

From labs to cities: Mapping the social impact of ubiquitous technologies

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University of Oulu

3 July 2012, IGW Summercamp, Vienna University of Technology, Austria



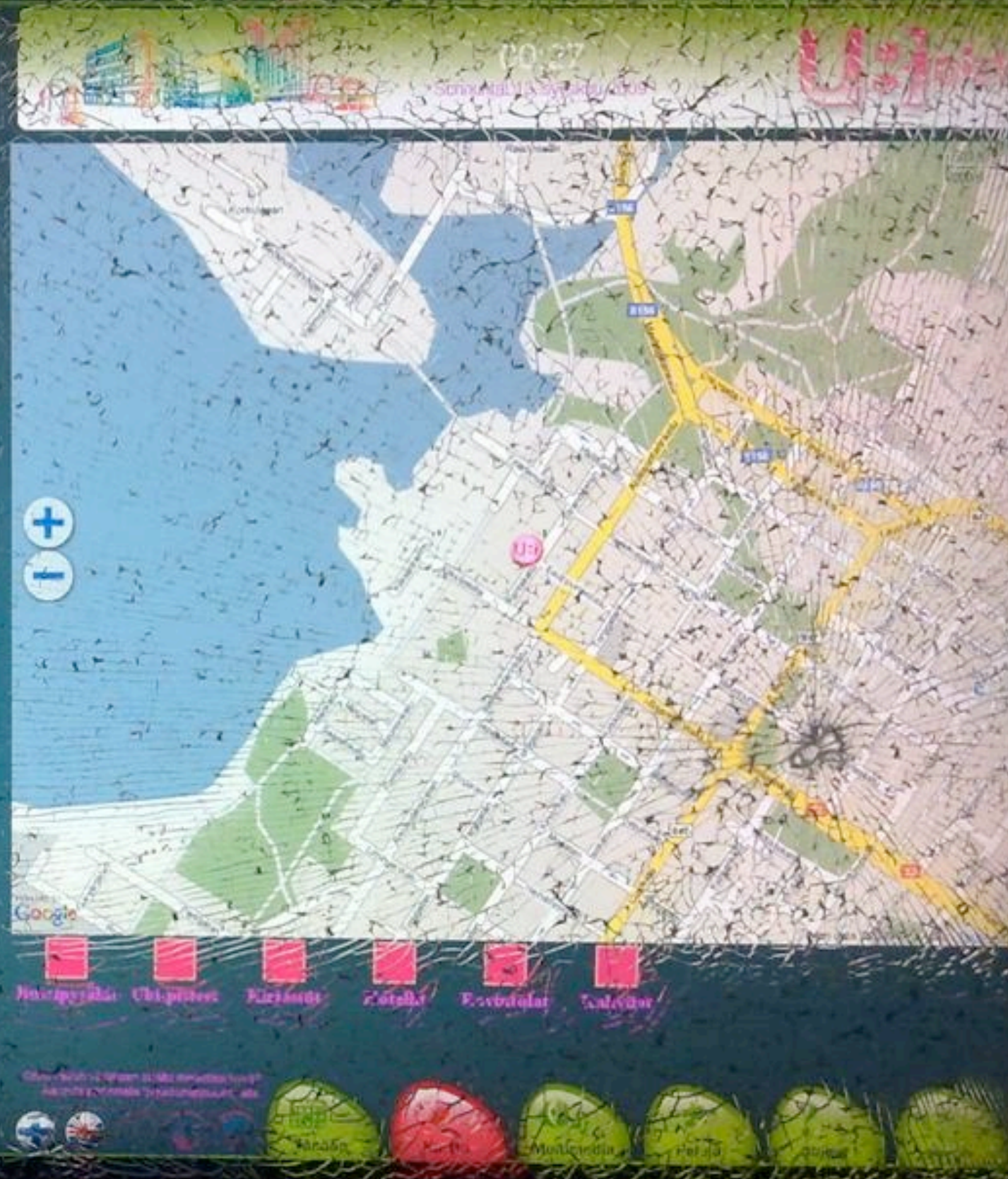
UNIVERSITY of OULU
OULUN YLIOPISTO





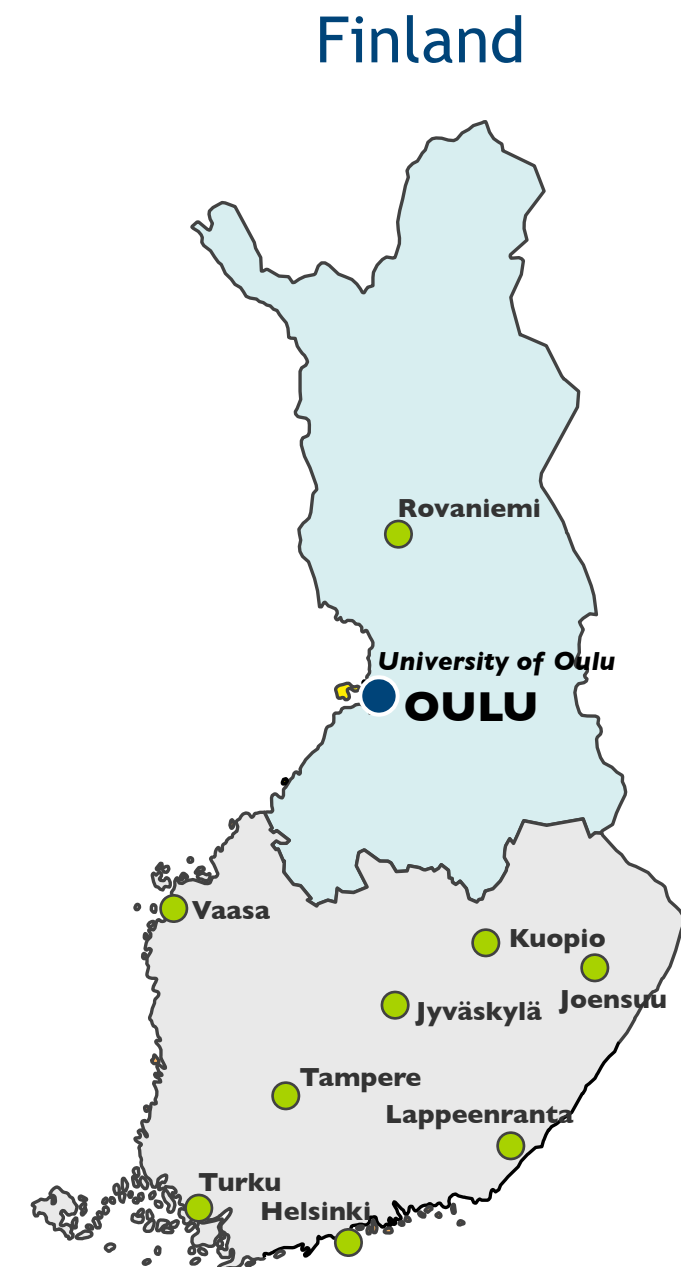


OULU



University of Oulu

- Founded in 1958
- 6 faculties
- 16 000 students
- 2900 employees
- Total funding EUR 226 million
- Four research focus areas:
 - Information Technology
 - Biosciences and Health
 - Cultural Identity and Interaction
 - Environment, Natural Resources and Materials



