



# **IoT & Crowd Sourcing**

## **Supporting smart cities**

### **WSIS 2015**

### **Geneva**



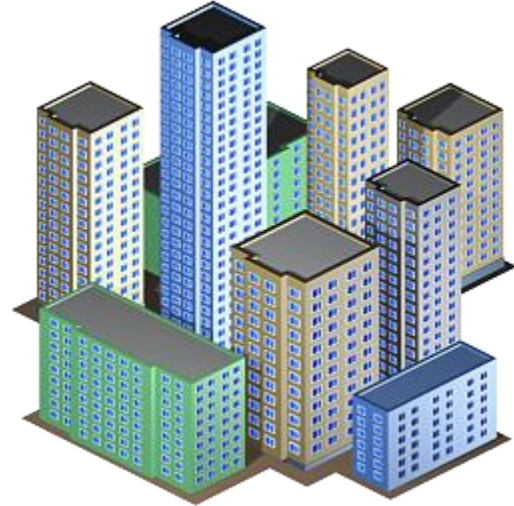
**IoT Lab**  
European Research Project

**Sébastien Ziegler**  
**sziegler@mandint.org**  
May 25 2015

**Many opportunities for IoT use:**

- Environmental monitoring**
- Transportation and mobility**
- Waste management**
- Energy efficiency and smart grid**
- Water management**
- Security and Safety**
- eHealth**
- eGovernance, etc.**

