

Environmental awareness and learning

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<http://www.everyaware.eu/>

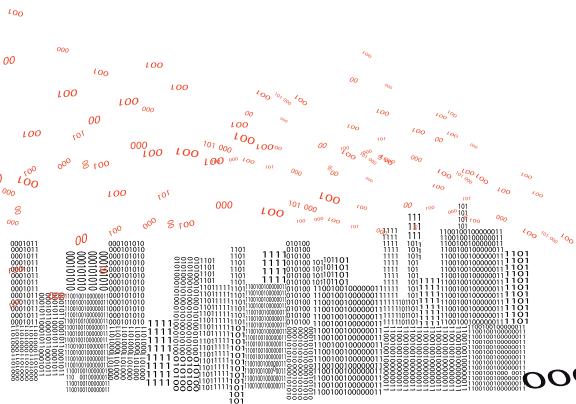


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“We are greater than
the sum of our ambitions...”

B. Obama, Nov. 7th 2012



Complex systems

The whole is greater than the sum of its parts

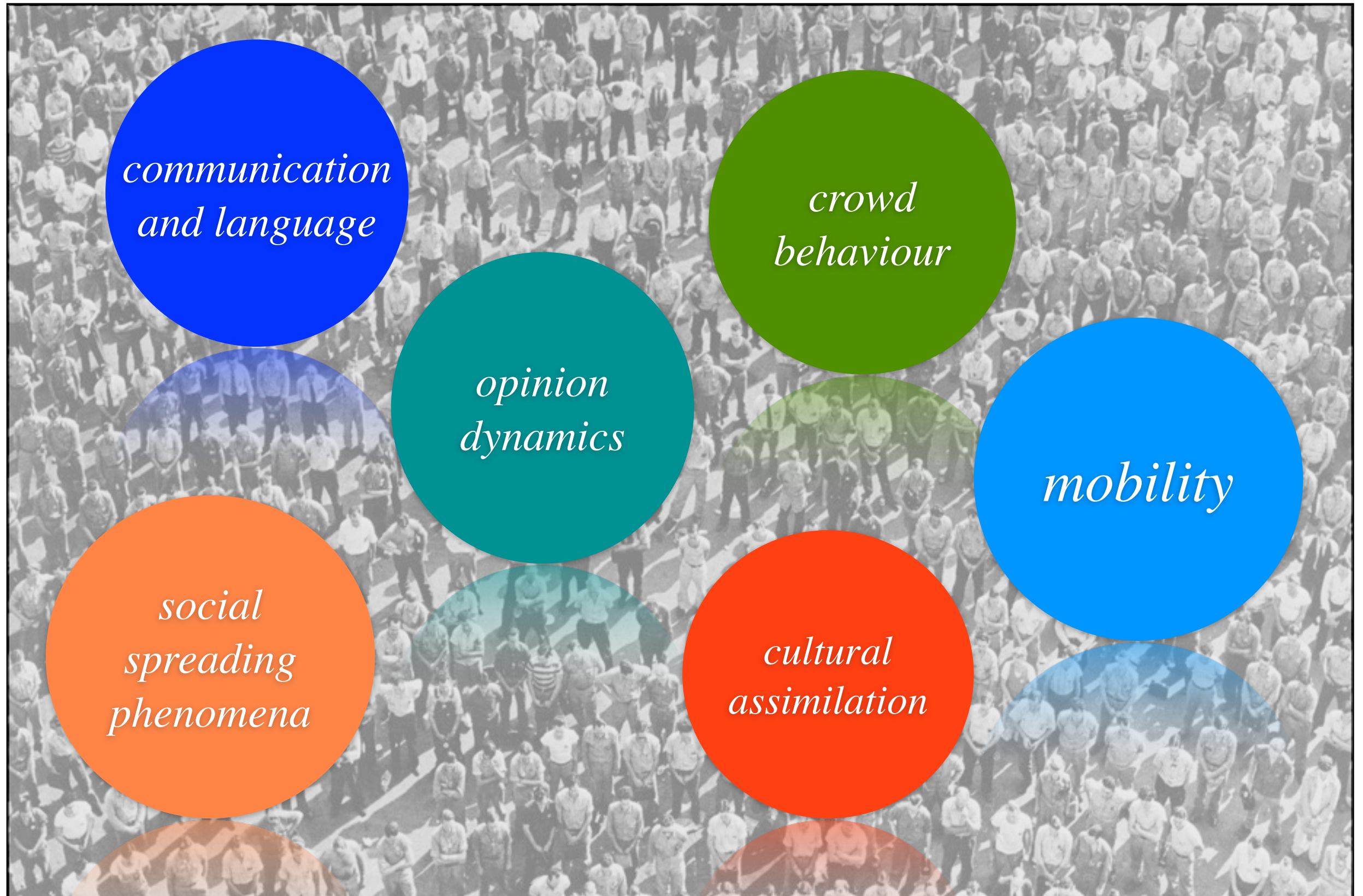
- No “master-mind”
- Self-organization
- Evolution/adaptation
- Emergence

Bio / Techno / Social

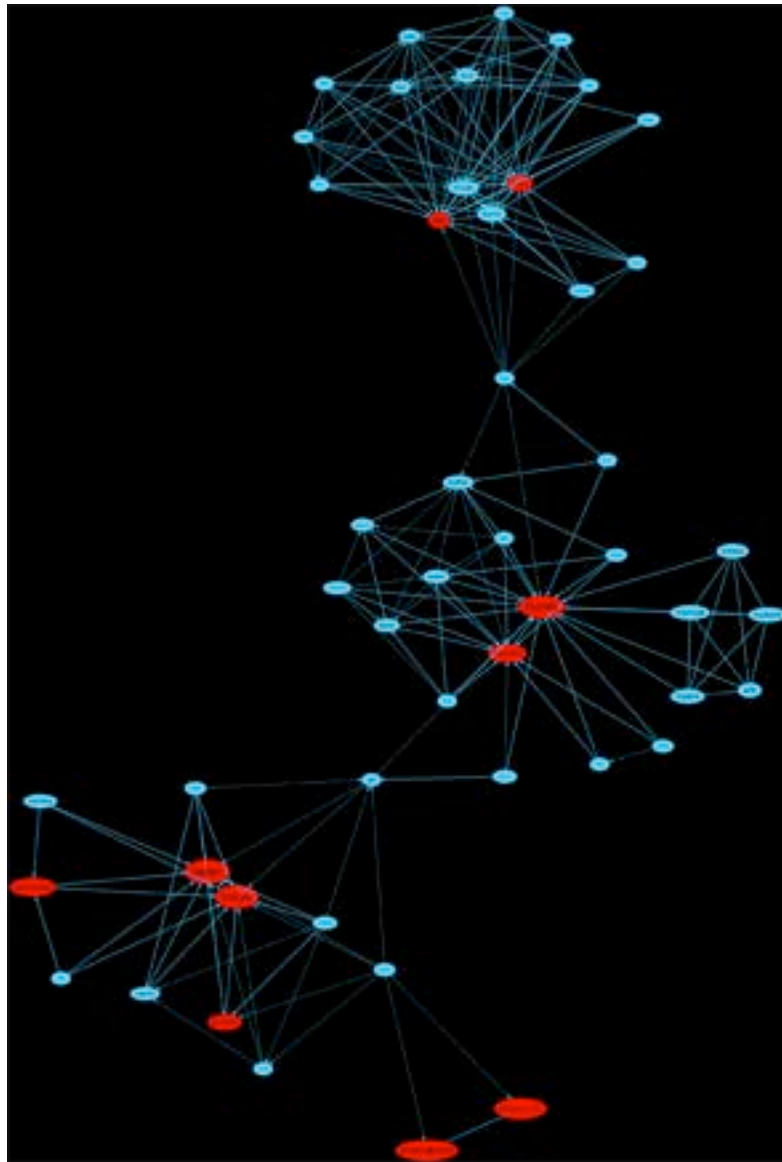


Who needs traffic lights?

complexity in social systems

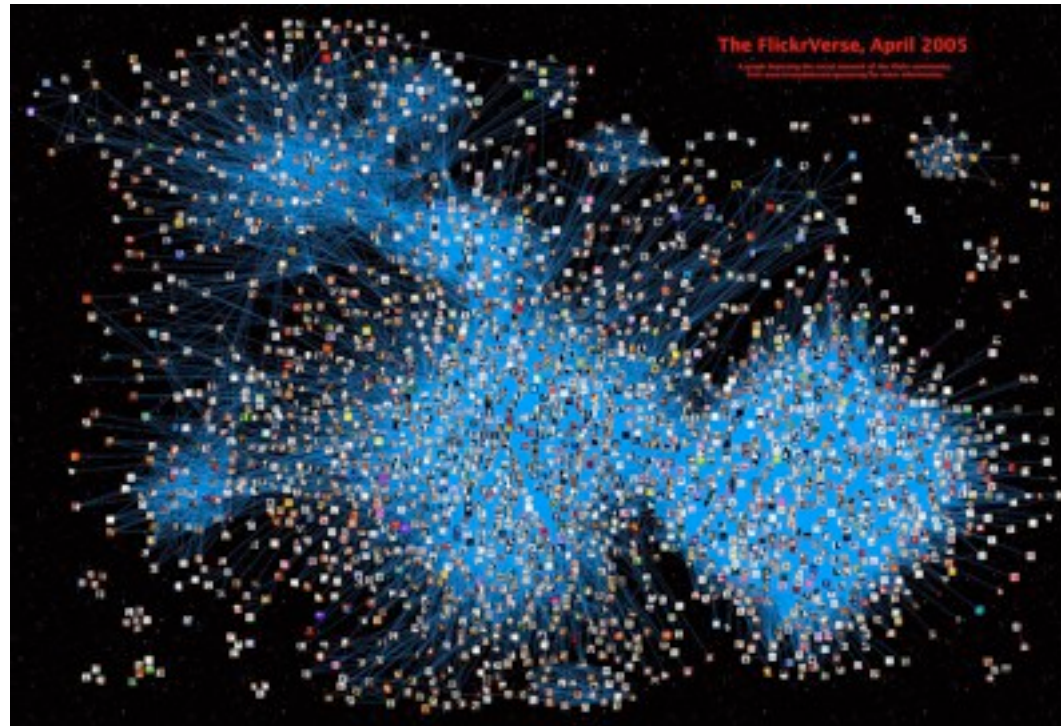


the complexity of techno-social systems



user level

cognitive,
behavioural



community
level

social,
interactive



infrastructure
level

ICT, networks,
physical-digital

New ICT-driven opportunities

Understand and predict complex societies

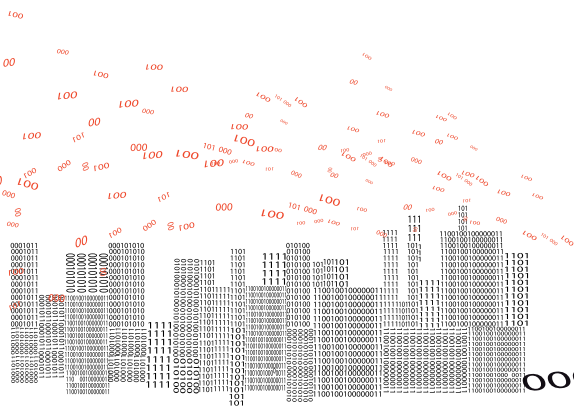
- face societal challenges
- data-driven modeling schemes
- information, culture, opinion dynamics
- epidemic spreading
- ...

Web as a laboratory for social sciences

- opinions formation
- consumers behaviors, marketing strategies
- cultural trends, globalization
- birth and evolution of communication systems
- language evolution
- ...

Raise awareness and participation

- Monitoring of common resources and environment
- Monitoring of societies
- Feedback to policy makers
- Sustainable development
- ...



Social computation

Populations of users facing collectively
difficult problems using a small cognitive
overhead



<http://www.espgame.org/>



del.icio.us

BibSonomy ::

citeulike 

flickr LOVES YOU TM

Human Brain Cloud
massively multiplayer word association "game"

WIKIPEDIA



The images shown during the game
may be subject to copyright.


The ESP Game



Ready!

Click to start the game

A new platform for web-based experiments



experimental tribe
is a web platform for gaming and social computation. It helps researchers to realize web games/experiments and it let people join, while enjoying, the scientific research.