Active exchange programs





*Department of Computer
Science and Engineering*

Tietotekniikan osasto

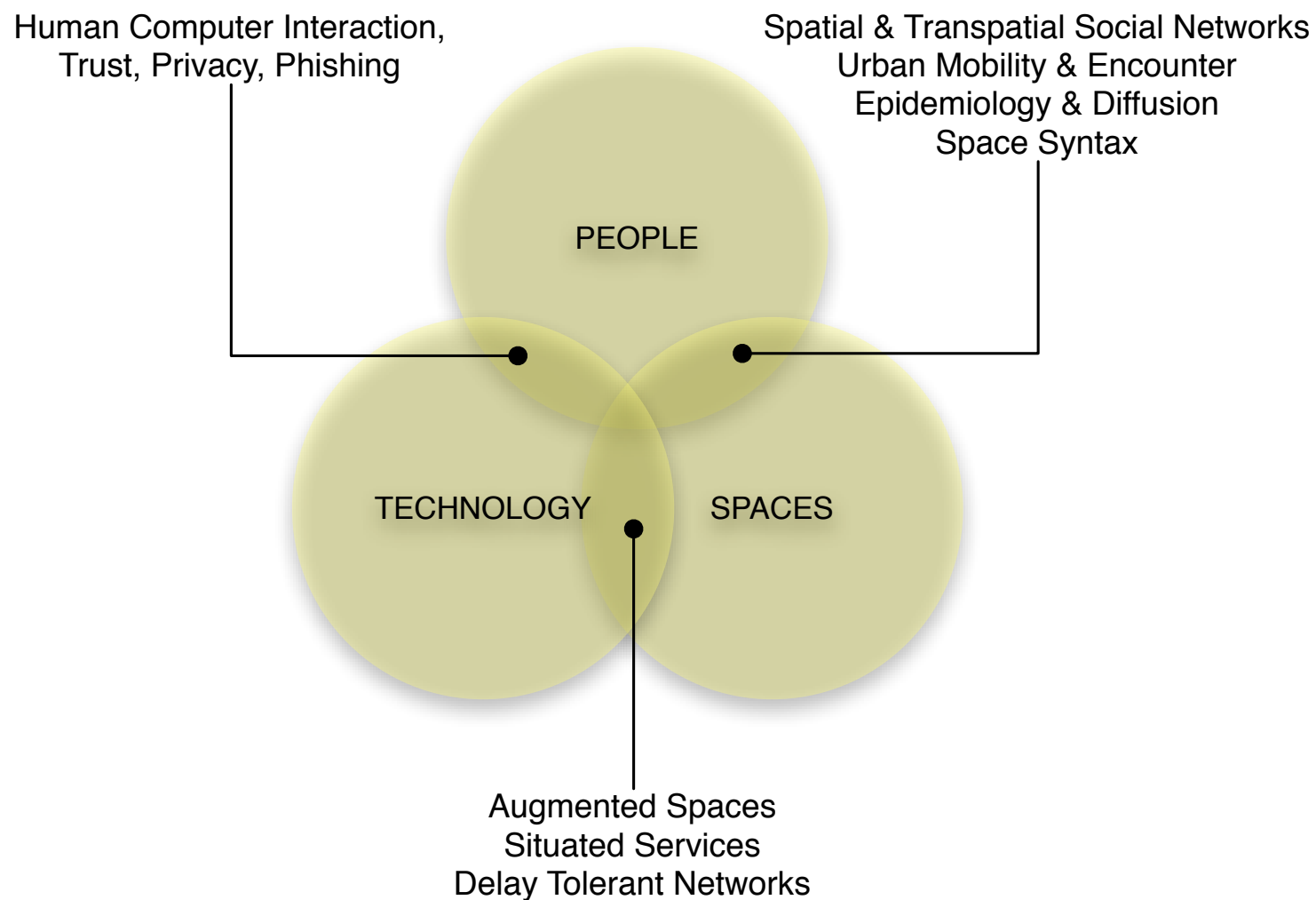
- Ubiquitous computing (MediaTeam)
- Machine vision
- Intelligent systems and security
- Biomedical engineering



Impact



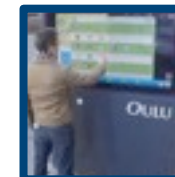
Ongoing work



Social and complex networks



Sensing for public transport



Public interactive displays



Instrumenting mobile platforms



Security and privacy



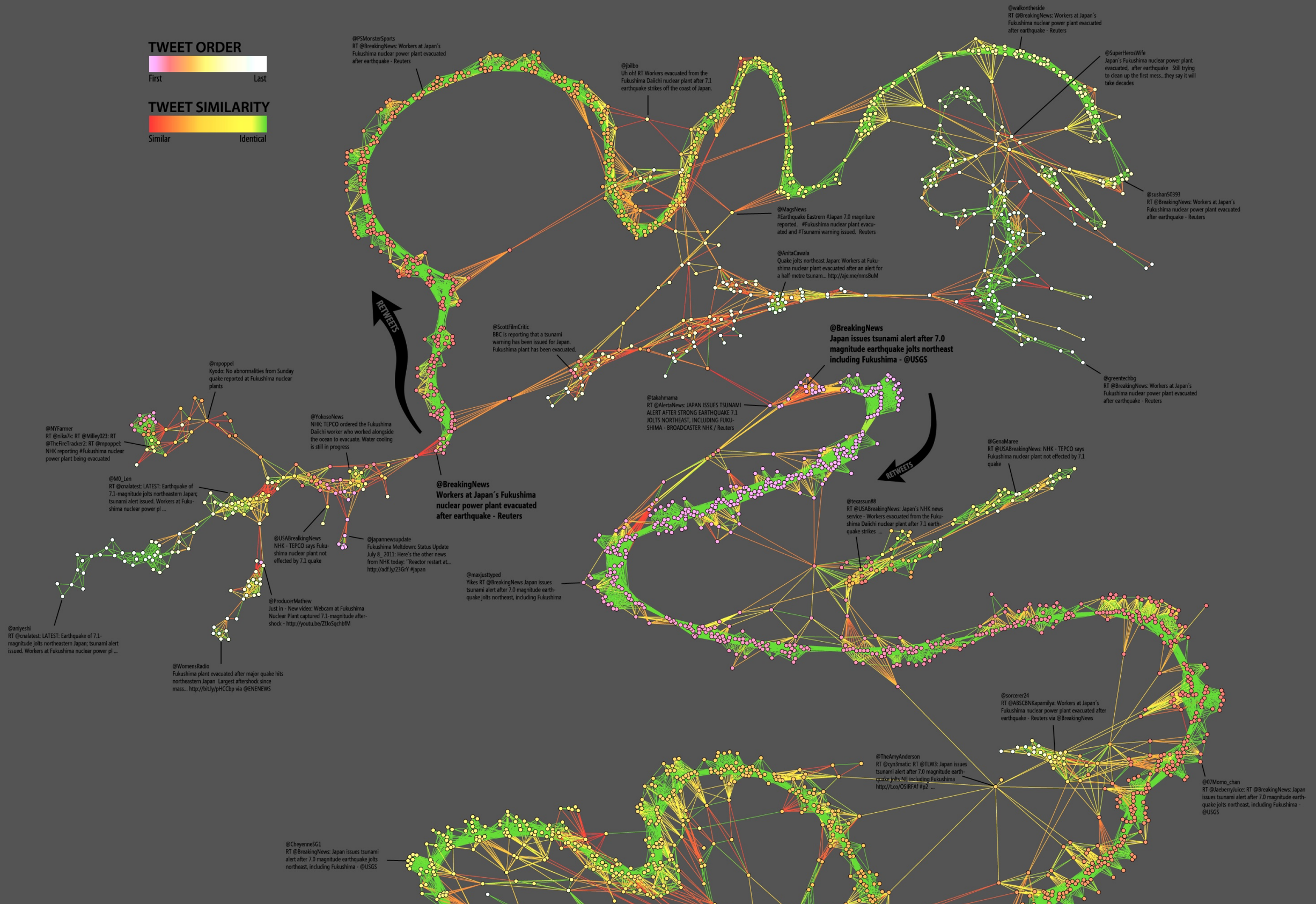
(internal structure of a 3766 node story from CrisisTrackerPrototype)

