



# FIG WORKING WEEK 2019

22-26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



*Presented at the FIG Working Week 2019,  
April 22-26, 2019 in Hanoi, Vietnam*

# QUALITY IMPROVEMENT OF THE CADASTRAL INDEX MAP

**"Discover a hidden treasure"  
Boundary chasing by smartphone**

Authors: Heikki Lind, Mauno Pyykönen

ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

Finland



“Geospatial Information for a Smarter Life and Environmental Resilience”

## Background

- Approx. 11 million boundary markers.
- Approx. 9 million have been set up permanently in the terrain.
- Approx. 10–20% of the boundary markers have disappeared.



ORGANISED BY



PLATINUM SPONSORS







# FIG WORKING WEEK 2019

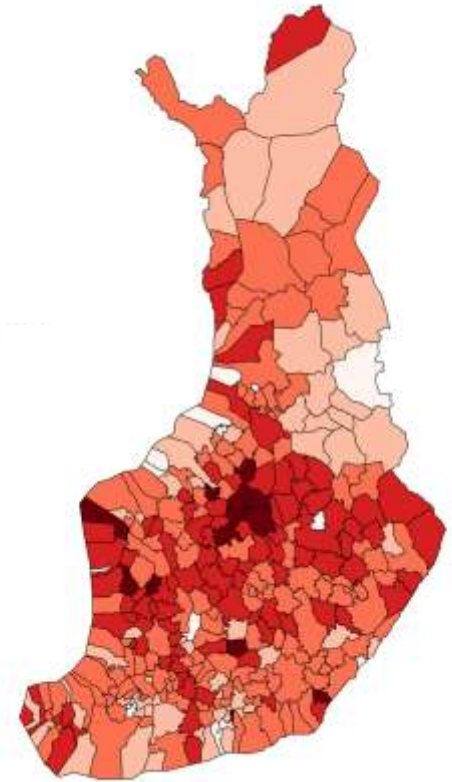
22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## Positional accuracy of boundary markers

- The positional accuracy of more than 6 million boundary markers is 1.0 metre or better.
- The positional accuracy of approx. 3 million boundary markers is 1–10 metres.



ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

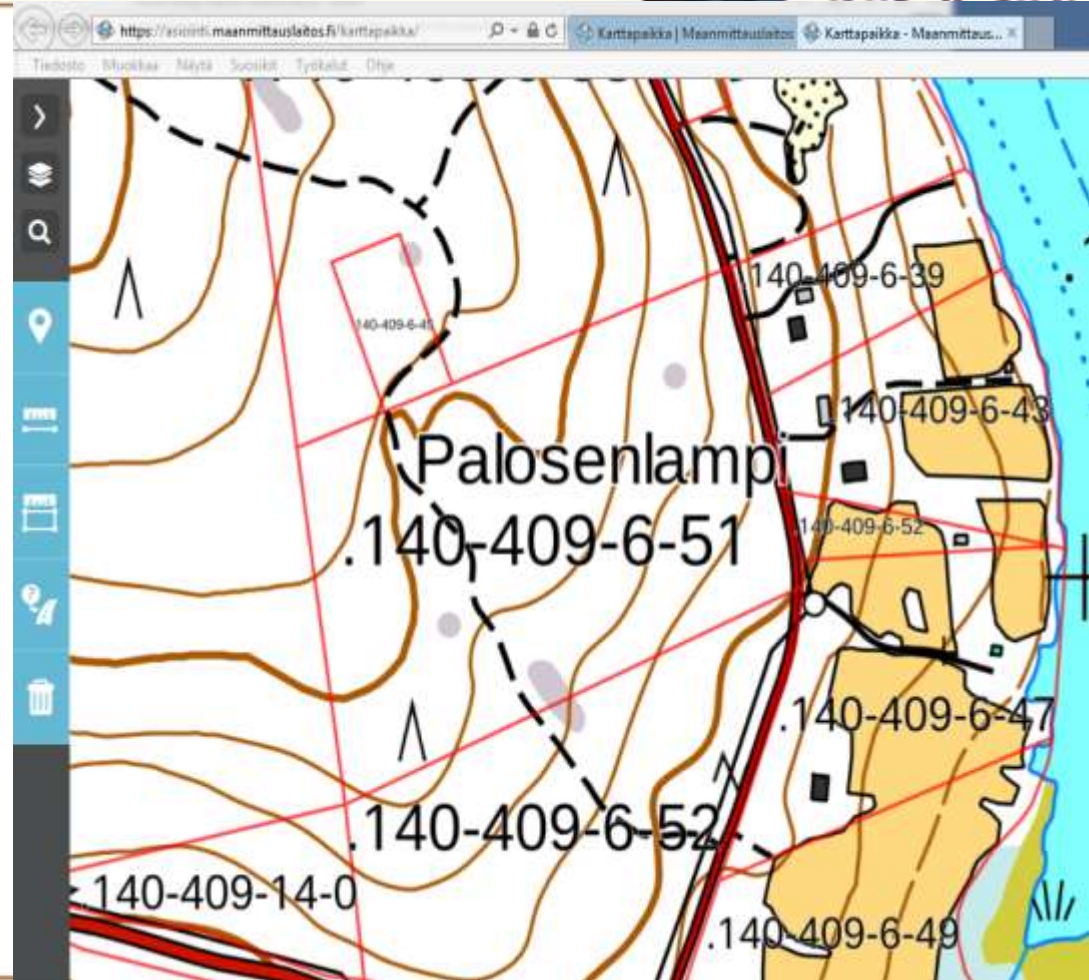
"Geospatial Information for a Smarter Life and Environmental Resilience"