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X-Tribe launch at the 2nd London Citizen Cyberscience Summit

Submitted by admin on Mon, 2012-02-13 17:49



**citizen
cyberscience
centre**

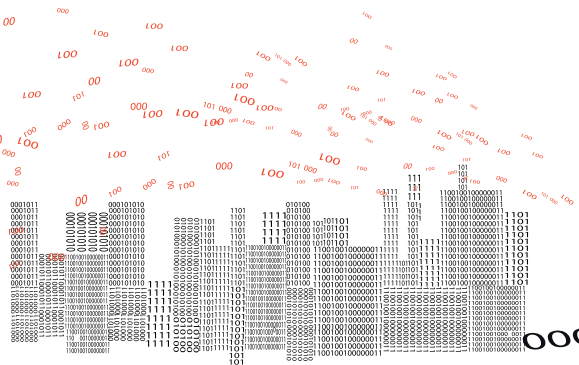
Finally, the beginning. The X-Tribe platform will be presented at the 2nd London Citizen Cyberscience Summit by the Citizen Cyberscience Center.

After the success of the first edition, the summit will take again place in London from 16 to 18 February 2012, with a very rich programme that will touch many different aspects of the citizen science: people engagement, pollution monitoring, case studies and many others.

And we will be there too, for the first official presentation of the X-Tribe project.

[Read more](#)

<http://www.xtribe.eu/>

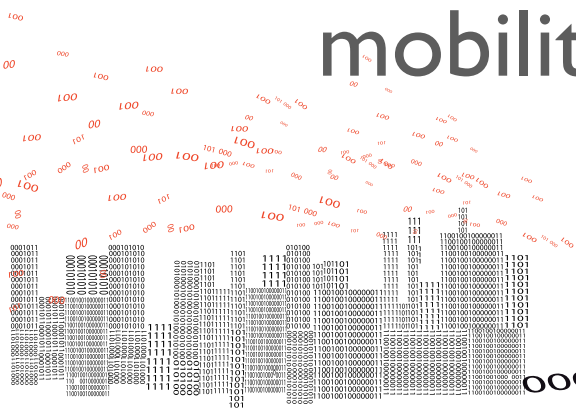




• it will allow virtually any researcher to realize his own experiment with minimal effort, paving the way of the use of the web as a standard “laboratory” for social sciences.

• it can be a strong “basin of attraction” for people willing to participate to experiments, making in this way recruitment much easier than for single-experiment platforms.


• research areas: opinion and language dynamics, decision making, game-theory, geography, human mobility, economics, psychology, etc...



Blindate

Coordination game (Schelling's focal points)






Joe's City Race Solo

Exploit additional traffic information to defeat Google in finding a route between two points in your city.

[Join!](#)[More info](#)

Optimal route in a city

Word-association



Nexicon Duo (English version)

Can you guess which word a possibly unknown person will associate to a given word?

[Join!](#)[More info](#)



laPENSOcosì

laPENSOcosì permette di esprimere la propria opinione su coalizioni, partiti e singoli candidati alle prossime consultazioni elettorali.

www.lapensocosi.it/

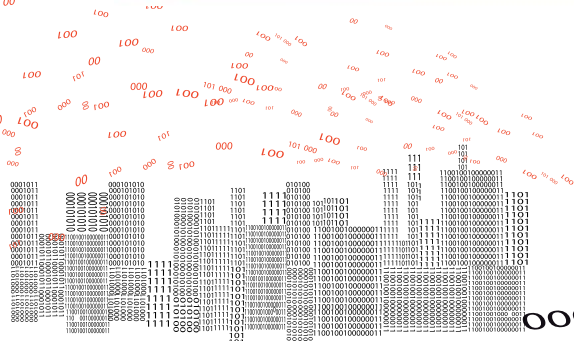
[Join!](#)[More info](#)

Negative vote
in elections



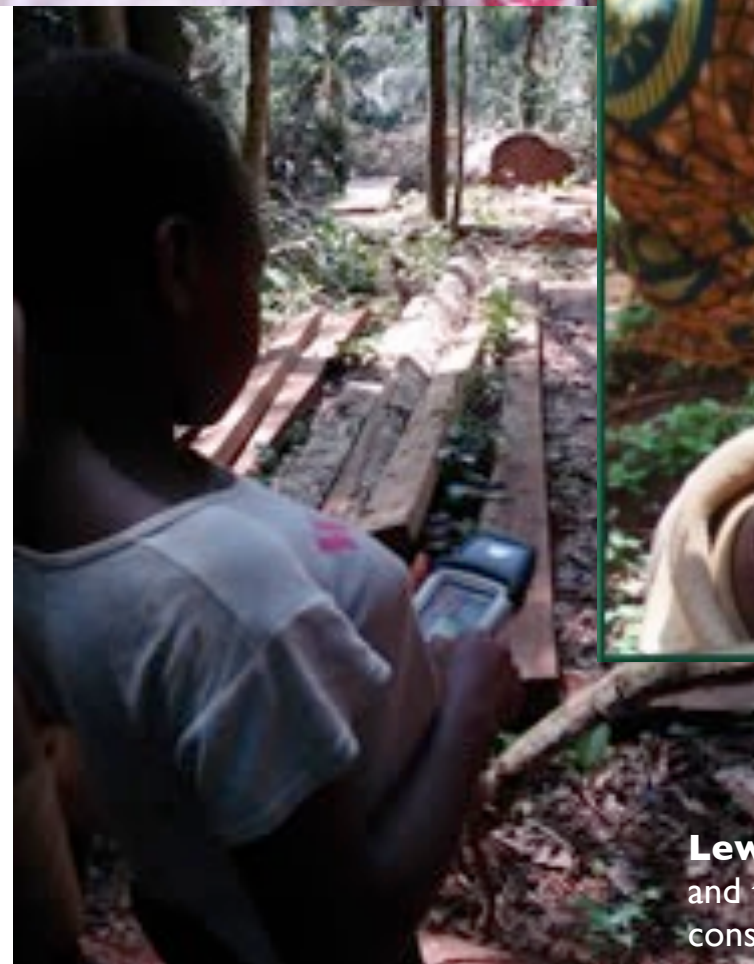
Citizen Science

...individual volunteers or networks of volunteers, many of whom may have no specific scientific training, perform or manage research-related tasks such as observation, measurement or computation.



GPS helps Pygmies to
defend their forest

J. Lewis (UCL)



*"Tell me, I forget.
Show me, I remember.
Involve me, I understand."*
Chinese proverb

Participatory sensing

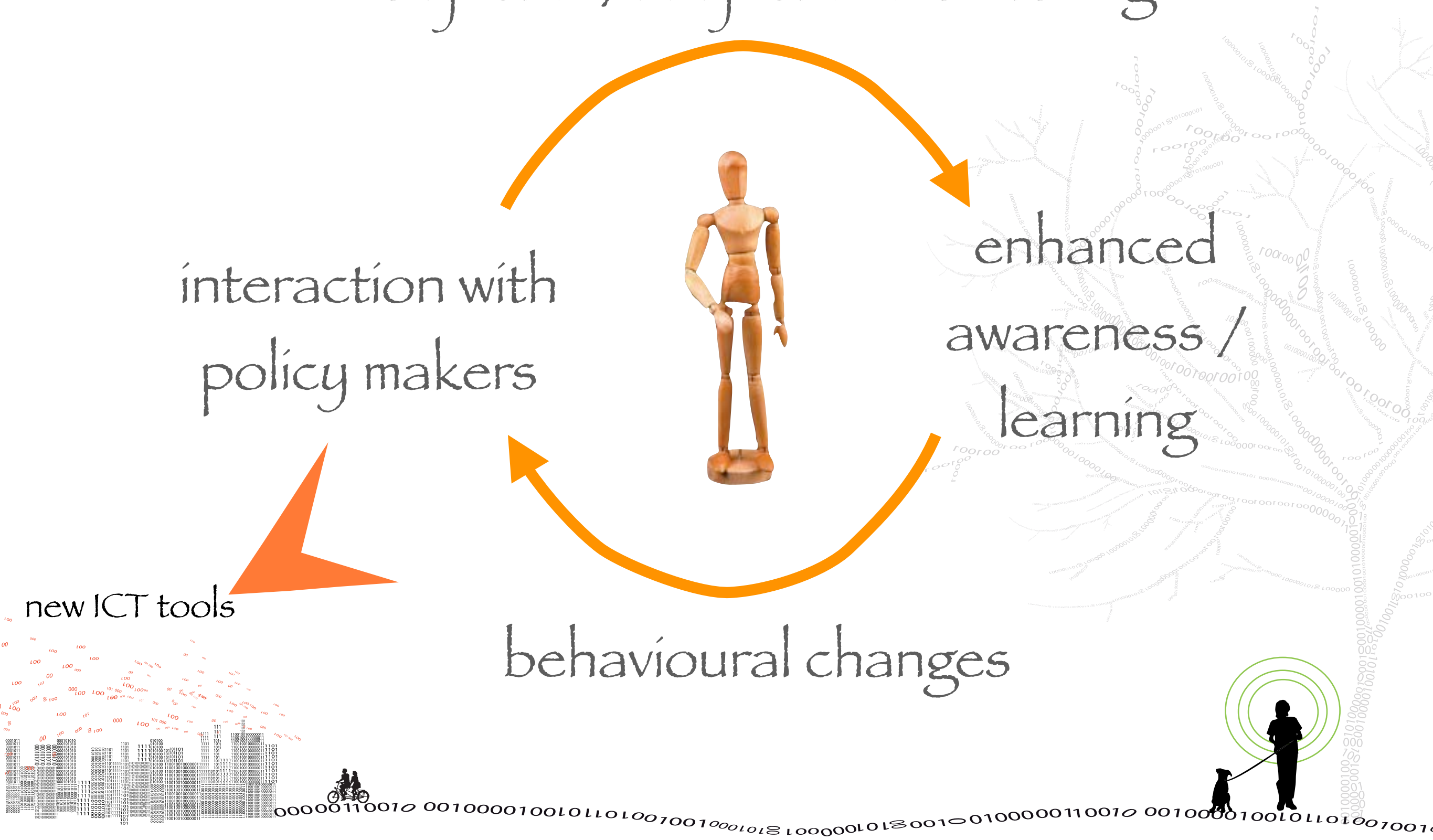
objective/subjective monitoring

interaction with
policy makers

enhanced
awareness /
learning

behavioural changes

new ICT tools



Turn citizens into sensors

Objective vs. Subjective monitoring

Measured
Quantities

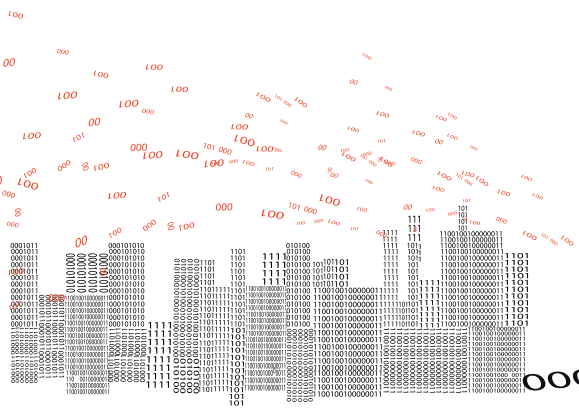


Opinions

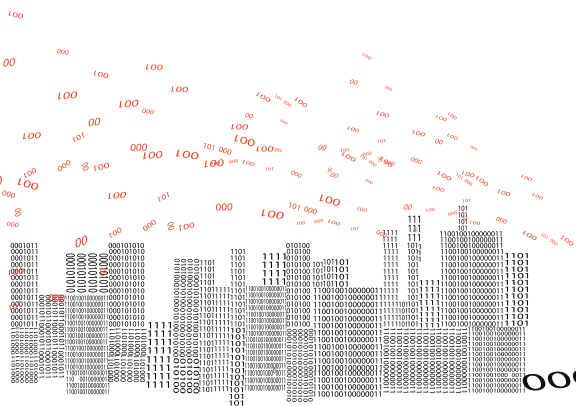
Perceptions

Impressions

Personal Experiences



The EveryAware platform



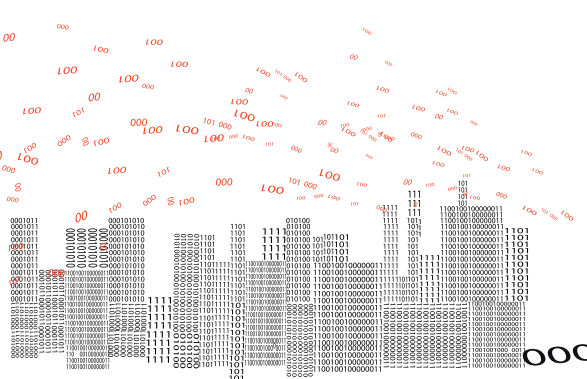
Tags
Annotation
Votes
Comments

Objective data Subjective data

Sensor
box

Server

GPS, accelerometers
Temperature, humidity
Noise
Air quality (NOx, Ozone, CO, ...)
(e.m sensors, geiger)



