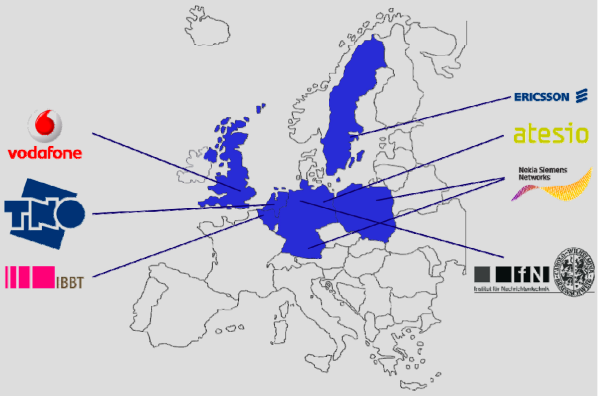
EU FP7 STREP SOCRATES

Self-Optimisation and self-ConfiguRATion in WirelEss networkS

X-Map Estimation

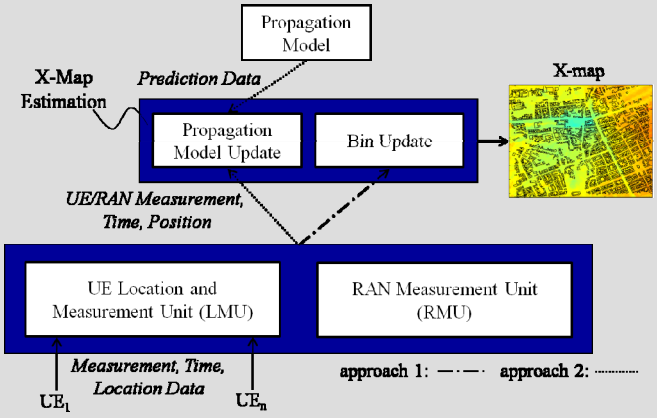
- **Michaela Neuland** (Technische Universität Braunschweig)
- **Mehdi Amirijoo** (Ericsson AB)



Use Case Goals and Approach

Goal: Continuously monitoring the UE measurements together with the UE position and estimating the spatial network performance

Approach:



Simulator / Demonstrator Setup

Scenario

- LTE FDD, 2.6 GHz, 10 MHz bandwidth
- Realistic network layout: Vodafone site data from a European city
- Realistic path loss data (10 m resolution)
- 20 mobile users moving along streets
- Satellite orbits for a specific day and time

X-Maps

- Resolution: 10 m x 10 m
- Okumura-Hata model as propagation model
- GPS as positioning method

Results

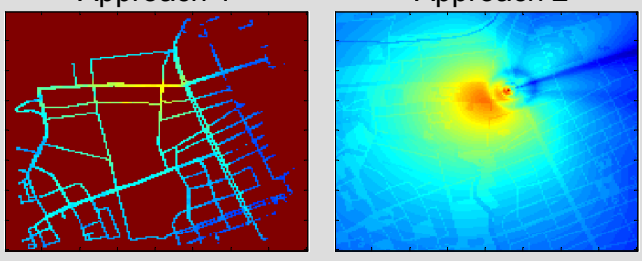
Approach 1

- Very accurate
- RSRP values only for those pixels which are covered by a UE

Approach 2

- Less accurate than approach 1
- RSRP values for every pixel in the X-map

Approach 1 Approach 2

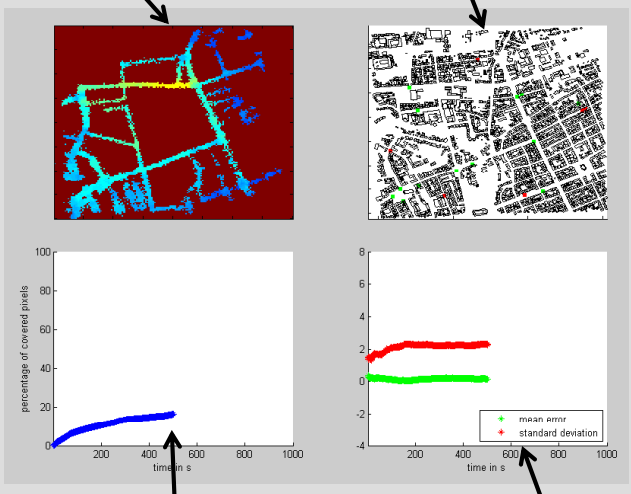


	Approach 1		Approach 2	
	μ	σ	μ	σ
Real position	0.0	0.2	2.1	6.6
Pos. estimate	0.1	2.3	2.6	6.6

Demonstrator – what is shown

X-map

Users in the scenario
Green: Valid position estimate
Red: No position available



Approach 1: Number of "covered" pixels
Approach 2: Correction factors

Green: Mean error
Red: Standard deviation