# Dual set of requirements



## Technical requirements

**Scalability**

**Reliability and QoS**

**Interoperability**

**Security / privacy**

**Portability**

**Cost**

**Sustainability**

## User requirements

**User acceptance**

**Priority management**

**Citizens satisfaction**

**Resource allocation**

**Customization**

**Cross-domain integration**





**To research the potential of crowdsourcing for the Internet of Things (IoT)**

**To extend test bed infrastructures for multidisciplinary experiments with more end-user interactions.**



# Interrelated projects





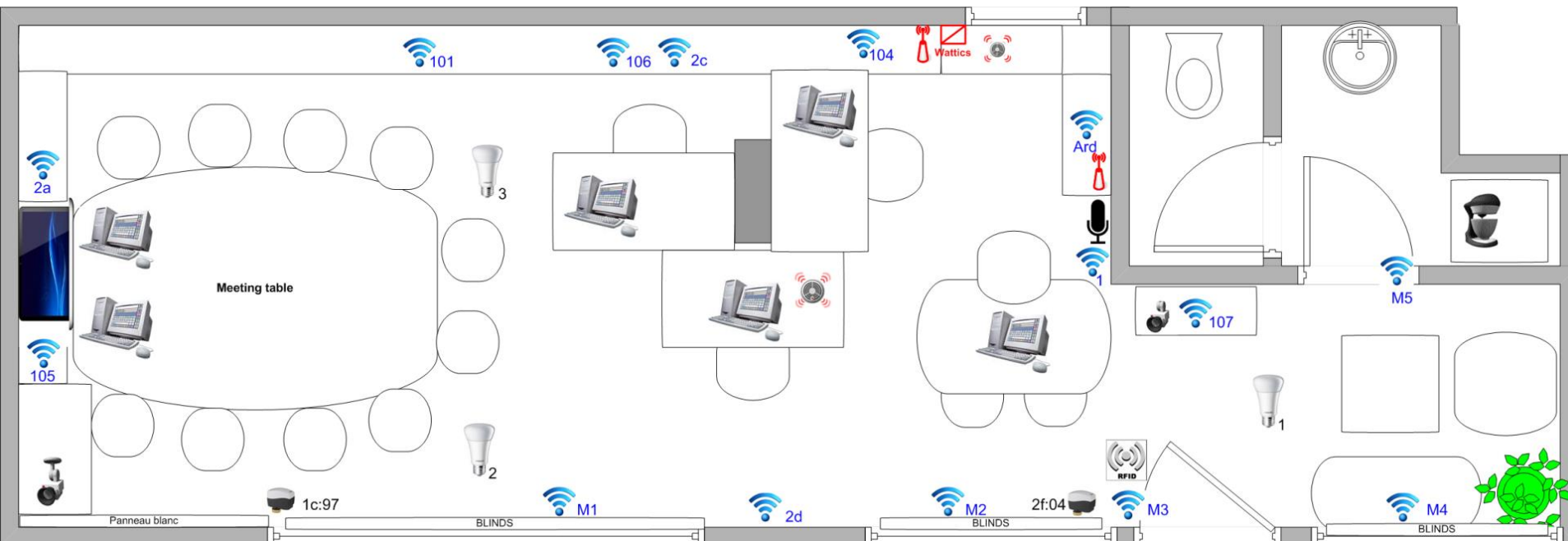


Heterogeneous sensors and actuators + energy metering

Functional areas:

- Meeting space
- Office desks / work stations
- Lounge area
- Kitchen / Toilets

IPv6 and 6LoWPAN/CoAP environment + heterogeneous communication protocols





Focus: 4<sup>th</sup> and 5<sup>th</sup> floor  
 Facades exposition: South and North  
 Sensors, actuators and energy meters

Functional areas:

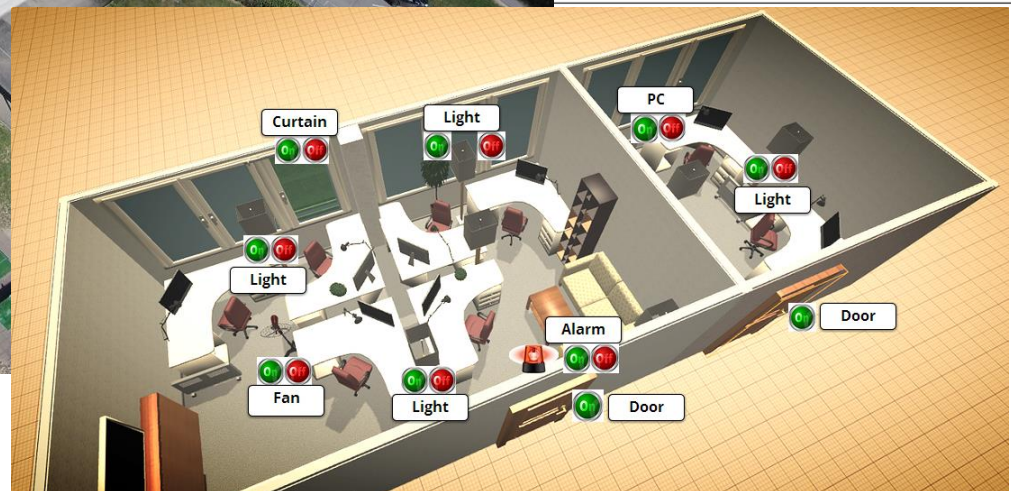
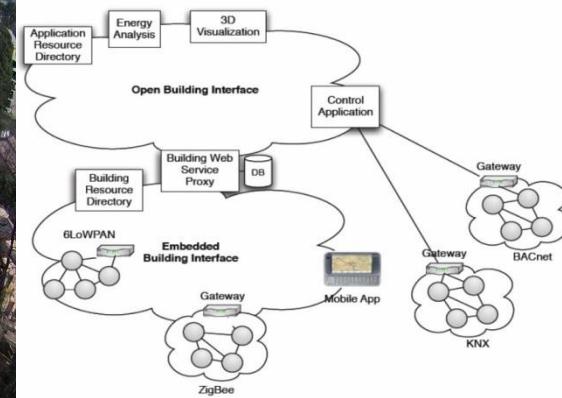
- Class rooms
- Office spaces
- Lobby
- Toilets
- Technical areas
- Data centre



