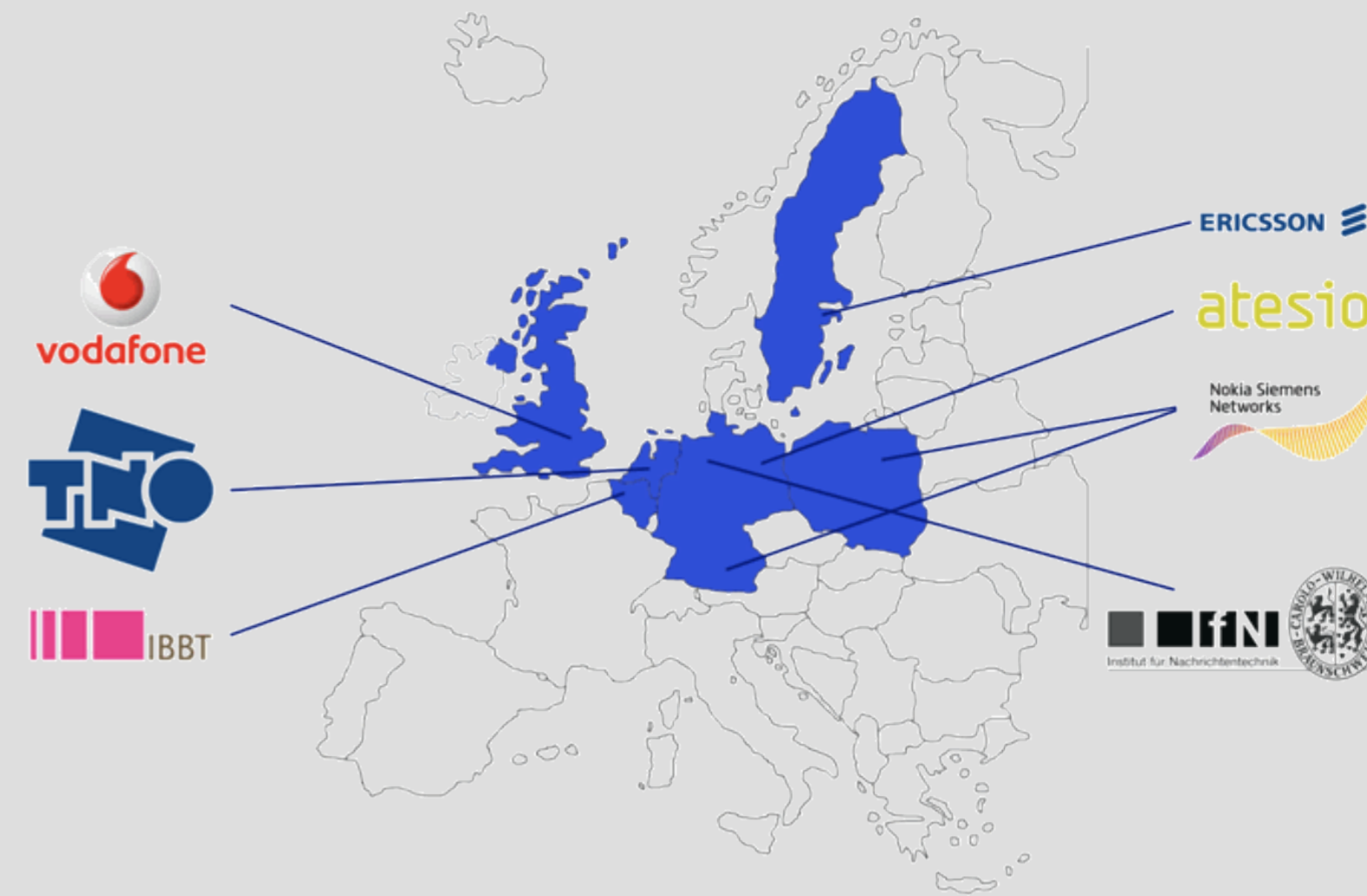
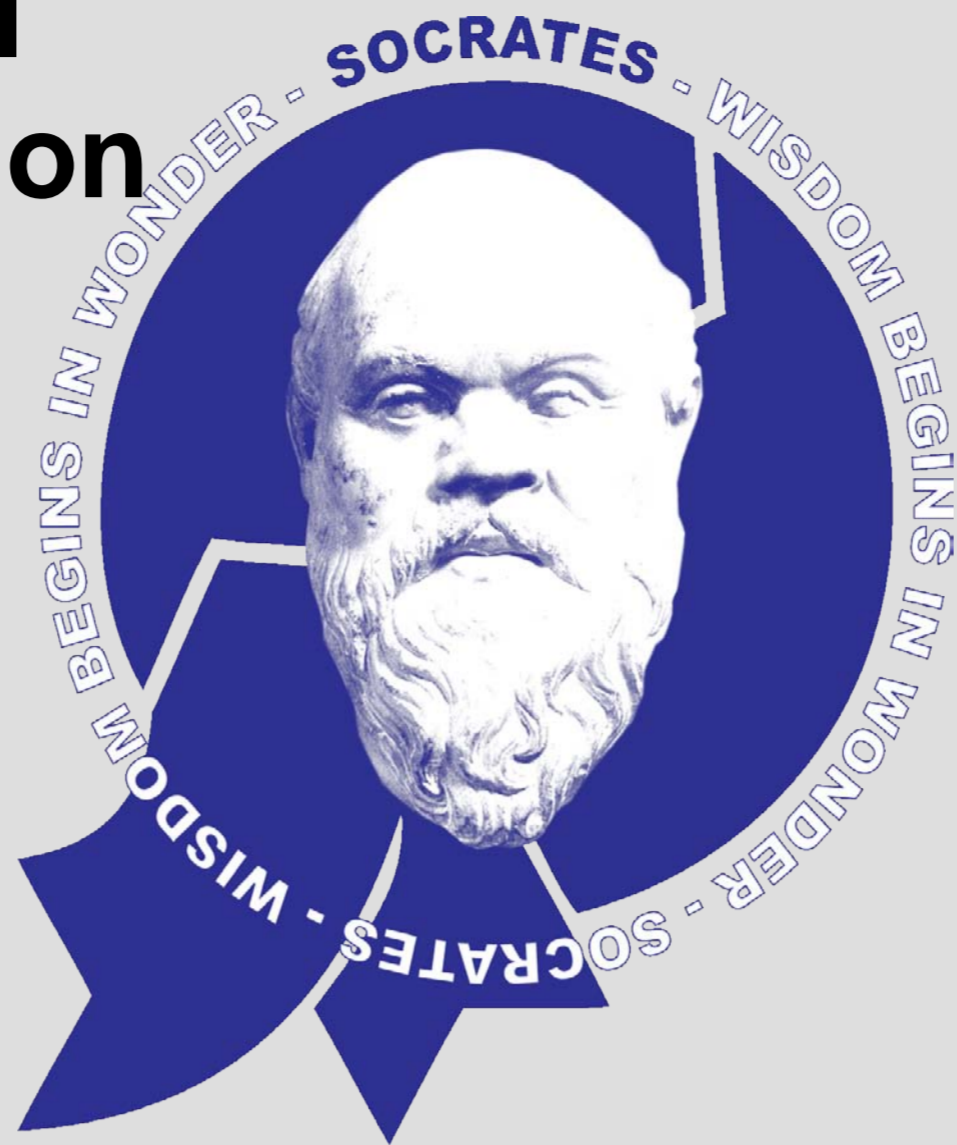


