



SMARTSANTANDER

Future Internet Research and Experimentation in the context of a Smart City: Smart Santander

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Outline

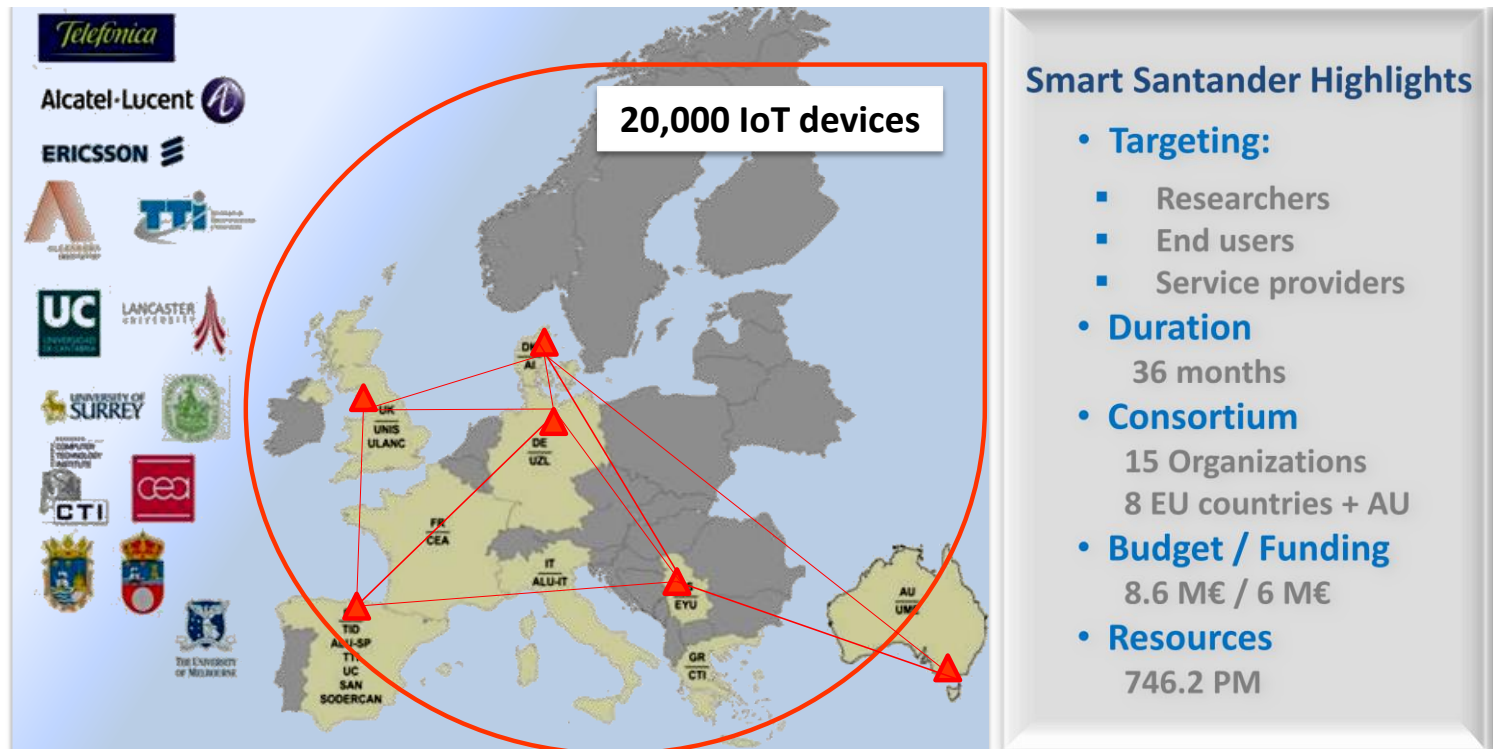


- What, why and how ?
- Technologies and services.
- Expected experimentation support and tools
- Open Call: Some facts.

What is SmartSantander about?



SmartSantander aims at providing a European **experimental test facility** for the **research** and **experimentation** of architectures, key enabling technologies, **services** and applications for the Internet of Things (IoT) in the context of the **smart city**.



Why Smart-Z with Z = Santander?



- Smart Santander was perceived from the very beginning as a golden opportunity for lining up the vectors of the value chain:
 - Research centers.
 - Industry, in particular SMEs.
 - Other agents.
- SmartSantander is not only for researchers...
 - Smart services for Santander city and citizens
 - Traffic management in the city (outdoors parking areas, traffic monitoring, control loading areas, ...) + environmental impact

How is SmartSantander becoming a reality?