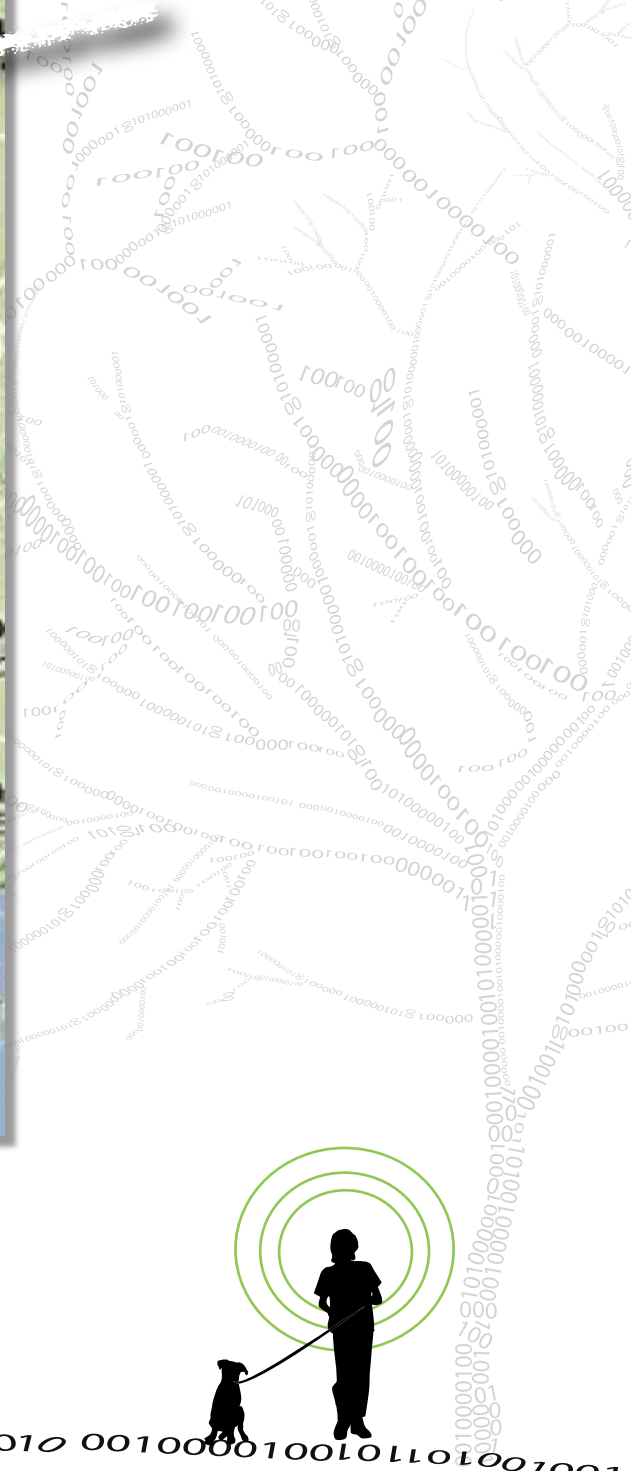
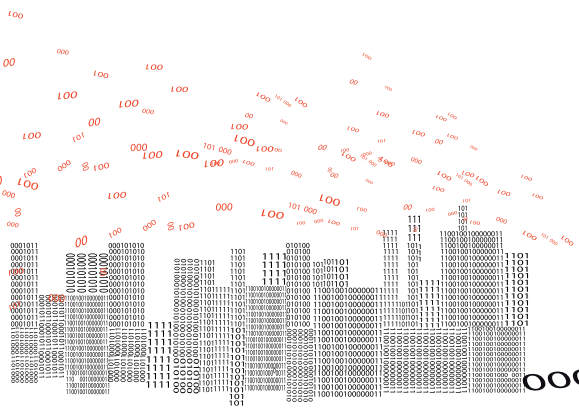
Case studies

London

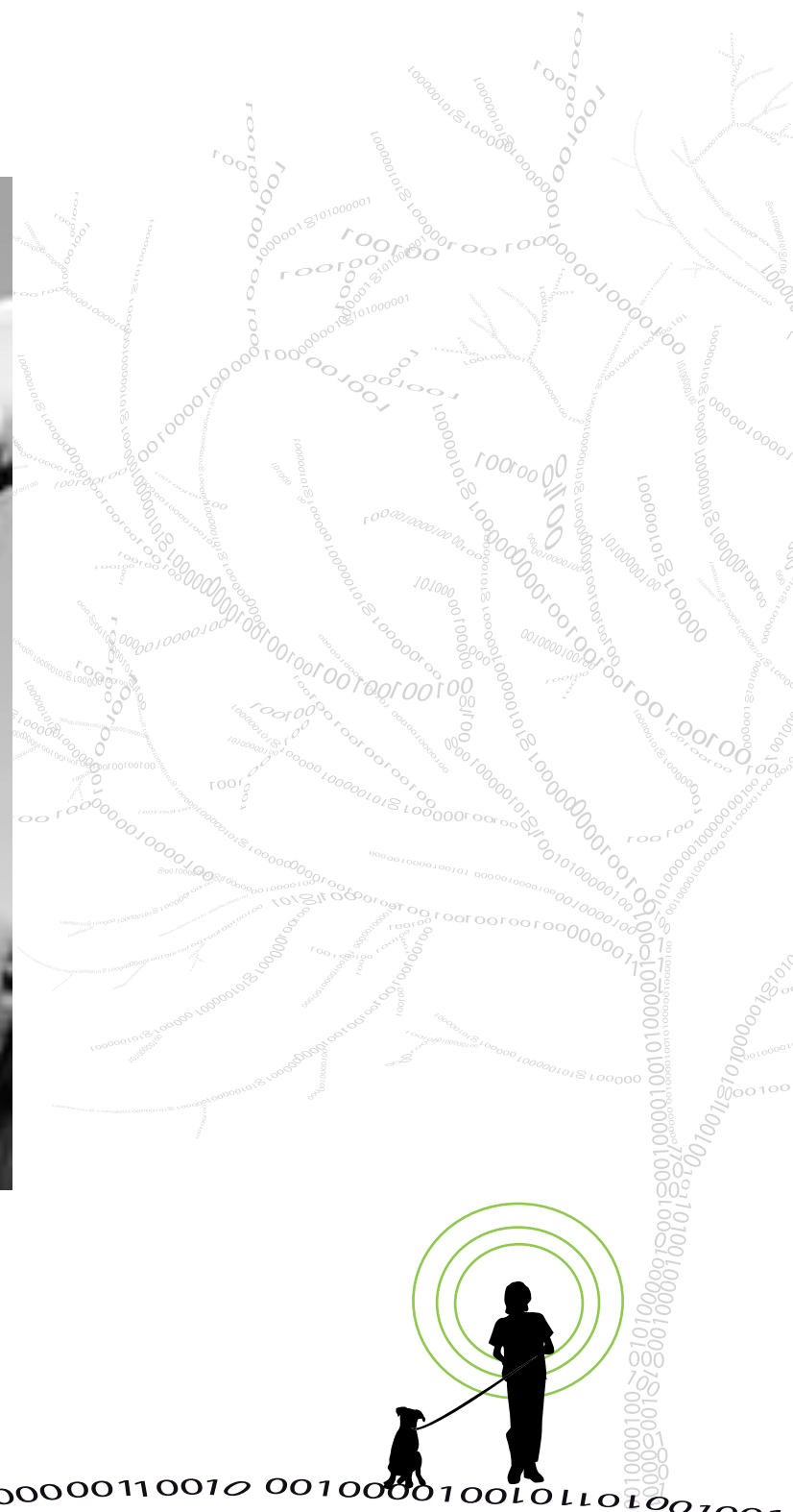
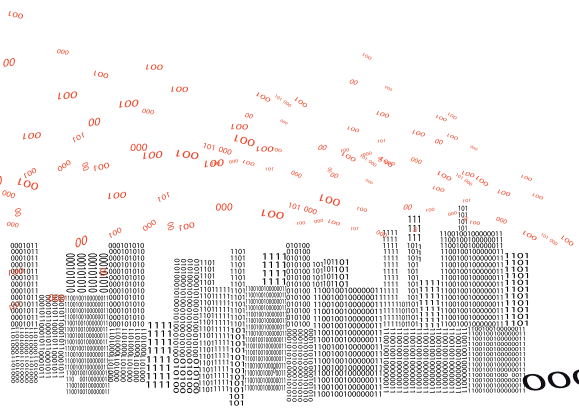
Antwerp

Turín

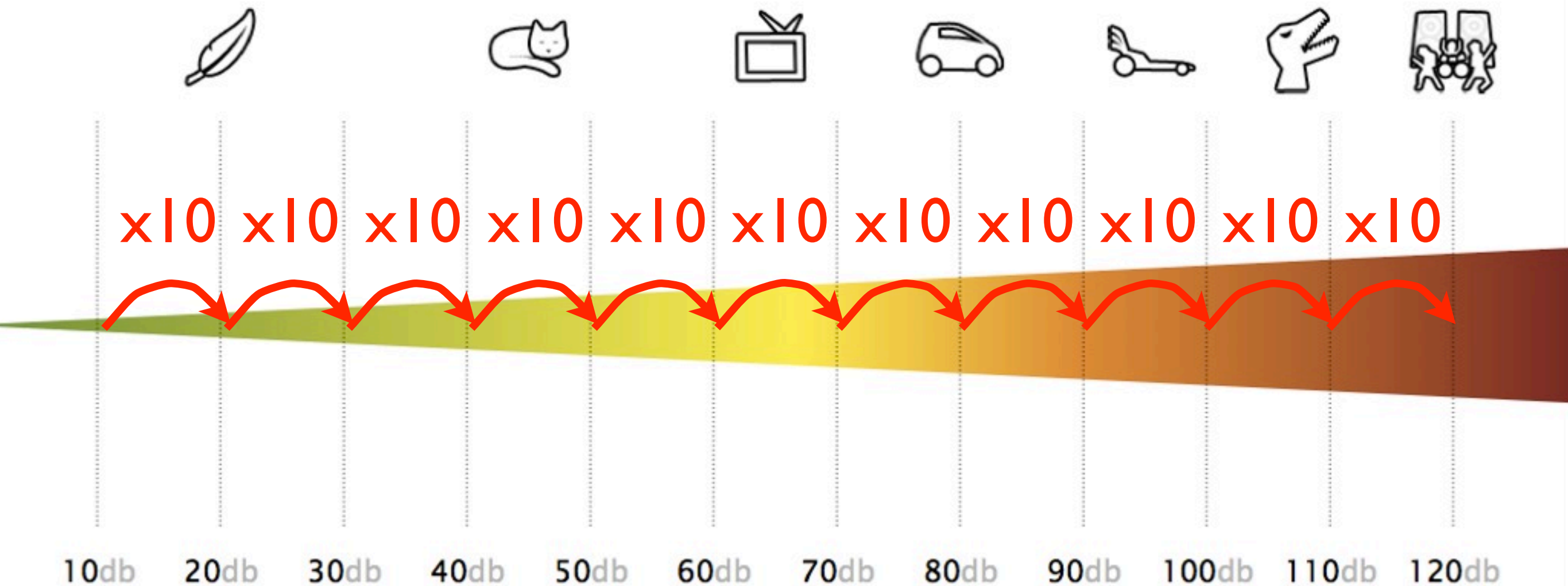
Rome



Noise pollution



Each sound level is represented
as a symbolic noise emitter:



$$dB = 10 \times \log \left(\frac{I}{I_0} \right) \quad I_0 = 10^{-12} \frac{Watt}{m^2}$$



WideNoise, the iPhone & Android app that helps you understand the soundscape around you.

There are various kind of pollution that get often on the first page of newspapers. Noise pollution instead is rarely cited, but it's something that constantly surrounds us even if we are not aware of. WideNoise will help you to better understand the soundscape around you & live a healthier life.