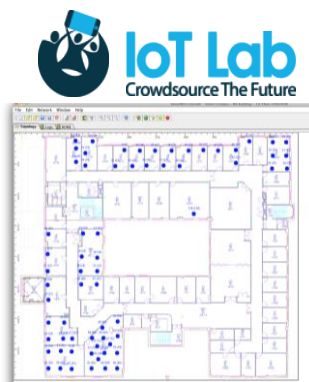
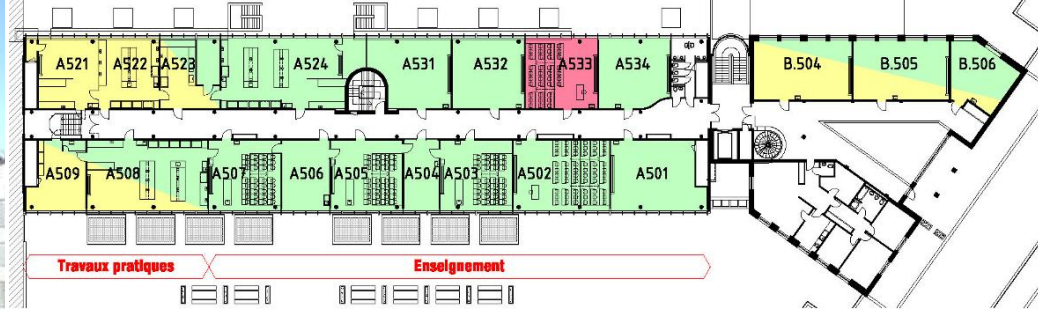