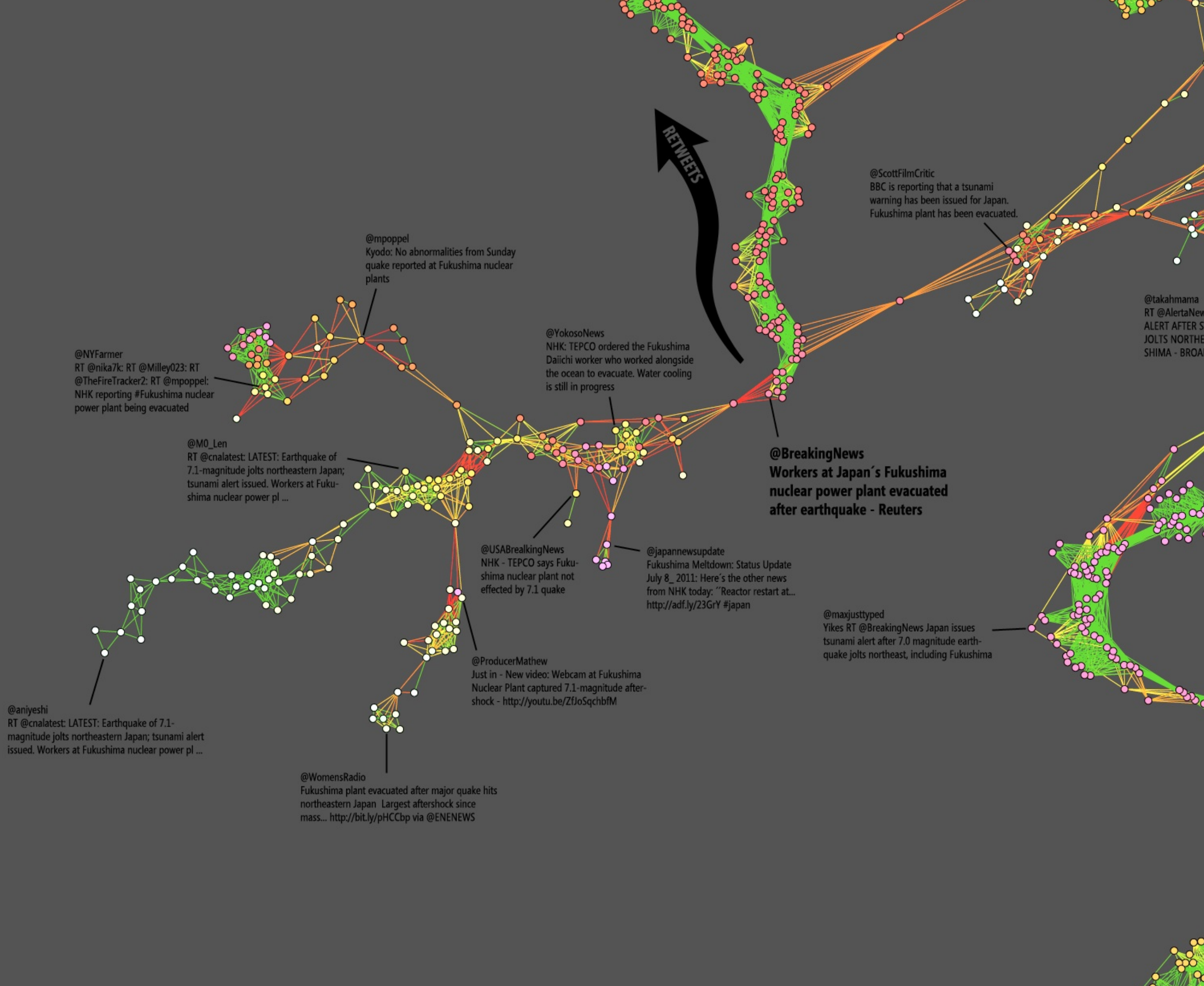


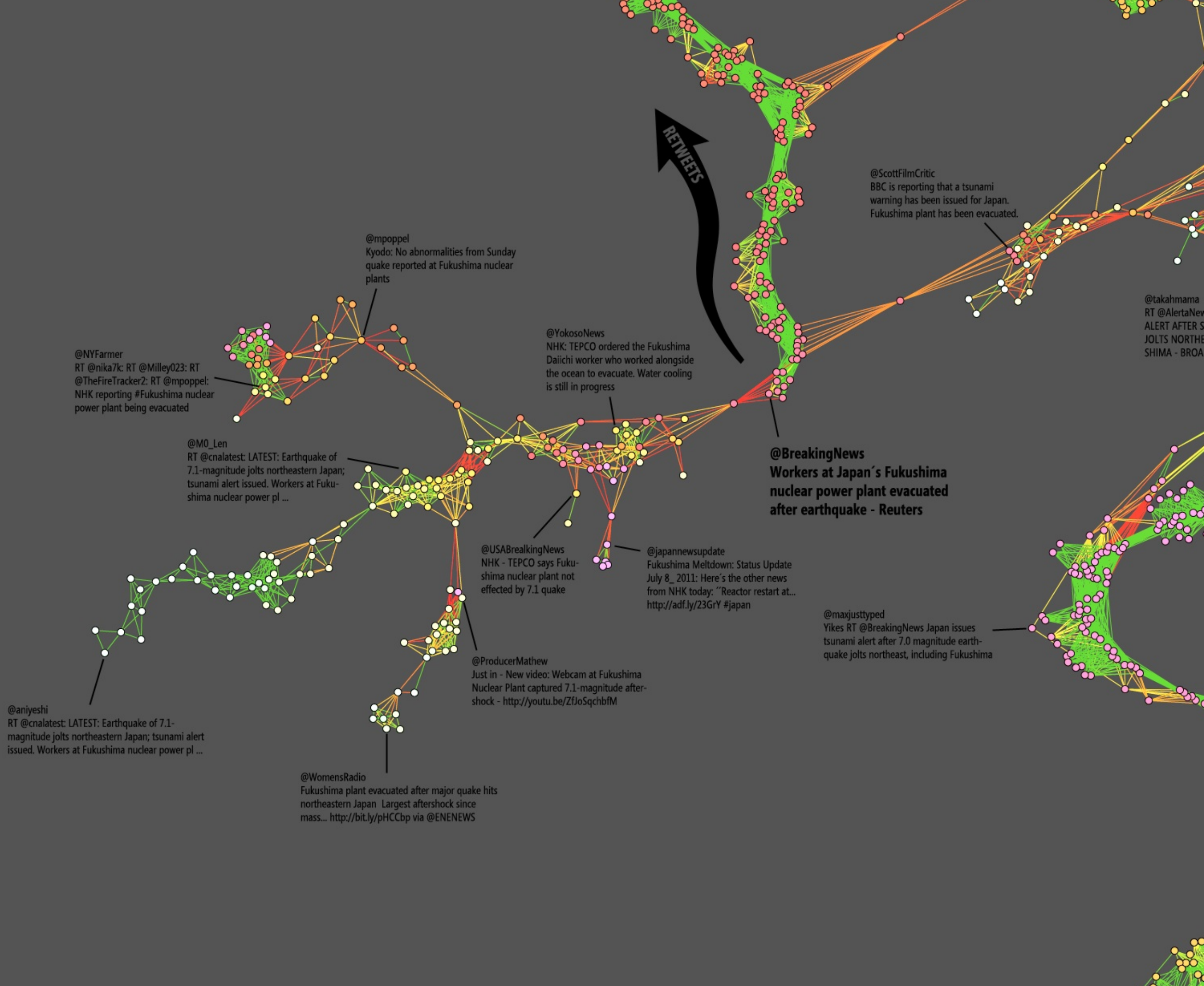
Information Propagation on Twitter

Spread of news regarding earthquake outside Japan on July 10, 2011

(internal structure of a 3766 node story from CrisisTrackerPrototype)