## Cadastral index map

- The Cadastral index map is a good brand – the public trust it
- The quality of the Cadastral index map is, however, uneven.

<https://asiointi.maanmittauslaitos.fi/karttapaikka/?lang=en/>



ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

## HOW COULD THE POSITIONAL ACCURACY OF THE CADASTRAL BOUNDARY MAP BE IMPROVE?

ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22-26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



It is time-consuming and costly to measure boundary markers by GPS.

The solution is:

## Crowdsourcing

- Smartphone app



ORGANISED BY



PLATINUM SPONSORS







# FIG WORKING WEEK 2019

22-26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



- The smartphone directs the user to the desired boundary marker
- Information about the boundary marker



ORGANISED BY



PLATINUM SPONSORS







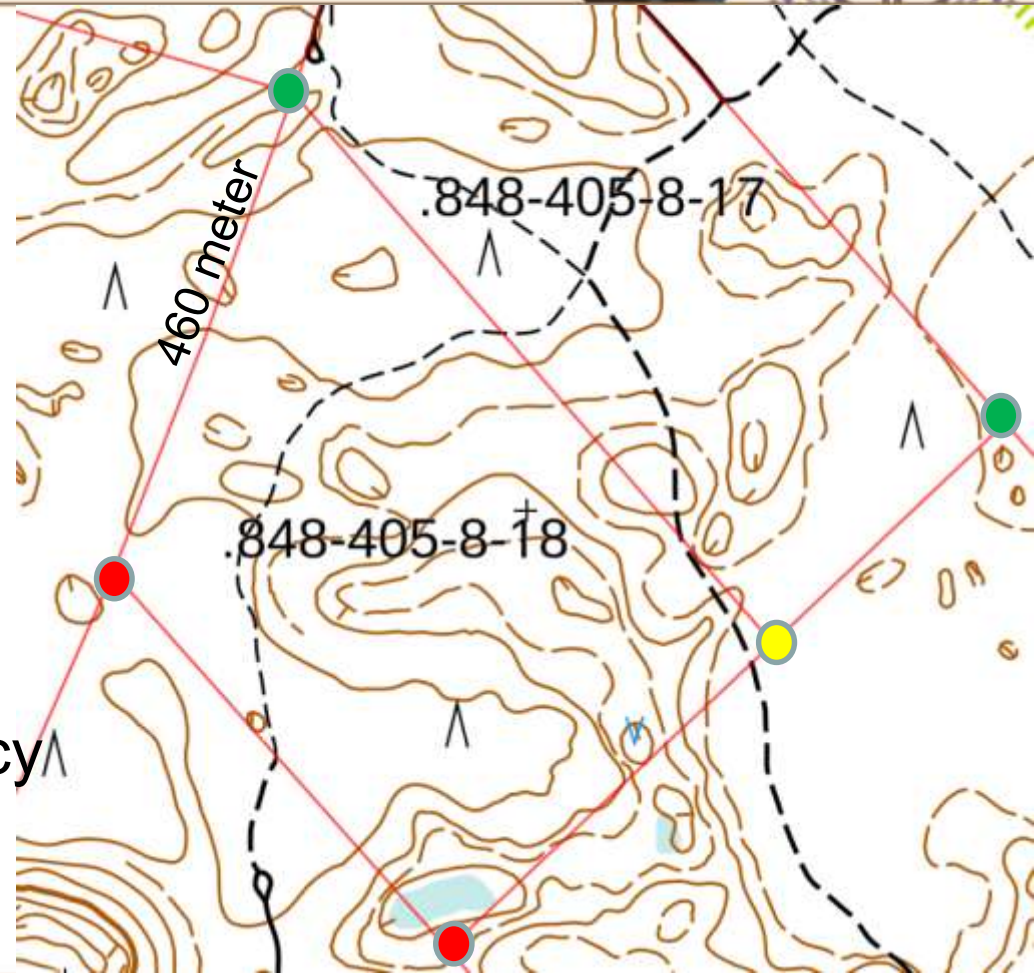
# FIG WORKING WEEK 2019

22-26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



**The positional accuracy of boundary markers is shown as symbols on the Cadastral index map**



- Poor positional accuracy
- Good positional accuracy
- Excellent positional accuracy