WSN TelosB, Wasmotes, actuators, RFID, etc.  
CoAP environment







# IP v6



# Crowd Sourcing Tool

**Crowd Sourcing**

**Citizens inputs**



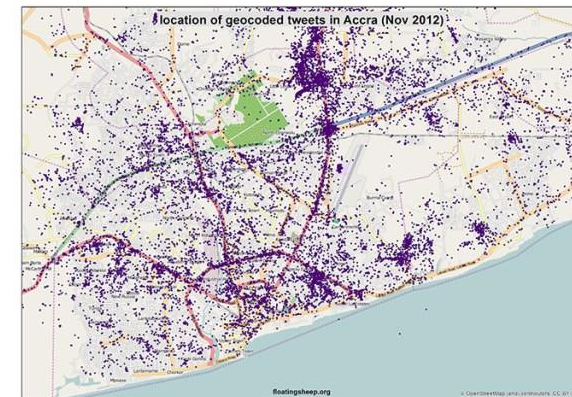
**Crowd Sensing**

**Sensing**

**Privacy  
by design**



**GET AN IDEA.™**





# IoT Lab as a Service



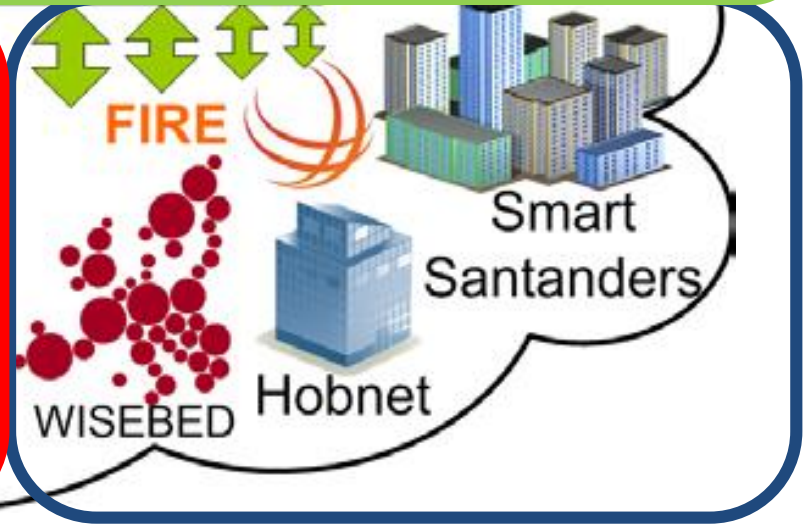
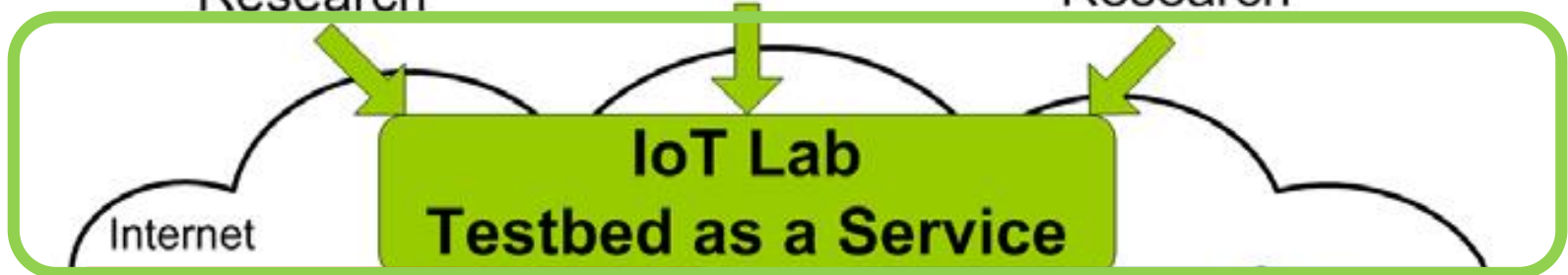
Economic  
Research



Societal  
Research

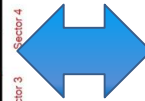
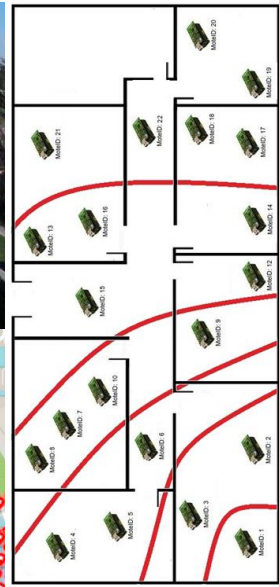
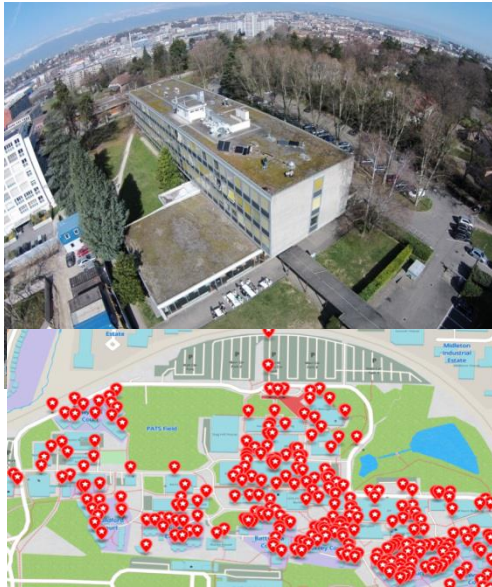