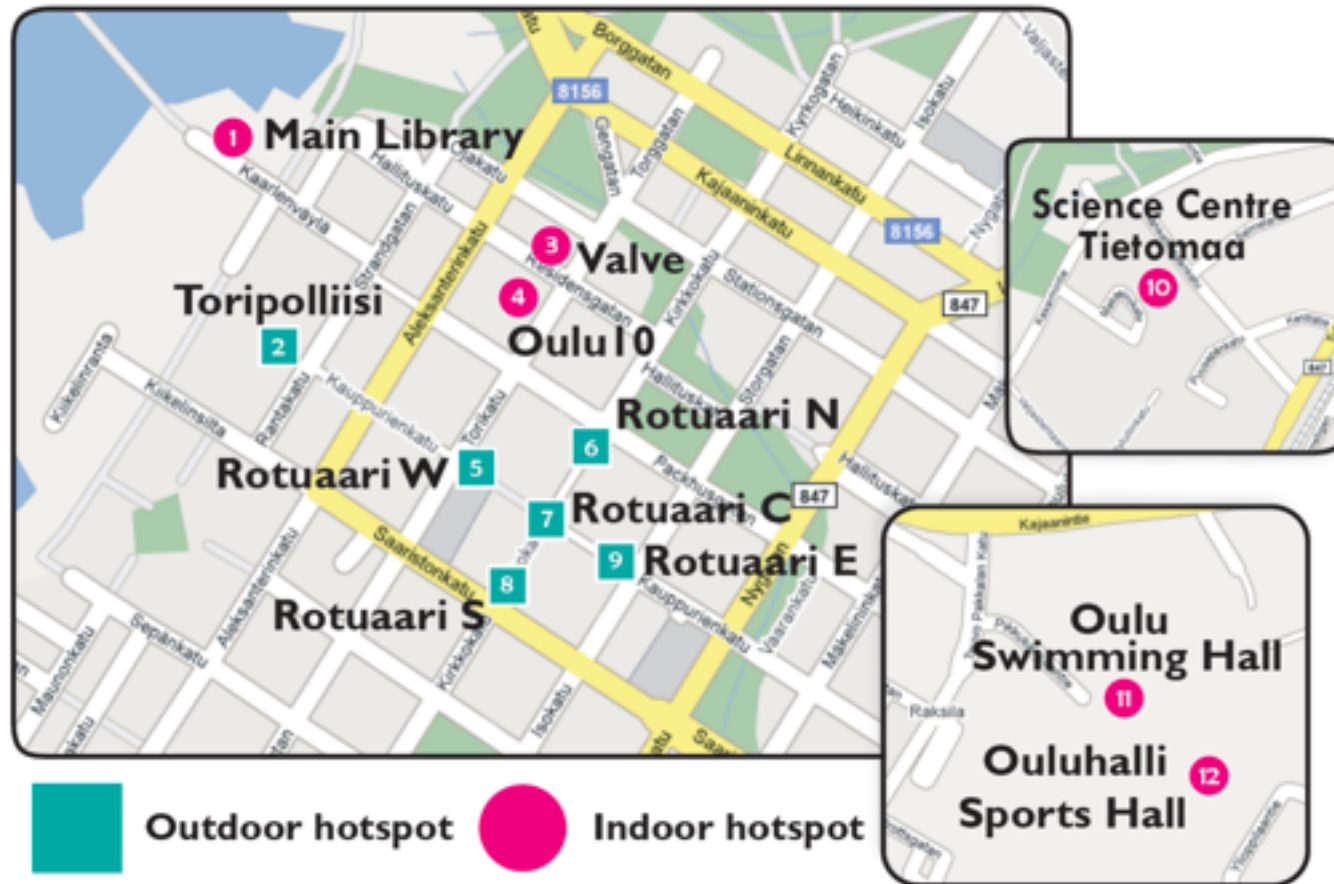




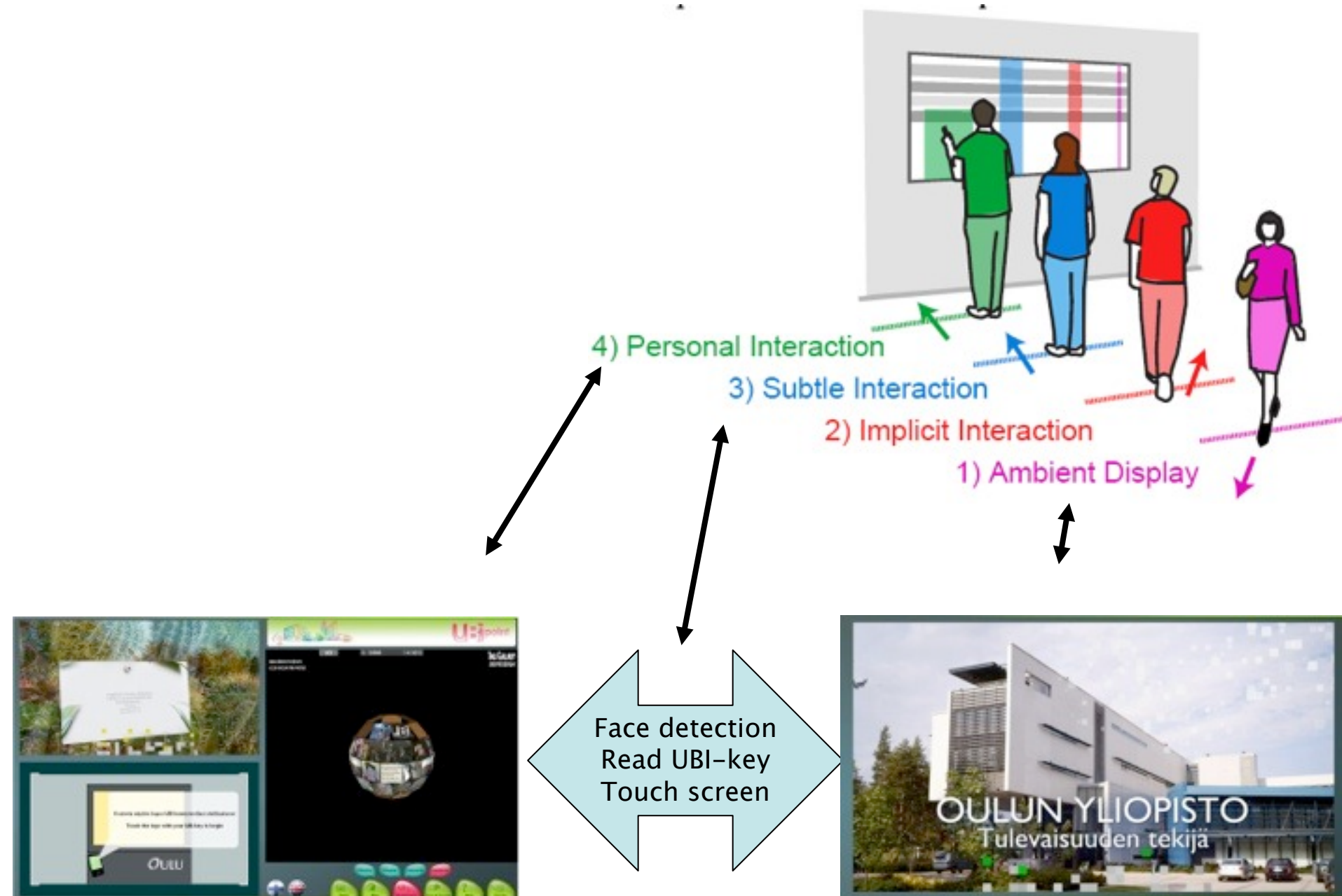


City-scale lab