EU FP7 STREP SOCRATES

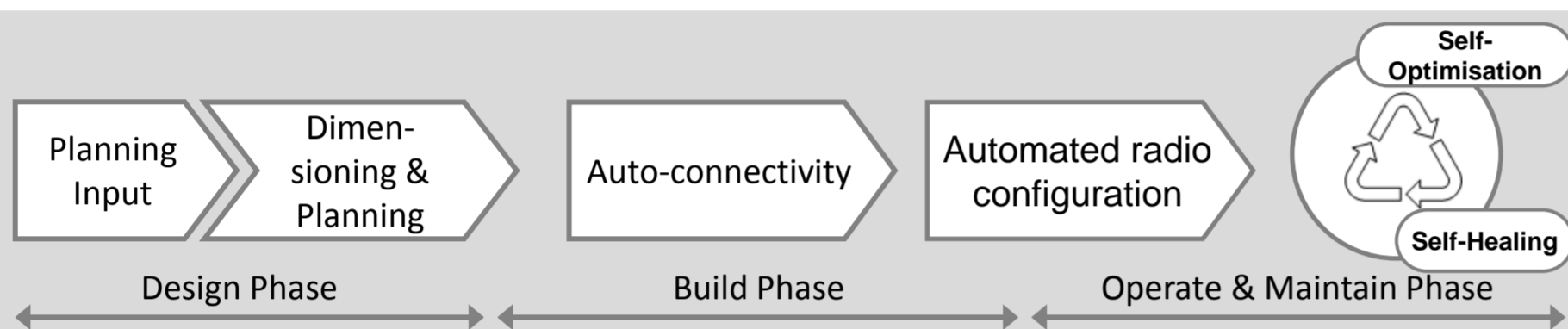
Self-Optimisation and self-ConfiguRATion in WirelEss networkS

Automatic Generation of Initial Parameters for eNodeB Insertion (AGP)