Get WideNoise
for iPhone



Get WideNoise
for Android

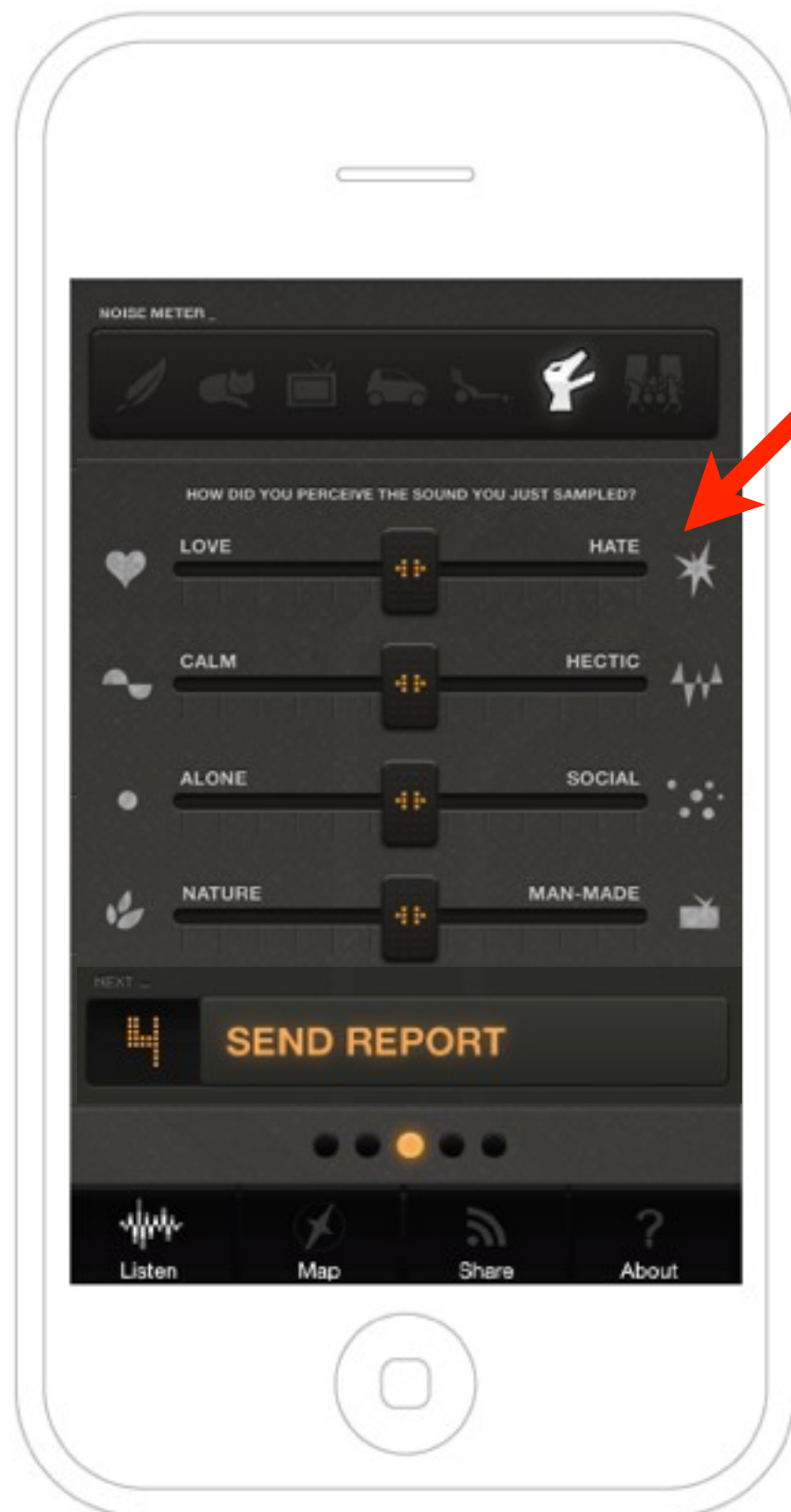


<http://cs.everyaware.eu/event/widenoise>

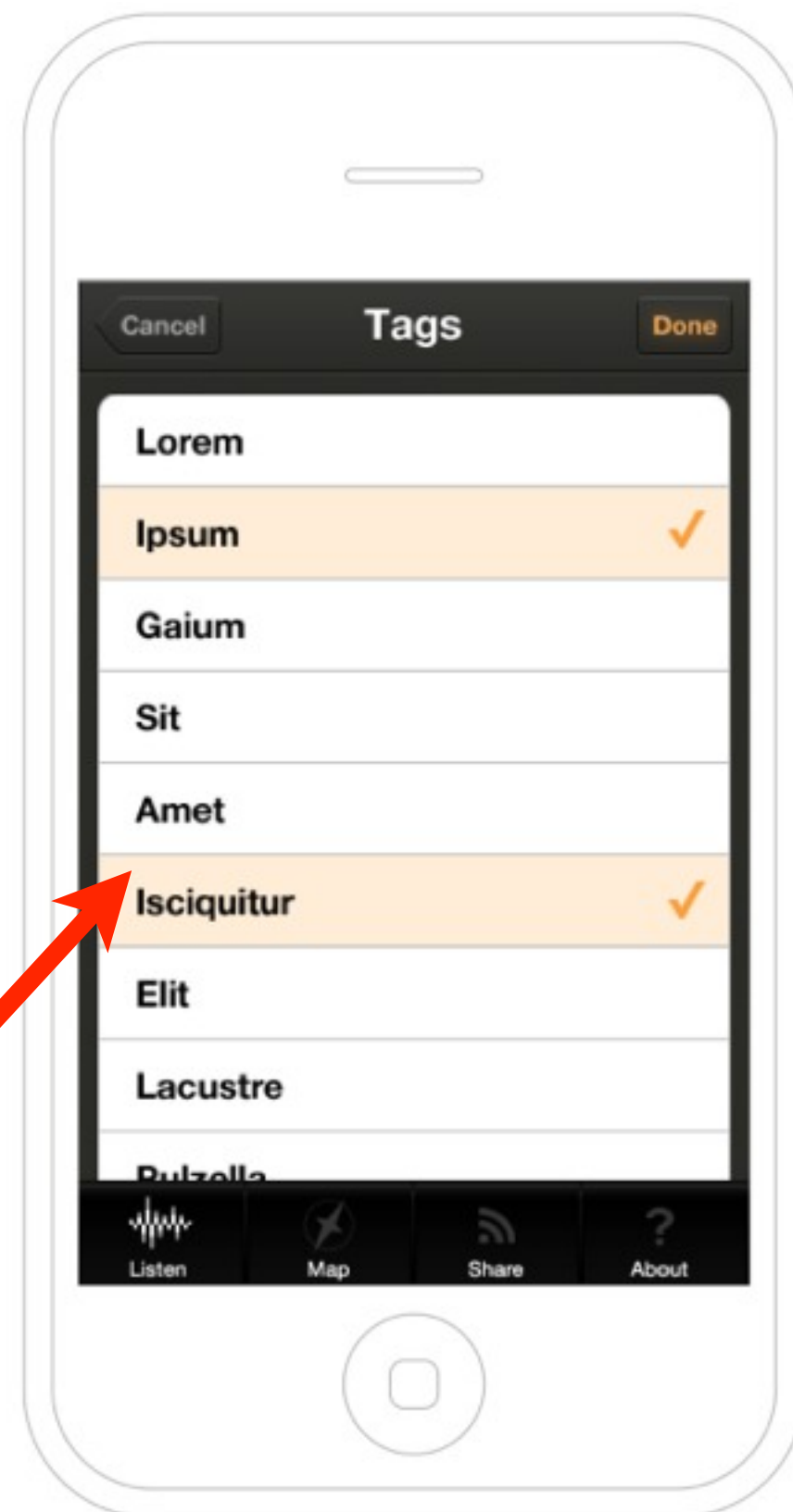
Objective measurements



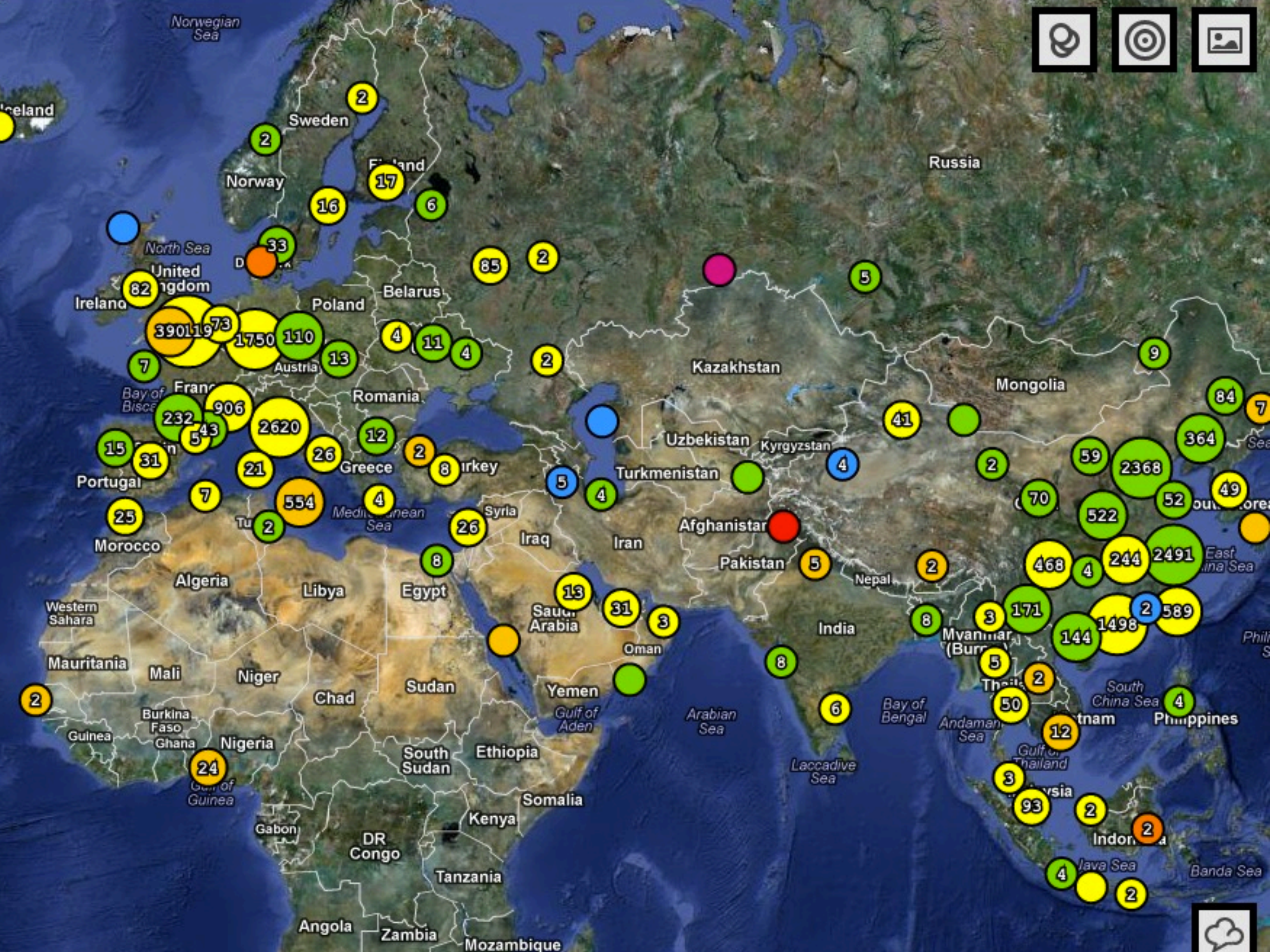
Subjective measurements



Sliders



Tags



Users Estimation [dB]