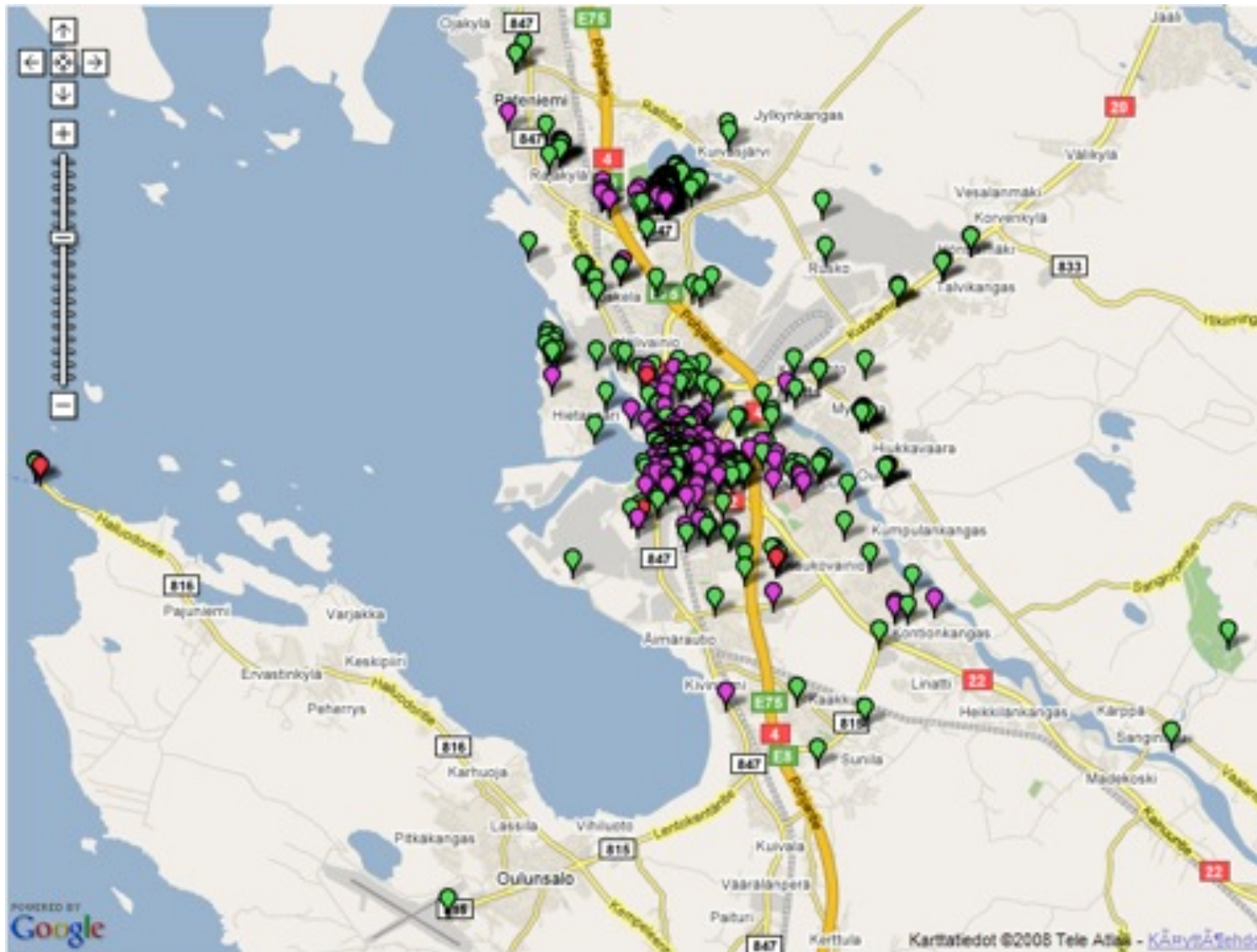
Interaction model

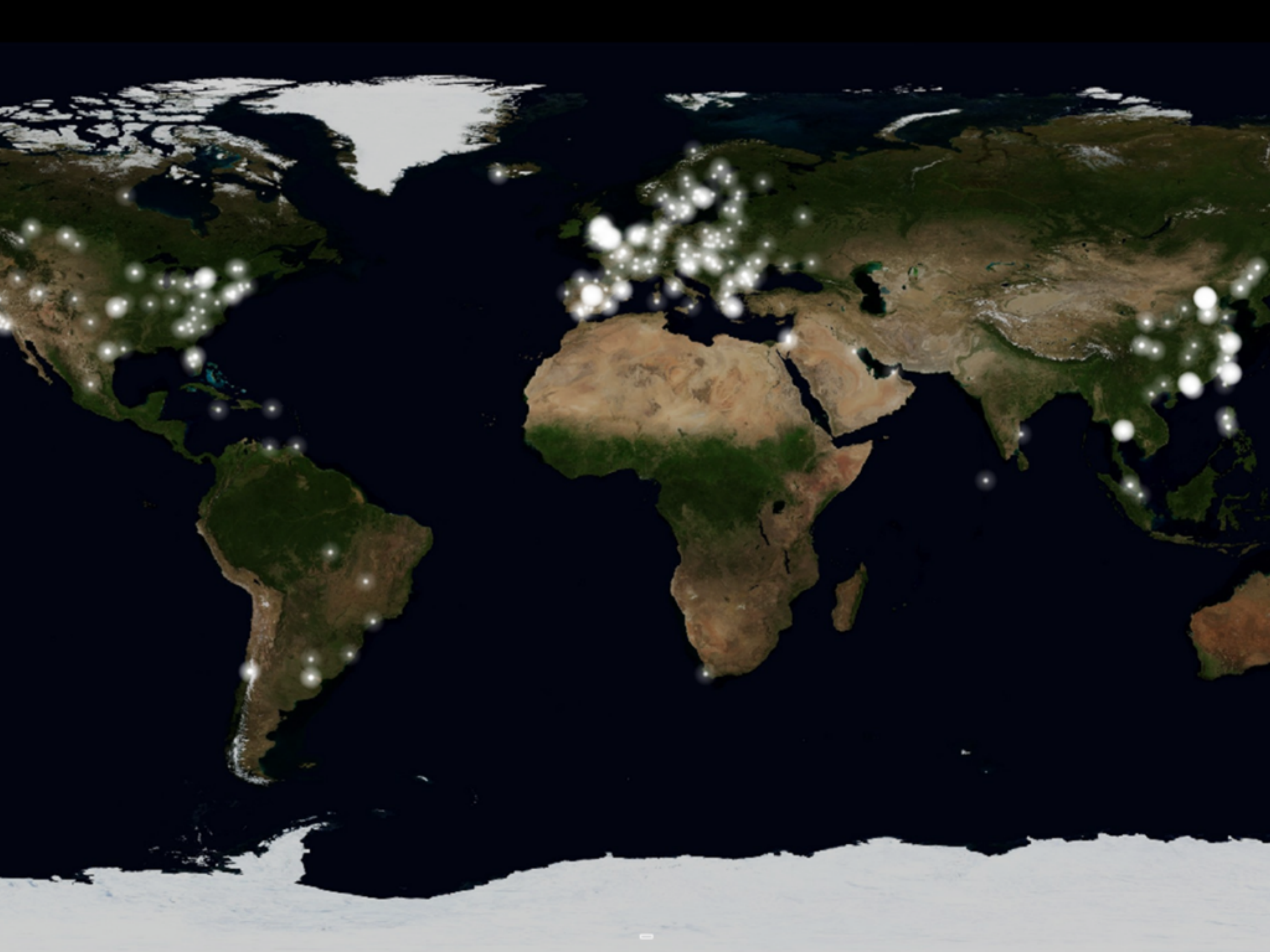