- Norbert Ascheuer, Andreas Eisenblätter, Ulrich Türke (atesio GmbH)
- Lars Christoph Schmelz (Nokia Siemens Networks)
- Michaela Neuland (TU Braunschweig)



Use Case Goals and Approach



Goal

- Simplified eNodeB radio planning & deployment processes
- Improved network quality
- Reduction of total effort / time

Approach

- Insertion of eNodeB with pre-optimised radio configuration
- Incremental activation with smooth integration
- Automatic co- & post-deployment optimisation
- Performance tuning using X-Maps (from measurements)

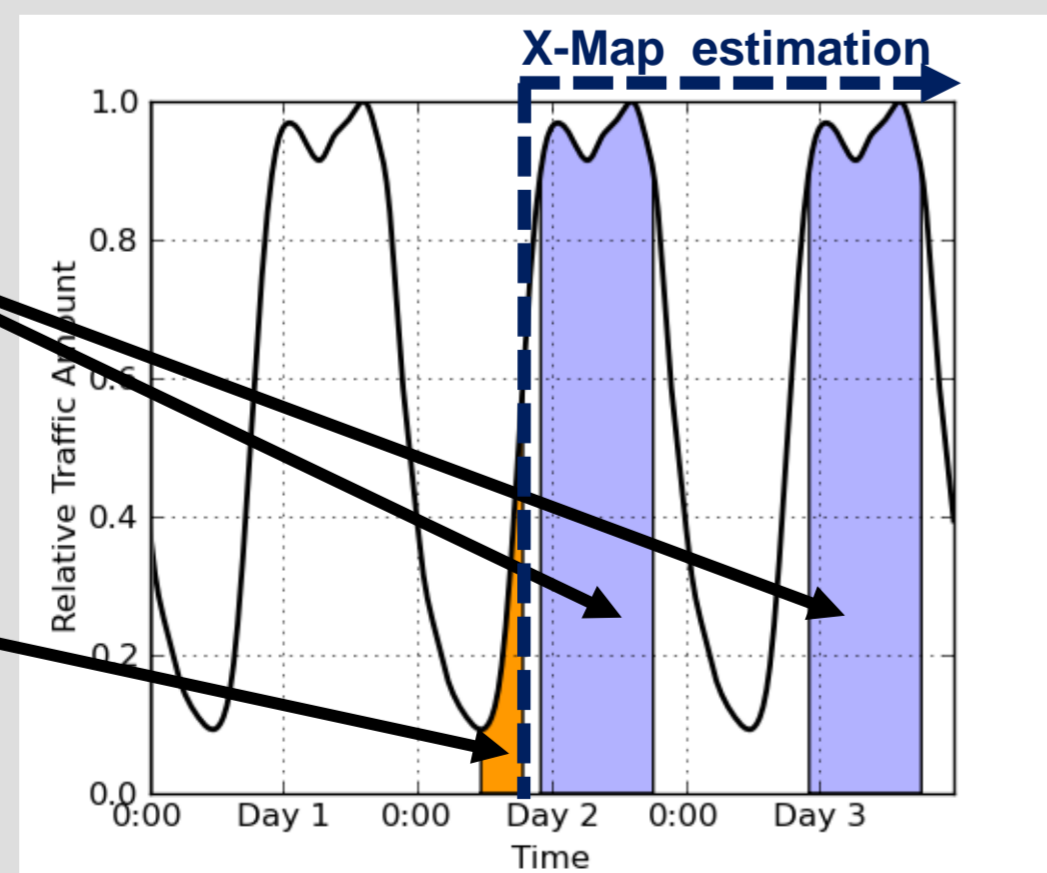
Case Study

Power-based smooth integration of new site

- TX powers of new cells smoothly increased to fixed target power level
- Antenna tilts are repeatedly optimised for increasing power levels

Post-deployment optimisation (1st tier, 1st & 2nd tier)

Integration phase, co-deployment site optimisation



Analysis of network quality over time

- Traffic intensity varying with time of day
- Integration at morning of second day
- Optimisation during peak traffic hours of second and third day (1st & 2nd tier)

Simulator / Demonstrator Setup

Network

- LTE FDD, 2.6 GHz, 10 MHz bandwidth
- Realistic network layout: Vodafone site data from Braunschweig region
- Realistic pathloss data (10m/100m resolution)
- Realistic traffic pattern, varying intensity

Measurements

- X-Maps (simulated)

Optimisation

- Antenna configuration
- Maximisation of supported traffic

Performance Analysis

- System-level
- Large-scale (>8 mill. pixel)
- User&cell-based metrics (throughput, load,...)

Demonstrator – what is shown

Optimisation cluster (ca.)

Cell (grey) not allowed to be modified

Problematic low C/I zones ("peak hold")

Big blue cell currently modified

White cell allowed to be modified

X-Map measurements