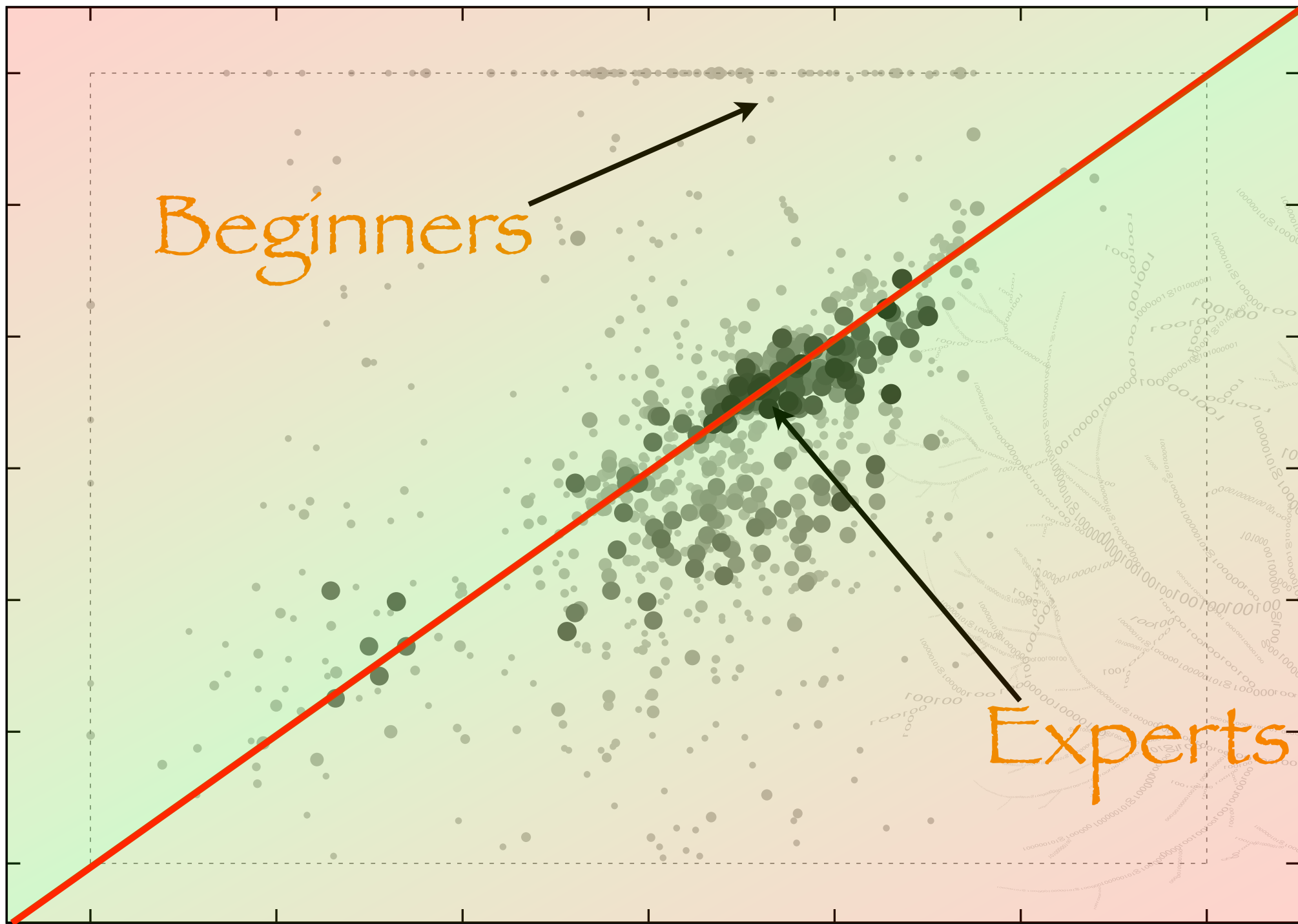
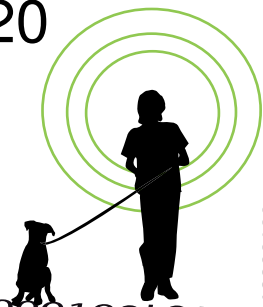
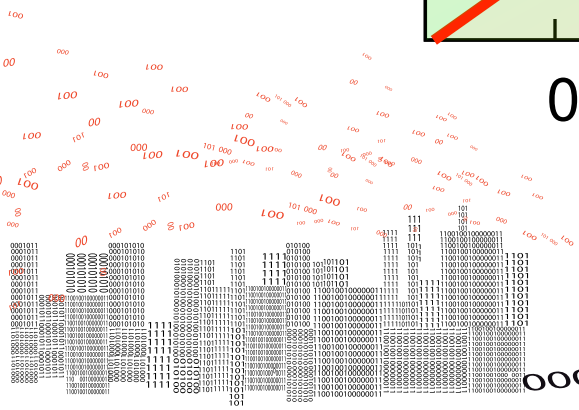
120
100
80
60
40
20
0

Beginners

Experts

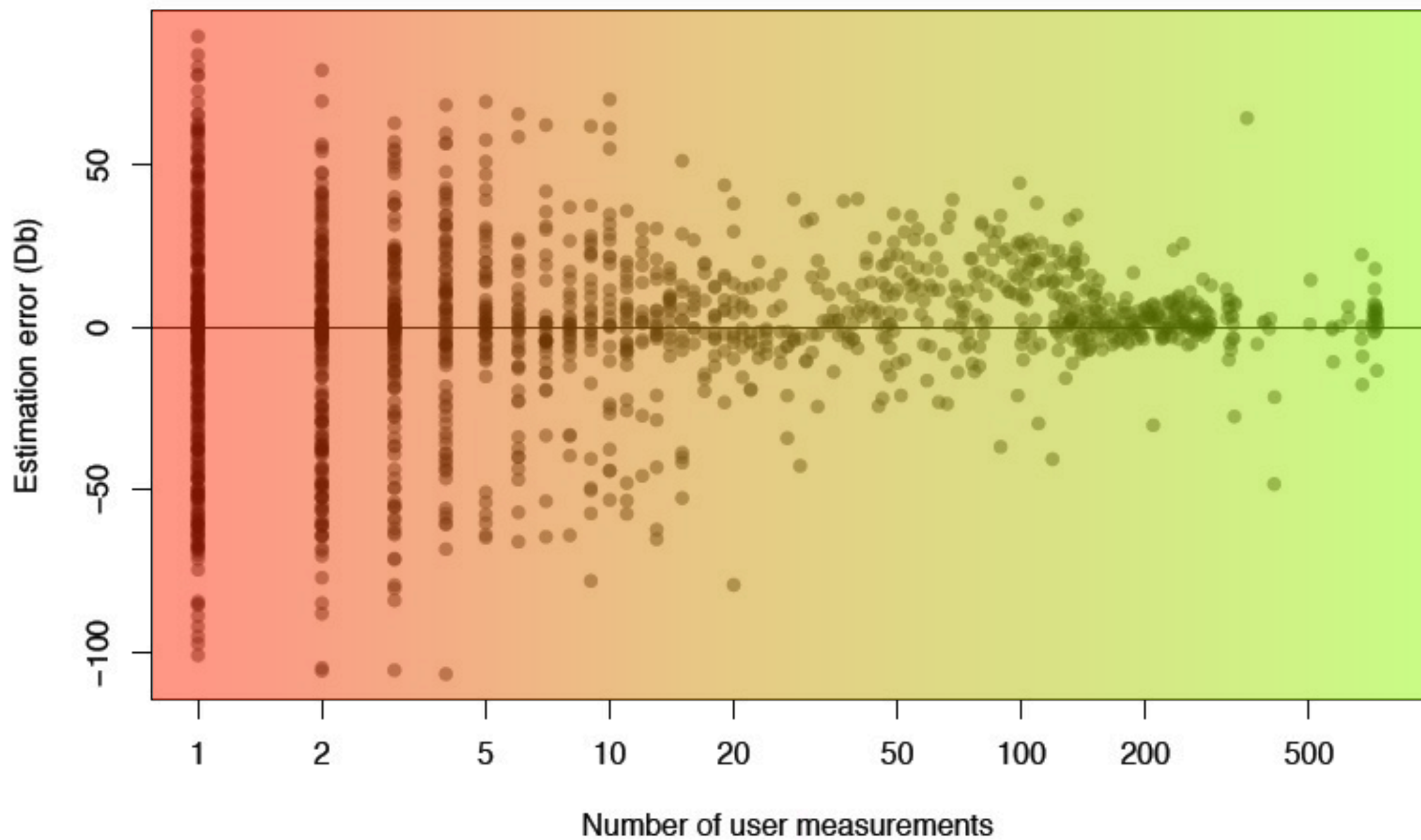
Real Measurement [dB]