Interface

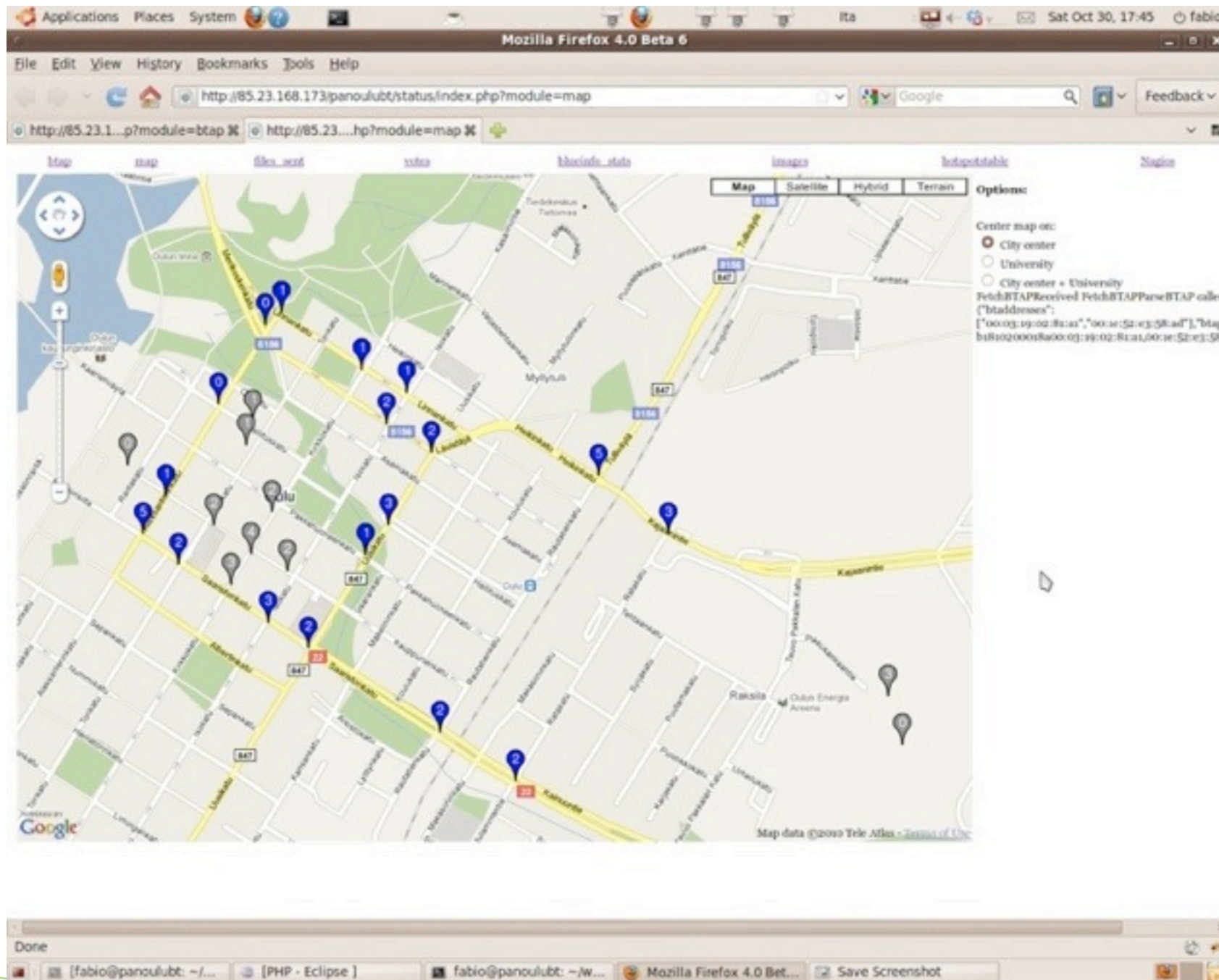


panOulu WiFi





Bluetooth network