- Phased roll-out and deployment:

	Phase 1	Phase 2	Phase 3
Time	November 2011	November 2012	August 2013
Scale	2.000 IoT devices	5.000 IoT devices	20.000 IoT devices
Resources	Mainly WSN nodes and GWs	More heterogeneity WSNs, RFID, GW	Federated with other FIRE facilities
Facility services	Basic experimentation support	Advanced tools for experimentation	Advanced cross-testbed tools
Application domains	Transport, metering, environment	TBD	TBD

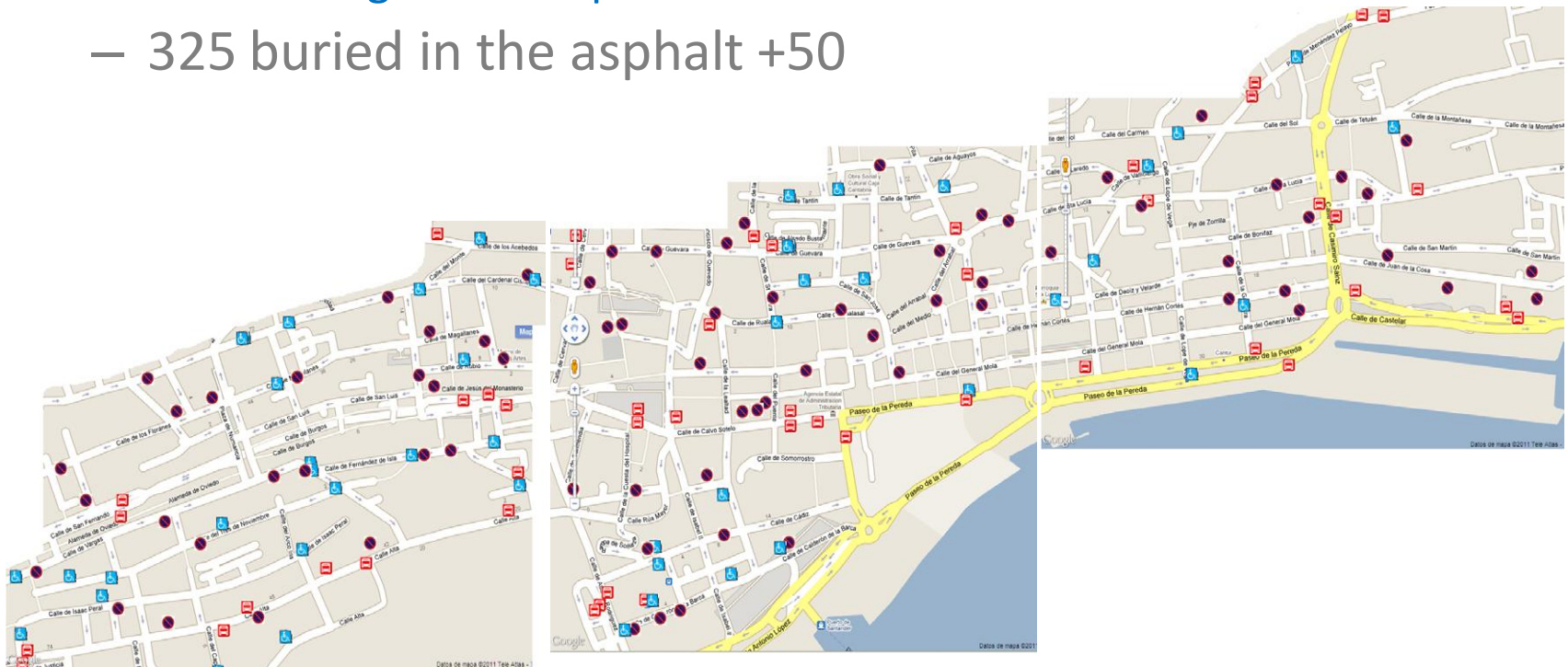
Basis for 1st call experiments
 Call publication: Sep '11
 Experiments: Jan '12 – Sept '12

Basis for 2nd call experiments
 Call publication: Sep '12
 Experiments: Dec '12 – Jul '13