0 20 40 60 80 100 120



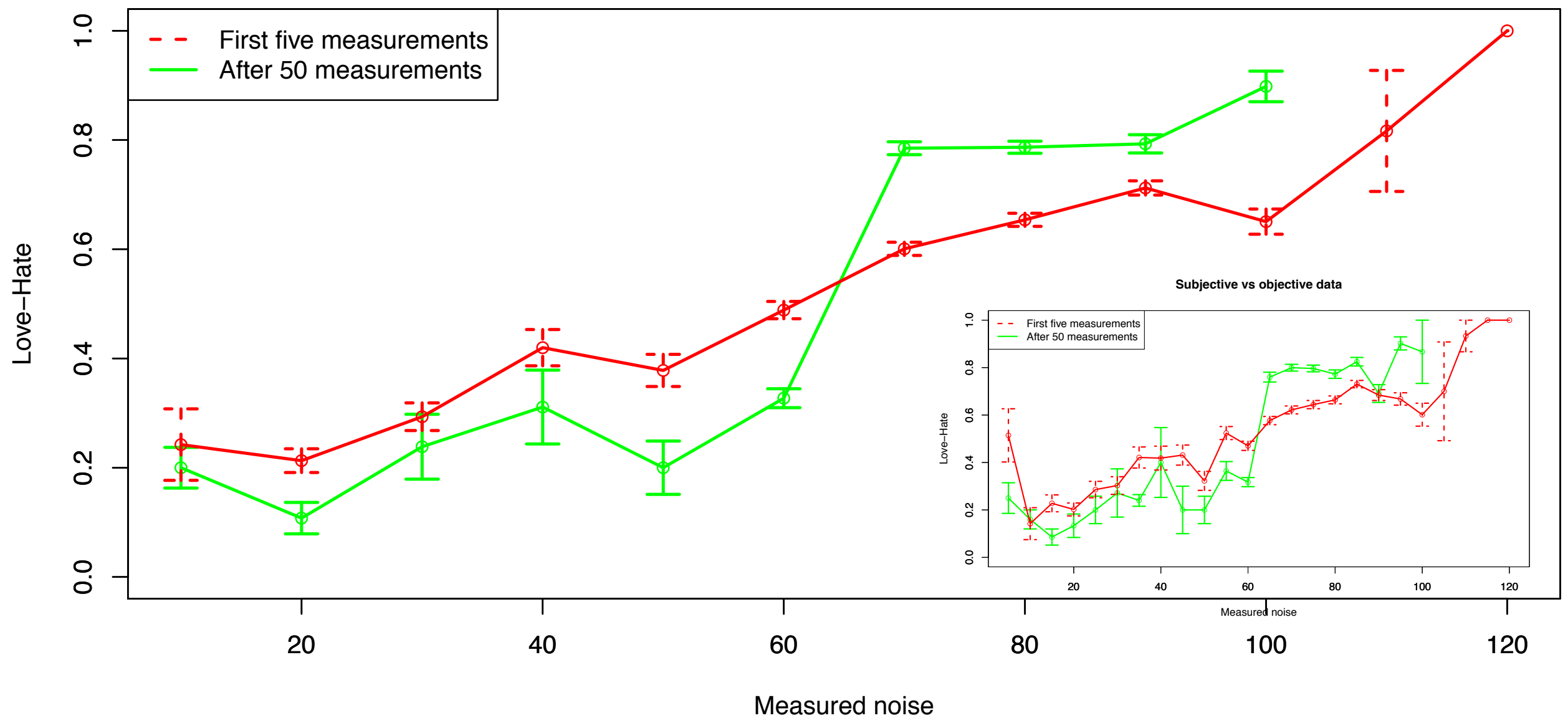
Prediction accuracy

Estimation errors vs user expertise



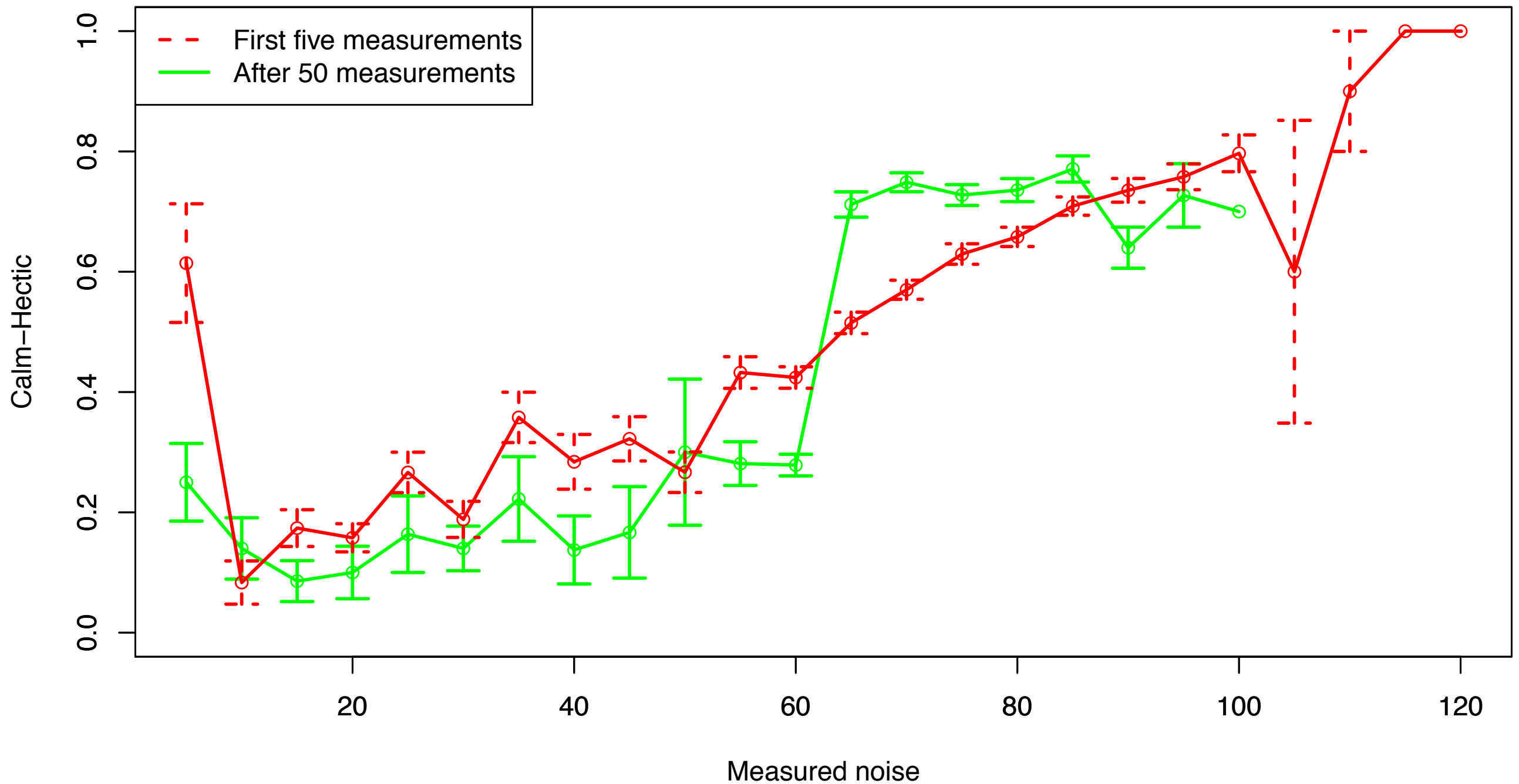
Sharpening individuals' perception

Subjective vs objective data



Sharpening individuals' perception

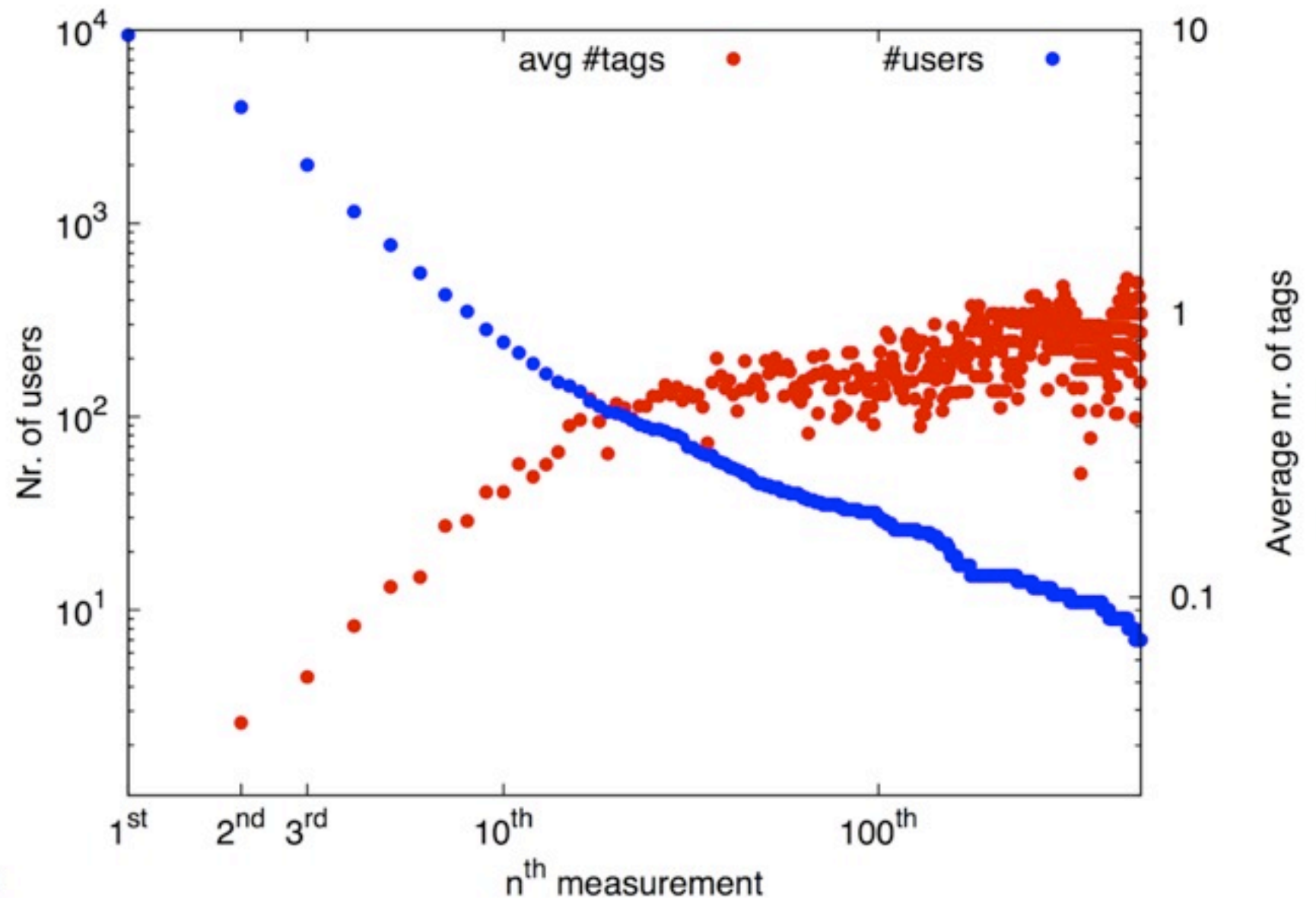
Subjective vs objective data



Tags adoption

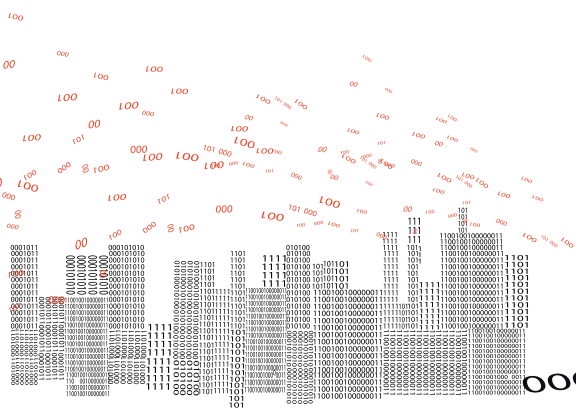


Tagging means that people
care about their
measurements quality

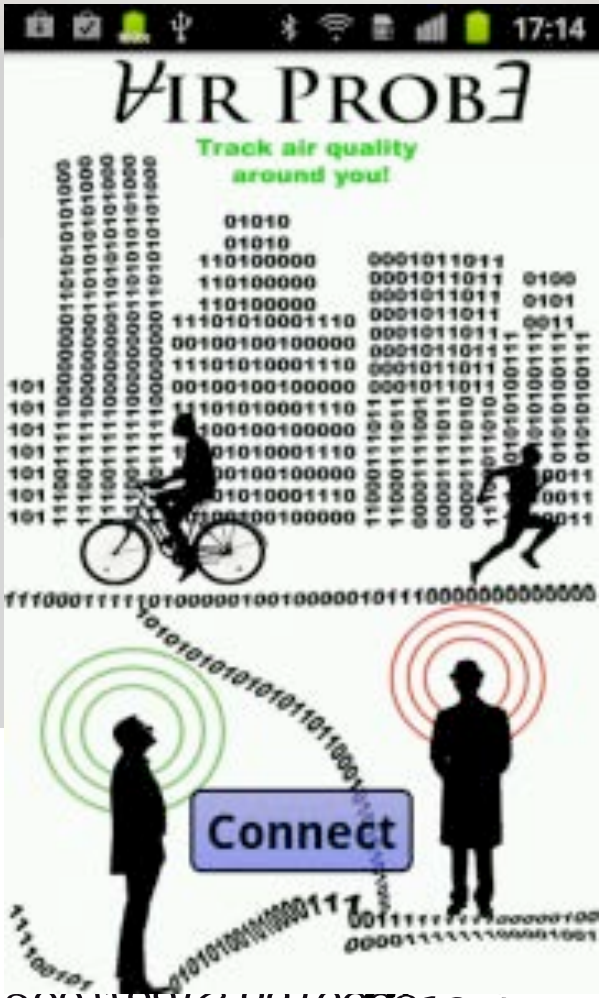
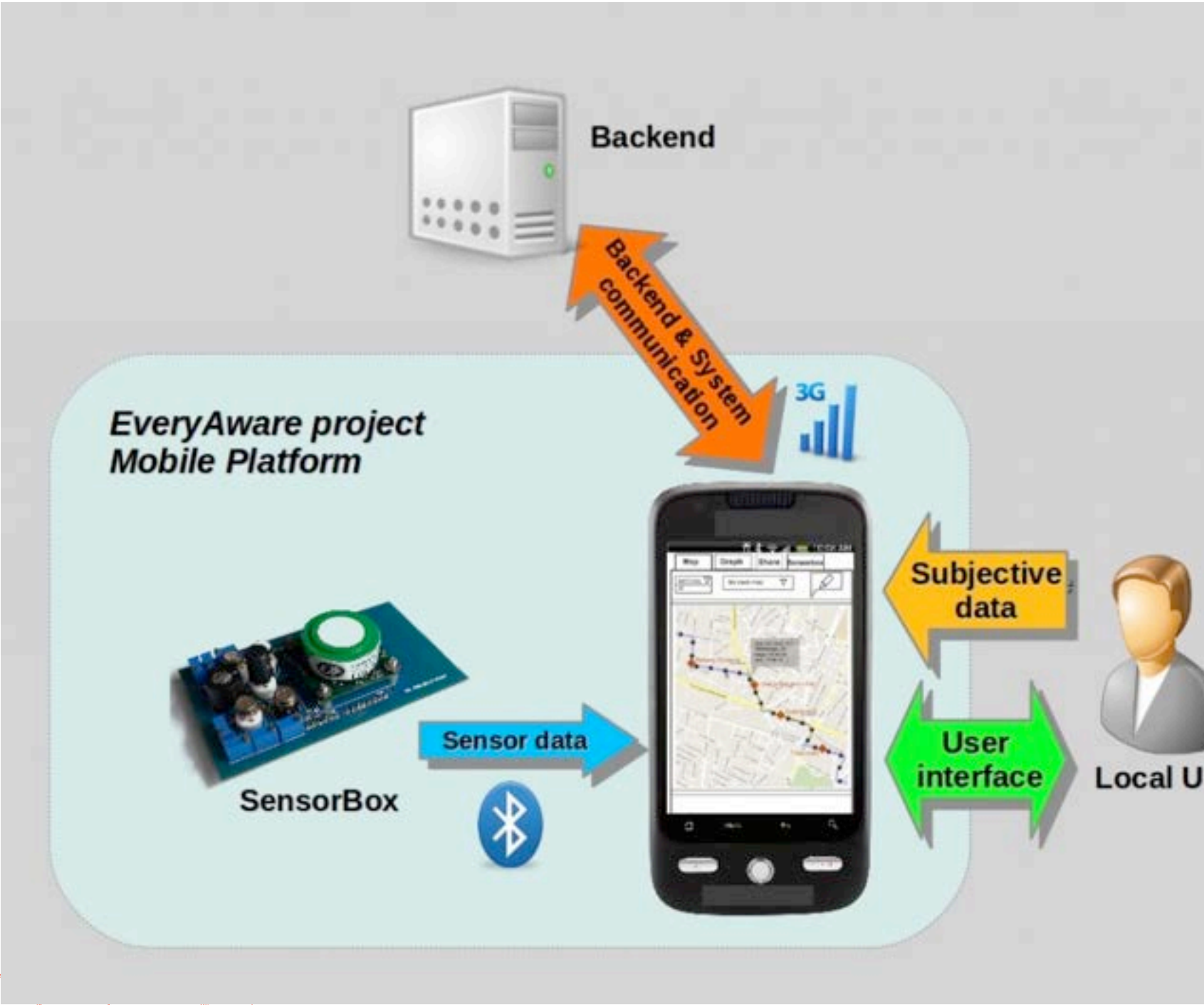