ORGANISED BY



PLATINUM SPONSORS







# FIG WORKING WEEK 2019

22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## A planned process

- Instructions on how to measure
- Photo also of the number of the boundary marker
- Sending the data to the National Land Survey



ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22-26 April, Hanoi, Vietnam

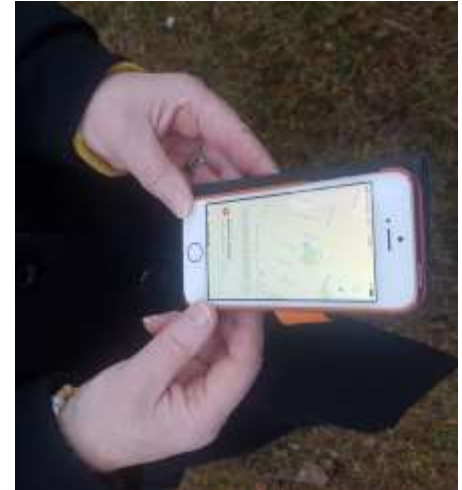
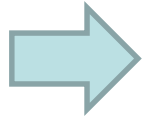
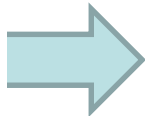


"Geospatial Information for a Smarter Life and Environmental Resilience"

Receiving the boundary marker data at the National Land Survey

Checking the data and correcting the Cadastral index map

Sending feedback to the producer of the data



ORGANISED BY



PLATINUM SPONSORS







# FIG WORKING WEEK 2019

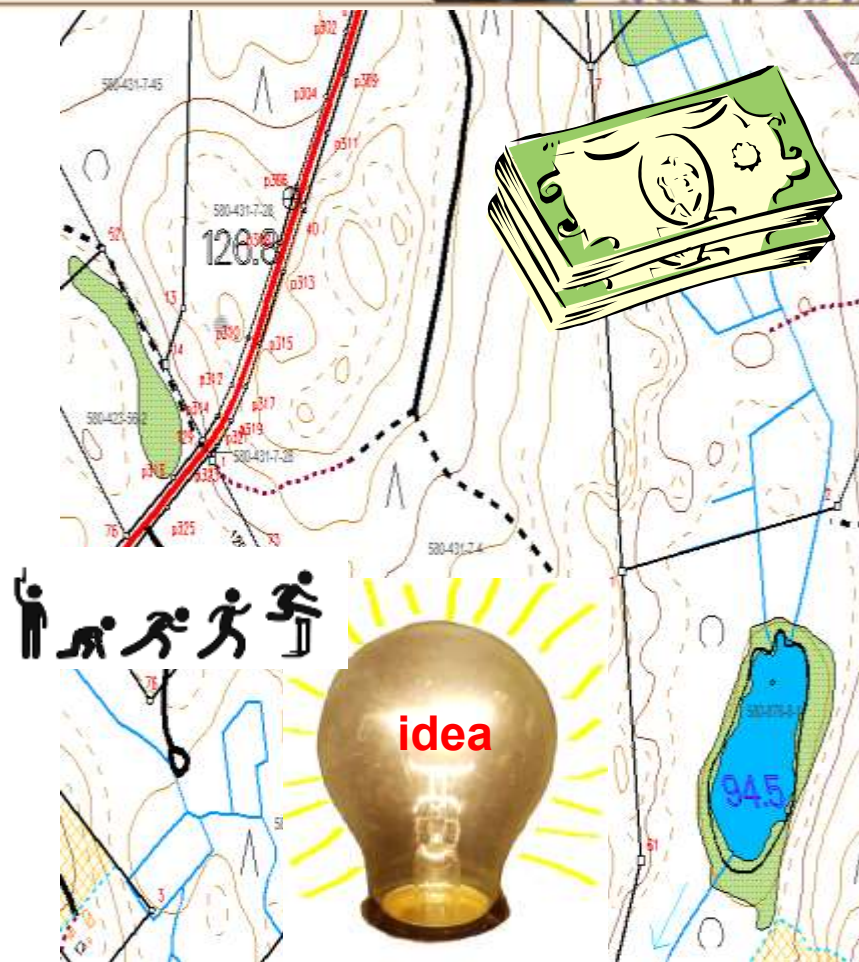
22–26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



## Benefits of this method

- Inexpensive
- Fast
- Widely usable
- Inspiring
- Activates people to use maps
- Anyone can participate
- Can be extended to checking and mapping other objects in the terrain



ORGANISED BY



PLATINUM SPONSORS





# FIG WORKING WEEK 2019

22-26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



*Thanks for listening!*

ORGANISED BY



PLATINUM SPONSORS