Technologies and Services



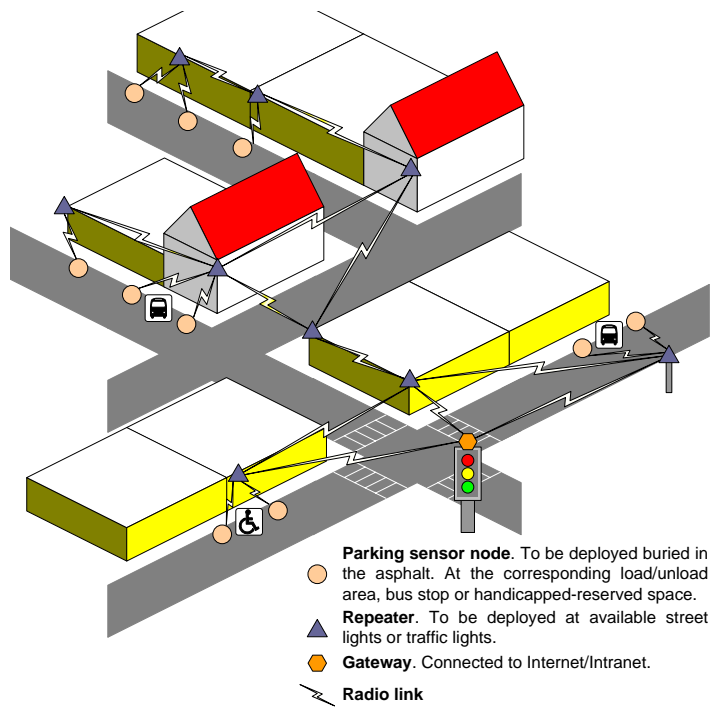
- Phase 1 deployment (ready by the end of November)
 - 1300 installed on lamp posts +100
 - 650 targeted to service provision (temperature, noise level, light intensity, CO)
 - 650 targeted to experimentation
 - 325 buried in the asphalt +50



Technologies and Services



- Full-meshed network architecture
 - Topology controlled by experimenter possible
 - Reprogrammable over-the-air
 - 802.15.4 transceiver dedicated for experimentation

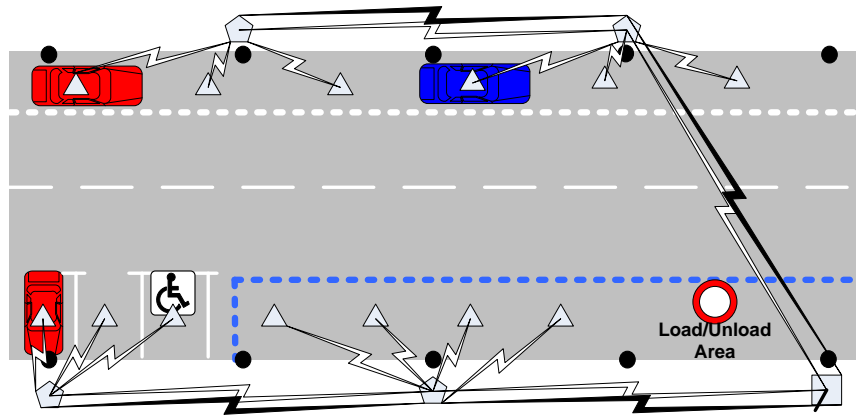


Parking sensor node. To be deployed buried in the asphalt. At the corresponding load/unload area, bus stop or handicapped-reserved space.

Repeater. To be deployed at available street lights or traffic lights.

Gateway. Connected to Internet/Intranet.

Radio link



● Streetlight

△ Parking sensor: Sensor node with one transceiver (Digimesh)

⬠ Repeater: Sensor node with two transceivers (Digimesh and 802.15.4)

□ Gateway: Node with communication with sensor networks (Digimesh and 802.15.4) and communication with external networks (WiFi, GPRS, ethernet)

⚡ Digimesh Link

⚡ 802.15.4 Link

--- WiFi/GPRS, ethernet Link

SmartSantander Backbone

Technologies and Services



- Pilot deployment already up and running (ready from June)
 - 3 clusters
 - 150 Wasmotes with dual transceiver
 - 100 sensing environmental conditions (temperature and/or CO index)
 - 50 parking occupancy status
 - 3 Gateways for connection with the Portal Server
 - Duality experimentation-service provision.



Technologies and Services



From the lab to the hostile outdoor scenario!!



Open Call: Some facts



- SmartCity context supporting experimentation
 - 1) Innovative applications and services for smart cities and built environment
 - 2) Internet of Things middleware solutions
 - 3) Internet of Things communication protocols and technologies
- Real-world environment
- Administrative details
 - Call publication: 1st October 2011
 - Call close: 16th November 2011
 - Call budget: Up to 1.2 M€ (for both phases)
 - Number of partners per experiments: 1-2
 - Max requested funding per experiment: 200K€