More experienced users tag more often: **they**
care more about their measurements

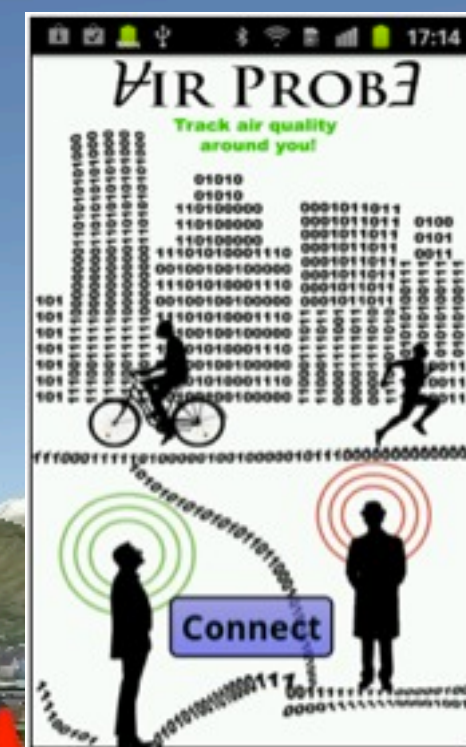
Air-quality

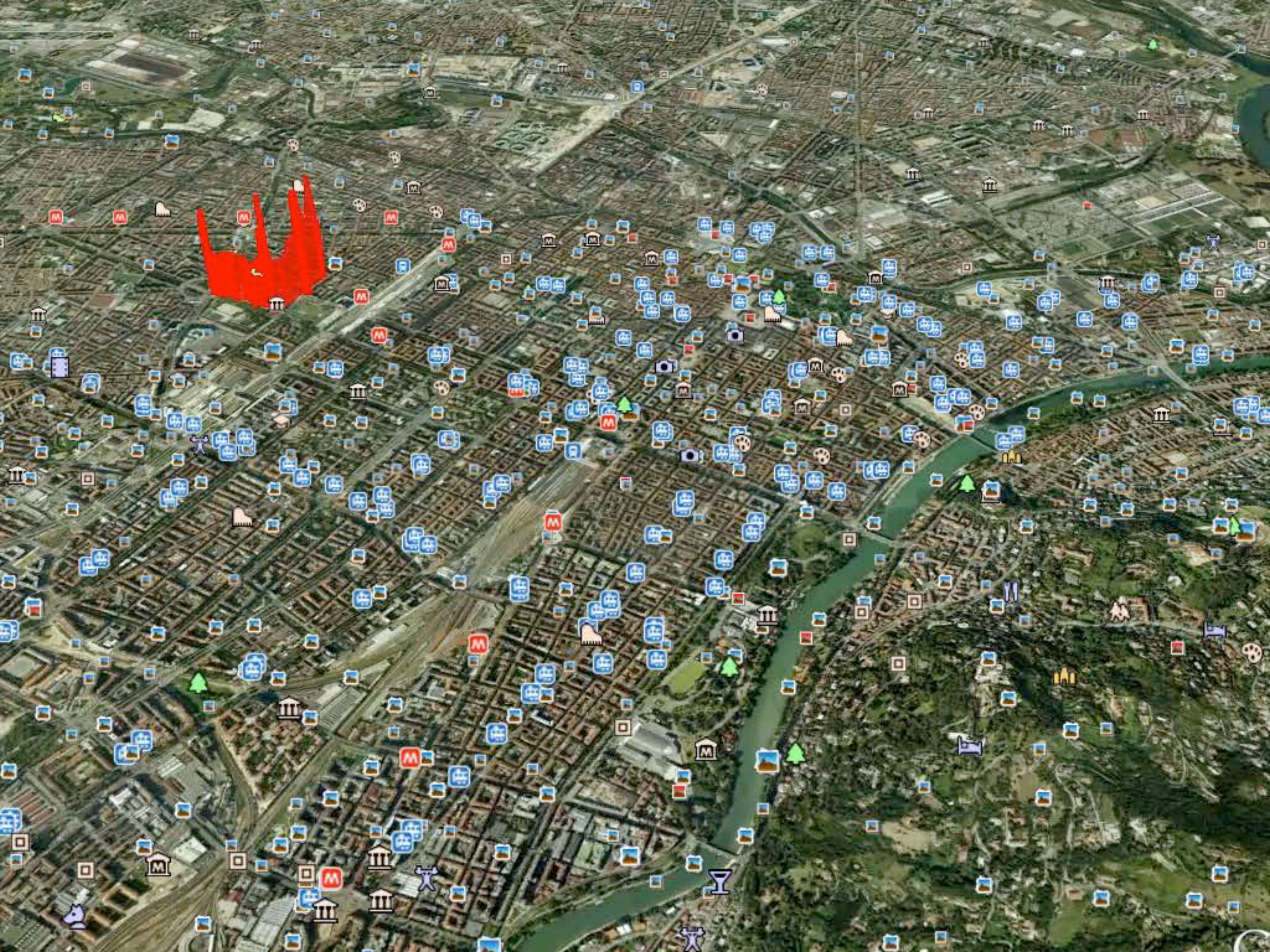


Air-quality



Air-quality

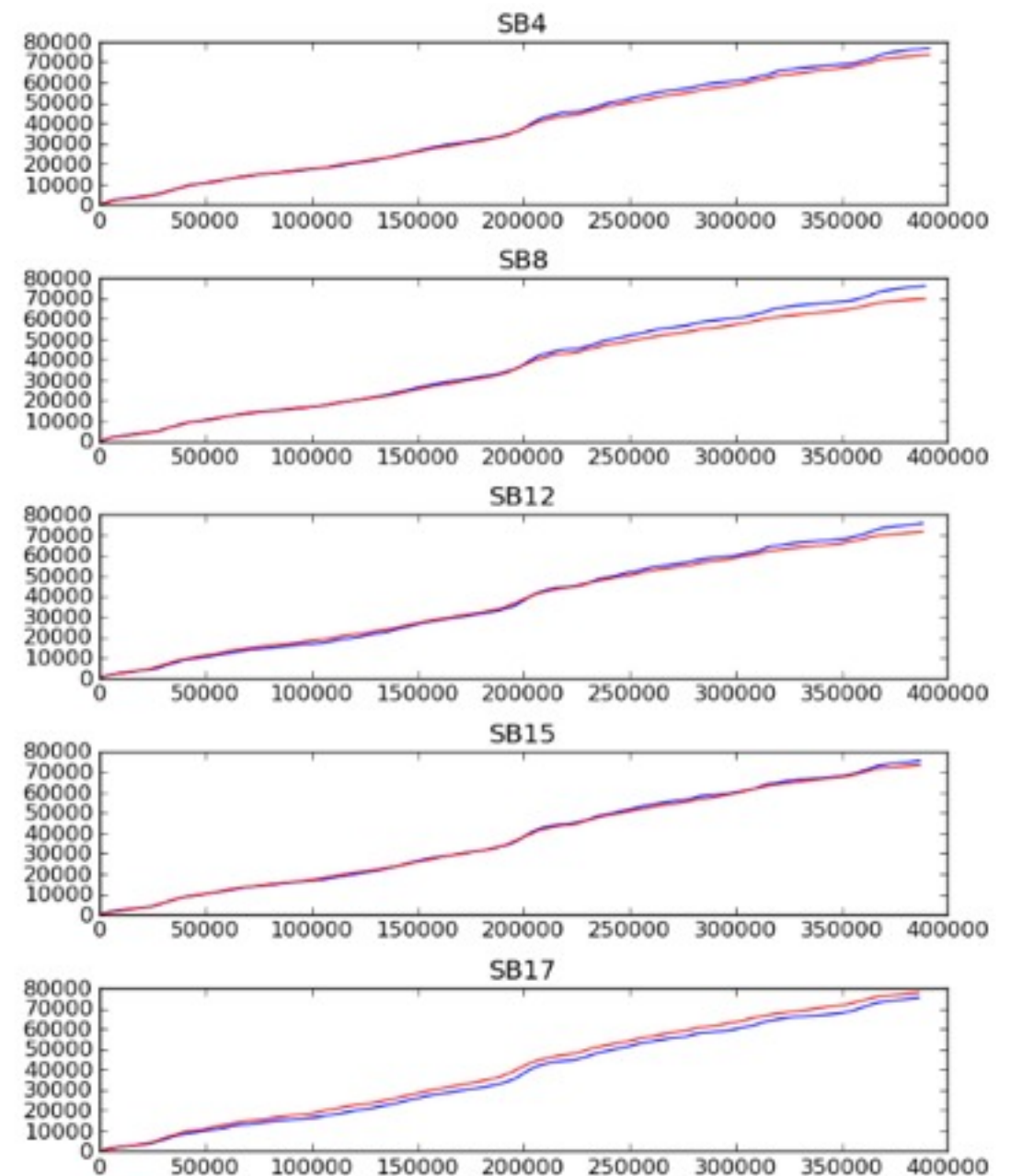
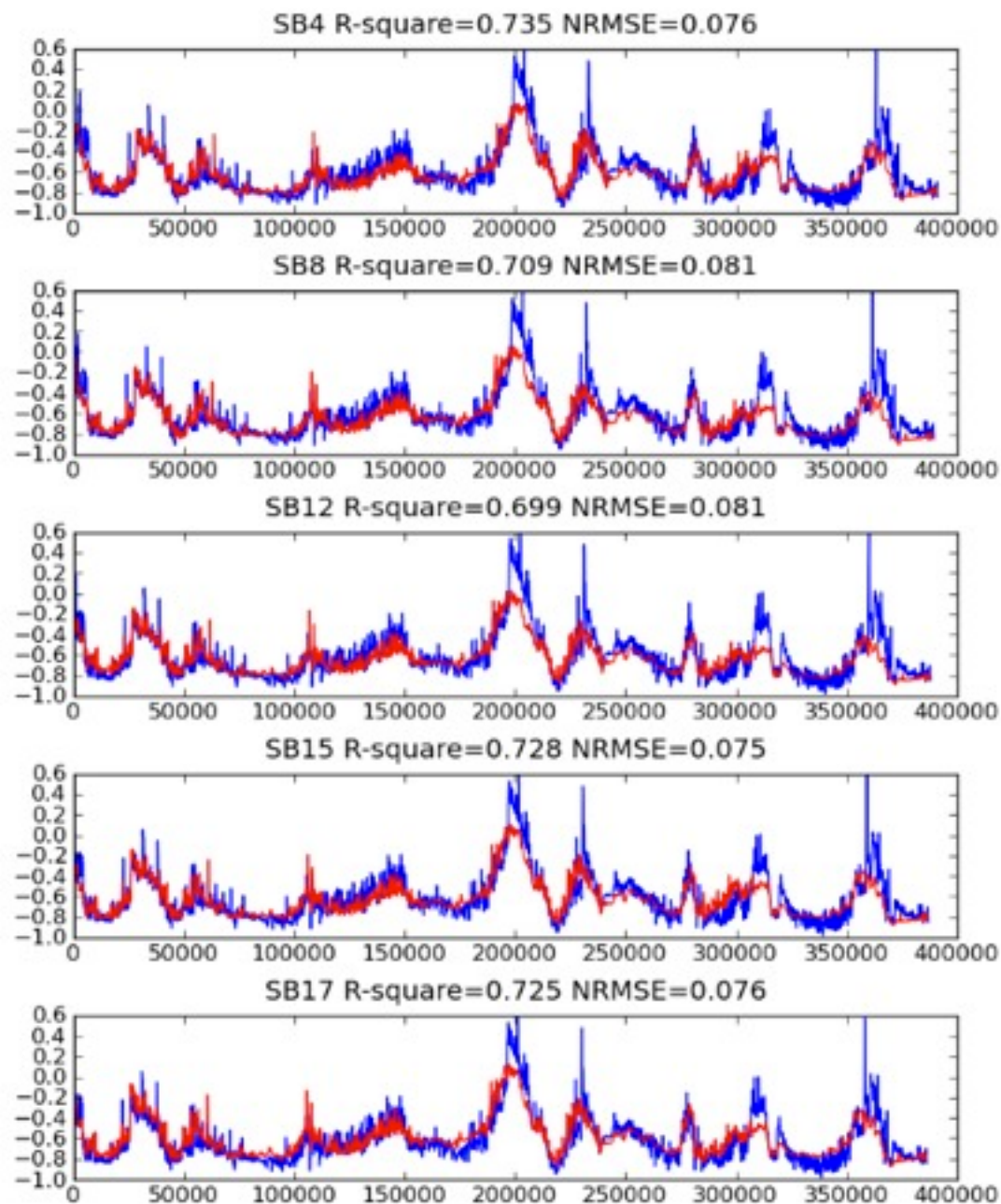