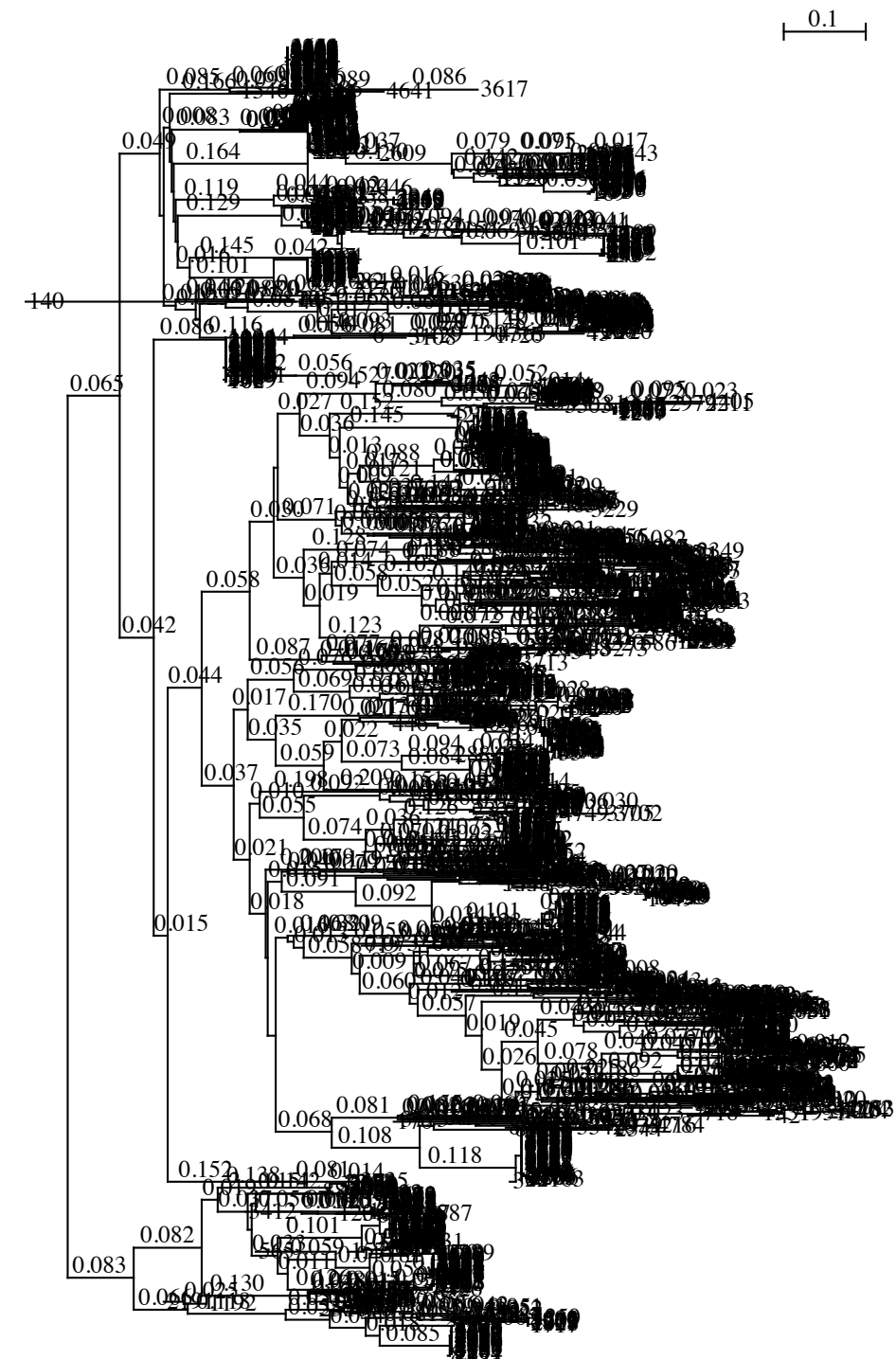
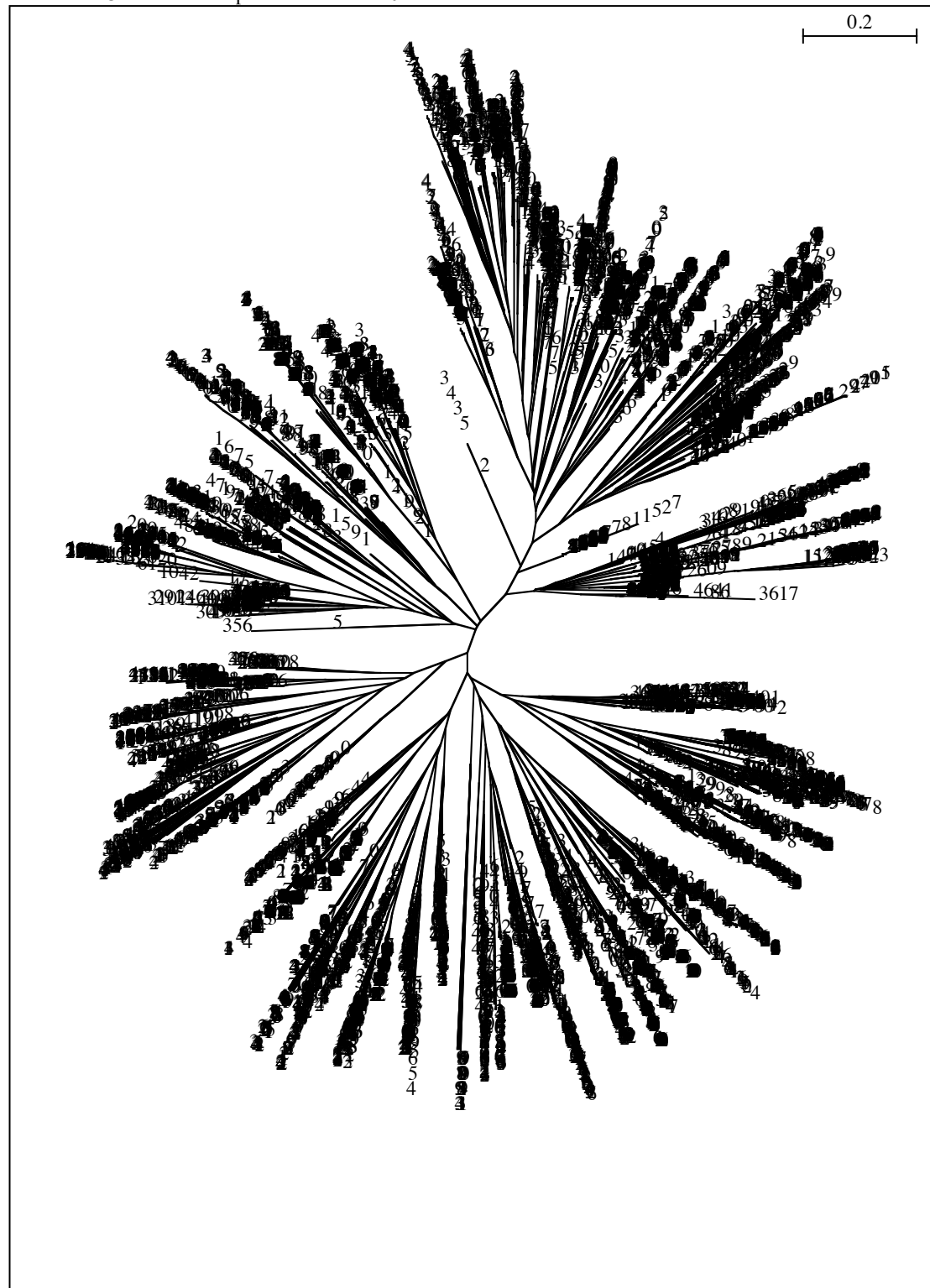
3D Oulu