Technological  
Research





# Paradigm shift





# New venues

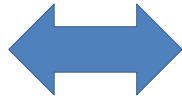


## Anywhere

# Pervasive urban testbed



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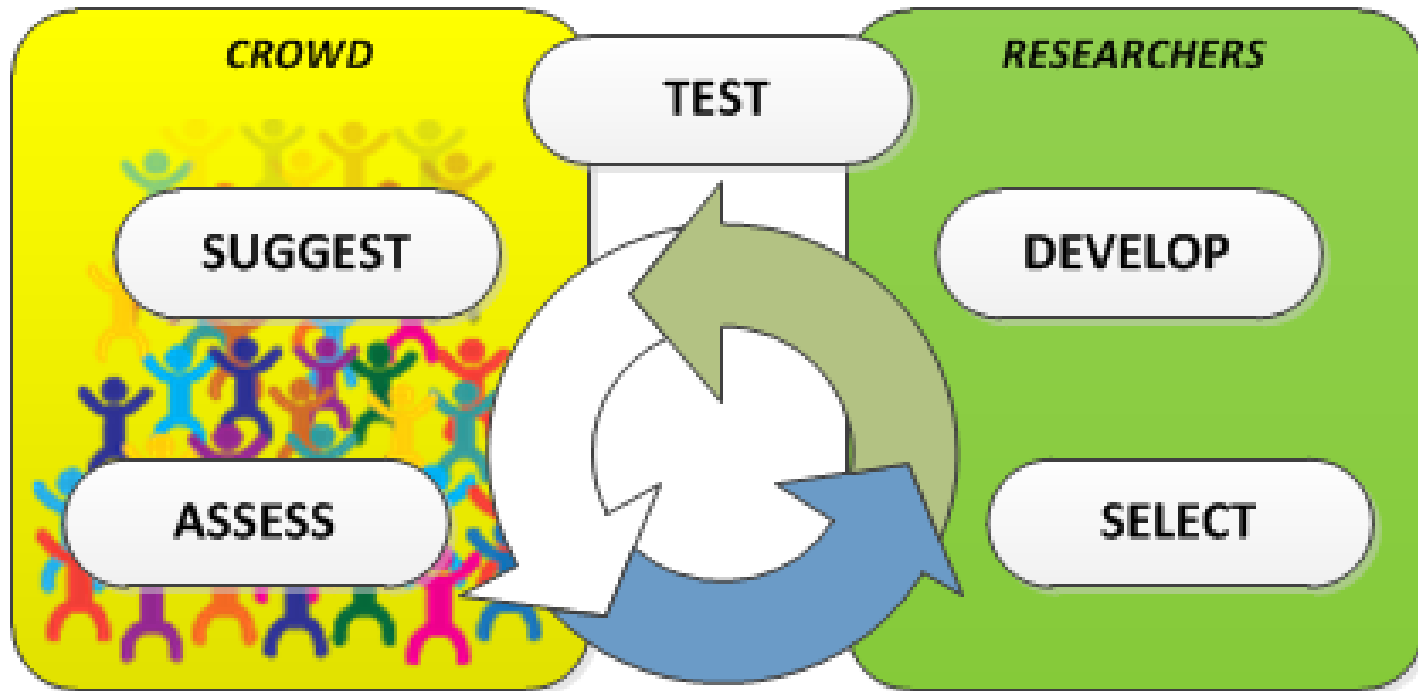


**Exploring  
Testing  
Validating  
Improving**



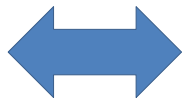


# Crowd driven research



Bridging the gap between researchers and end-users

# Cross domains



**Participatory / Co-design process**

**Energy efficiency**

**Mobility**

**Environmental improvement**

...

# Scaling up citizens participation



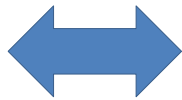
**Citizen engagement**  
**Bottom-up codesign**  
**End-user driven**



# Sustainable Smart City



**ITU SSC KPI**



**Quality of Life**  
**Environmental sustainability**  
**ICT deployment and optimization**  
**Infrastructure monitoring**  
**Equity and social inclusion**  
**Productivity and efficiency**  
**Quality of services**



# Open invitation

## You are welcome to join and collaborate

IoT Lab platform is available to:

- Smart cities
- Researchers

Demonstration in the exhibition booth.

Contact us:

[contact@iotlab.com](mailto:contact@iotlab.com) [www.iotlab.eu](http://www.iotlab.eu)





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**THANK YOU!**

**Sébastien Ziegler**

[sziegler@mandint.org](mailto:sziegler@mandint.org)

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