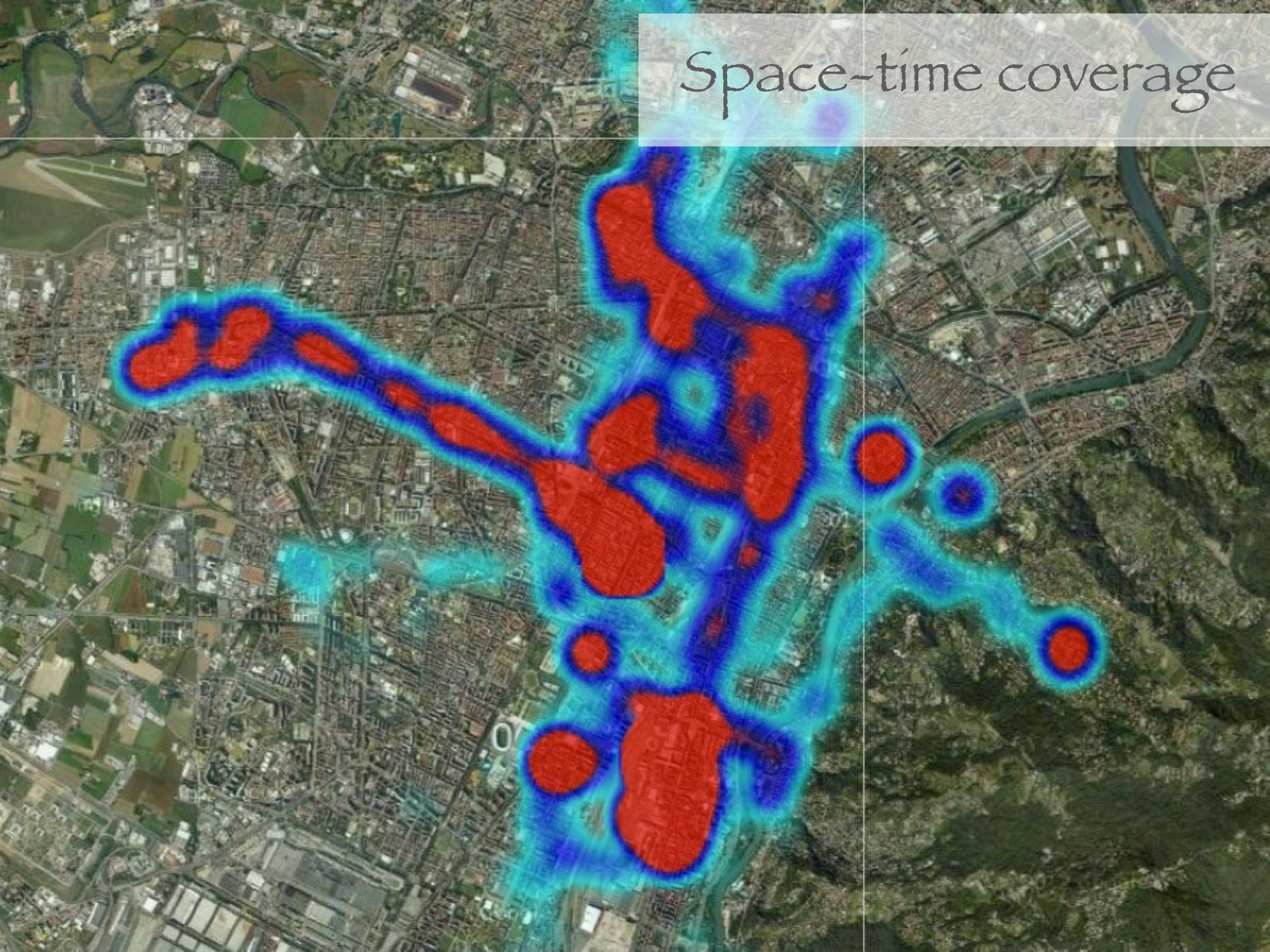
Calibration vs. Black-Carbon

Air-Quality Index (AQI)

Cumulative exposure



Space-time coverage



Awareness and behavioural change

(a long way to go)

Awareness vs. learning

Awareness vs. different social strategies

what individual would make different in specific tasks? (stimulated response)

Awareness vs. behavioural changes

what individual would make different in their everyday life? (spontaneous response)

EveryAware international challenge

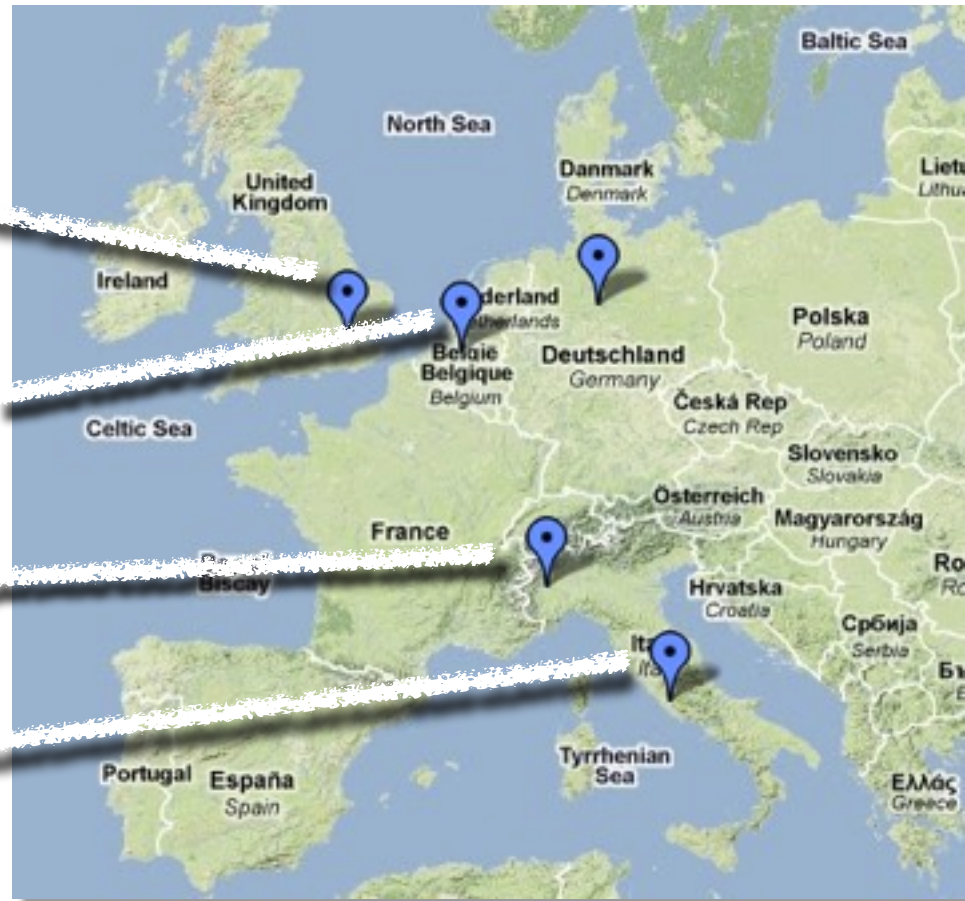
October 2013

London

Brussels

Turin

Rome



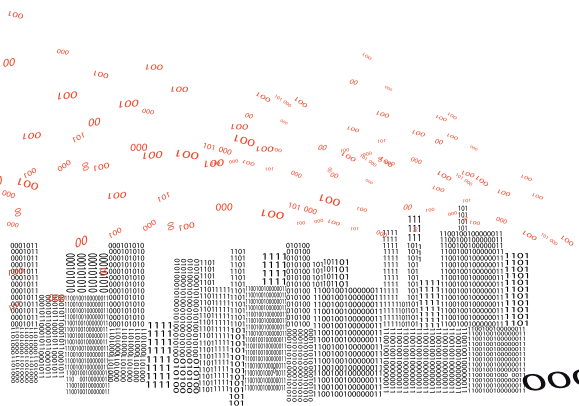
1. Betting on the pollution:

Coordination online game on the XTribe platform aimed at revealing polluted and clean spots.

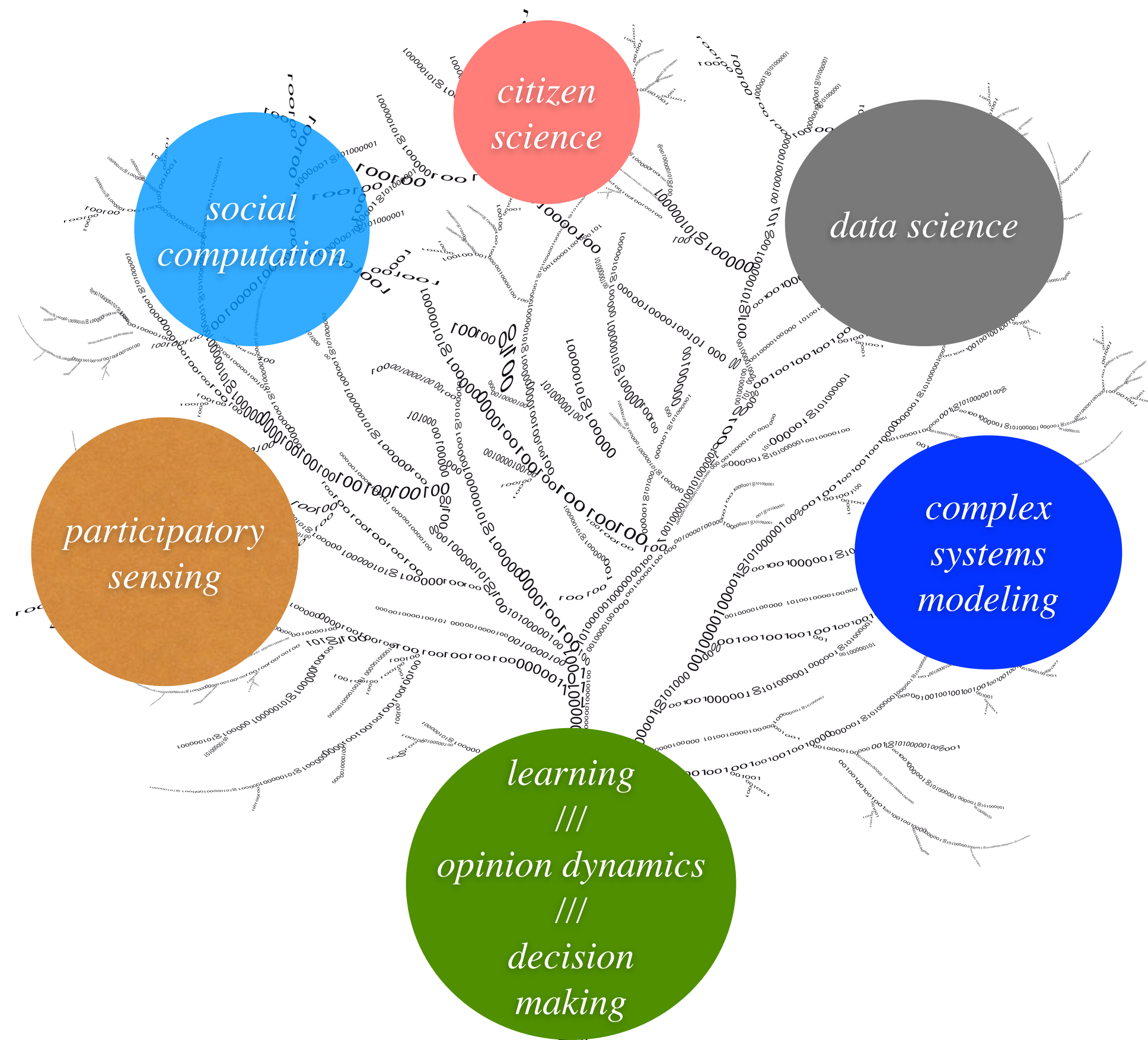
2. Real measurements: 10 ambassadors per city will be equipped with sensor-boxes to monitor real air pollution. The measurements will be published in real-time.

3. Measuring behavioural shifts: people will be asked to play again in order to see if the knowledge obtained from real measurements changed their perception.

Stay tuned on www.everyaware.eu !!



Summary



how awareness emerges
and what affects it ?

what triggers large-scale
behavioural shifts
(incentives) ?

how do we model and
make sense of all this ?

how do we devise
new platforms for social
actions ?



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Thank you

<http://www.xtribe.eu/>
<http://www.everyaware.eu/>

