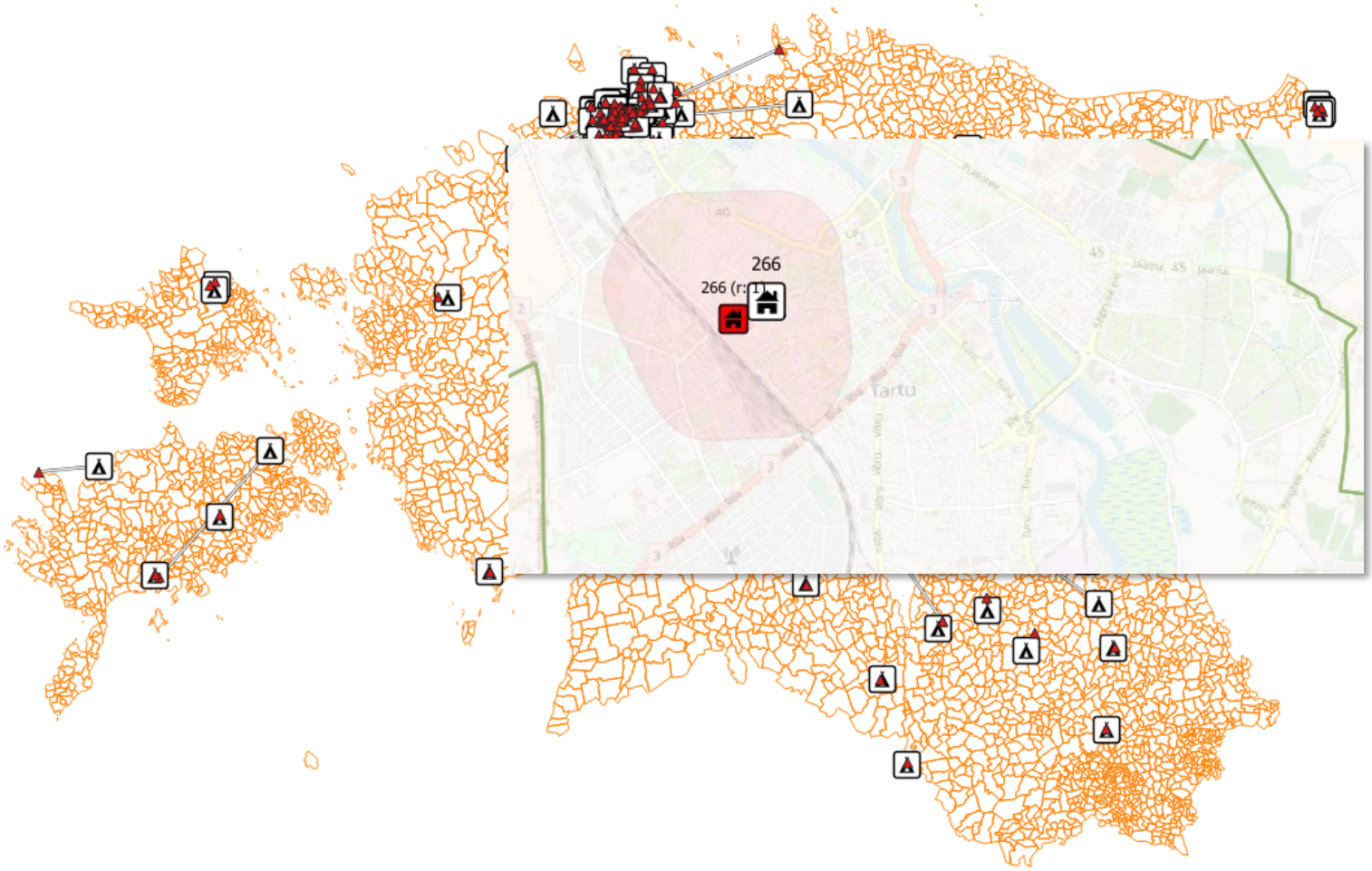
Test case: Home / home-work anchor points



Test case: Real homes



Test case: Difference



Lessons Learned from Indonesian experience

- Initial projects in inbound tourism
  - Less data, less processing
  - Simpler methodology
  - Feasibility and pilots
  - More administrative and legal aspects
- Move towards larger projects
  - More data, more processing
  - More complex methodology (anchors, census block level)
  - Domestic tourism, population census, mobility, etc.
  - Administrative agreements in place, mode of operations clear
- BPS is enacting on its big data strategy step-by-step, hoping to reduce the burden on surveys with timely and accurate digital methods by 2020 – MPD is one of those methods

Thank You!

Questions?

margus.tiru@positium.com

positium