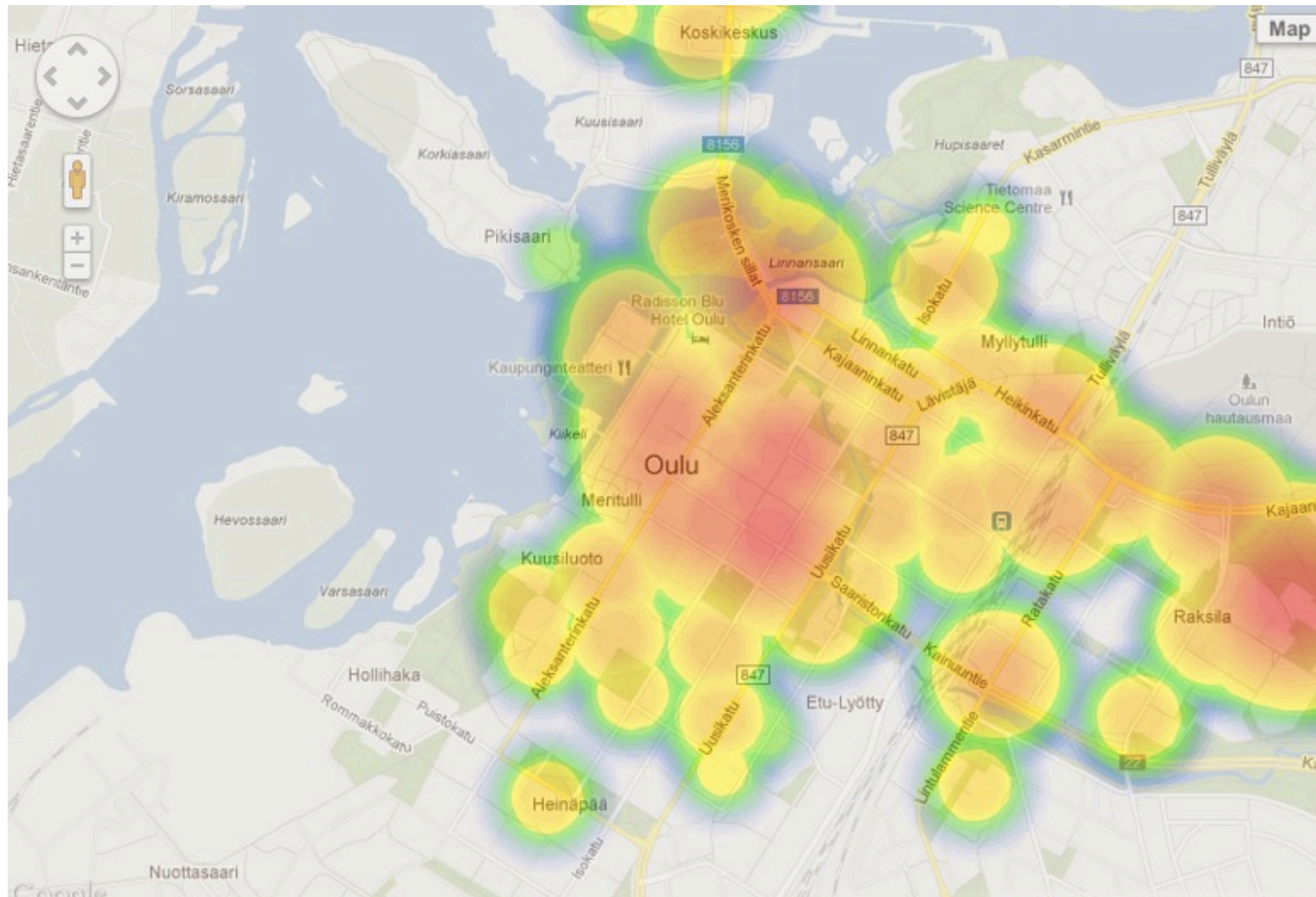
Which half is real?



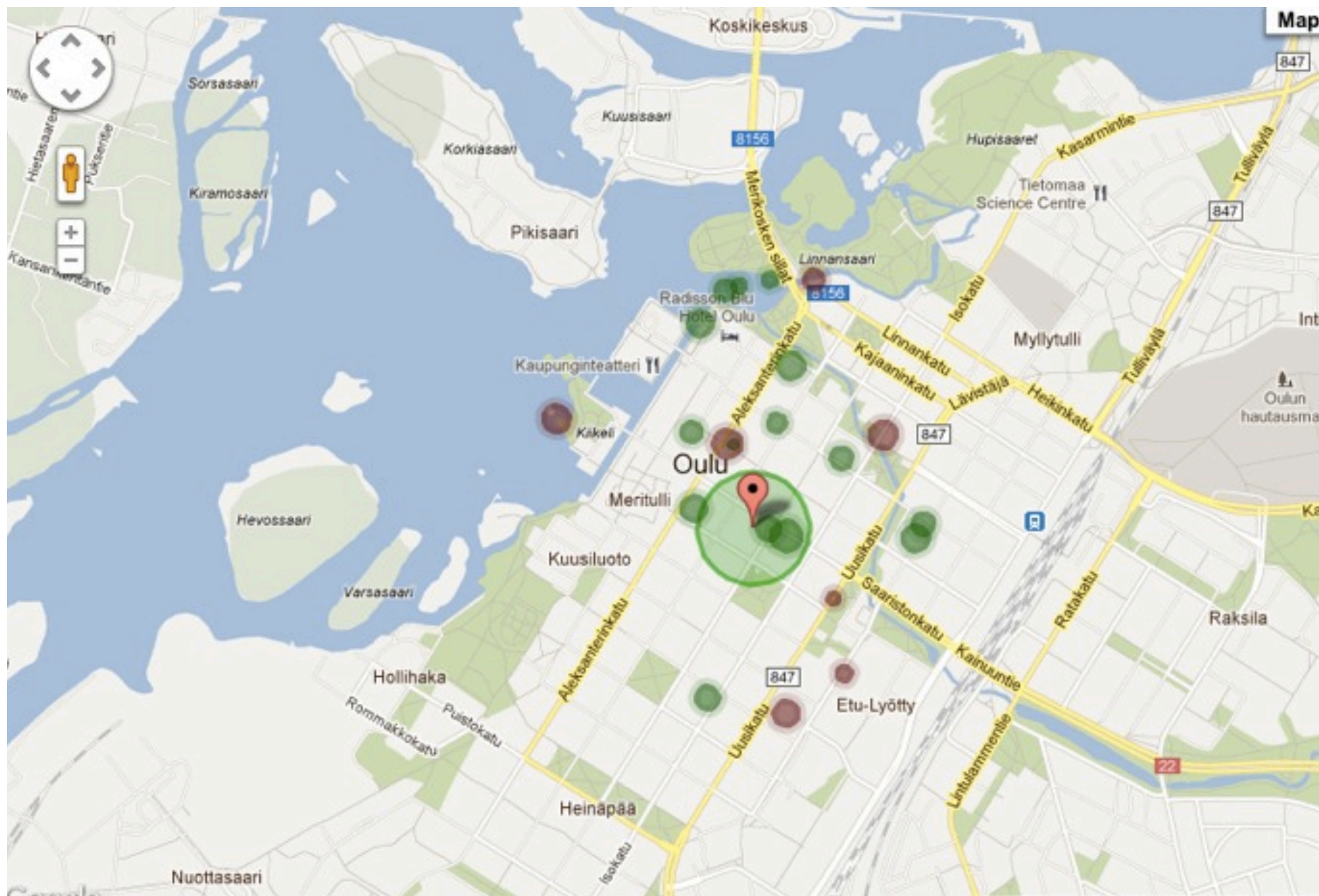




Where is it busy now?



Catchment areas



Open to the community: UbiChallenge



Ojala, T. and Kostakos, V. (2011). UBI Challenge: Research Competition on Real-World Urban Computing. In proceedings of **Mobile and Ubiquitous Multimedia 2011**, Beijing, China, pp. 205-208.



Lessons learned



Analysis of user needs

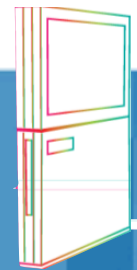


Brainstorming



Ethnographic studies

Storytelling











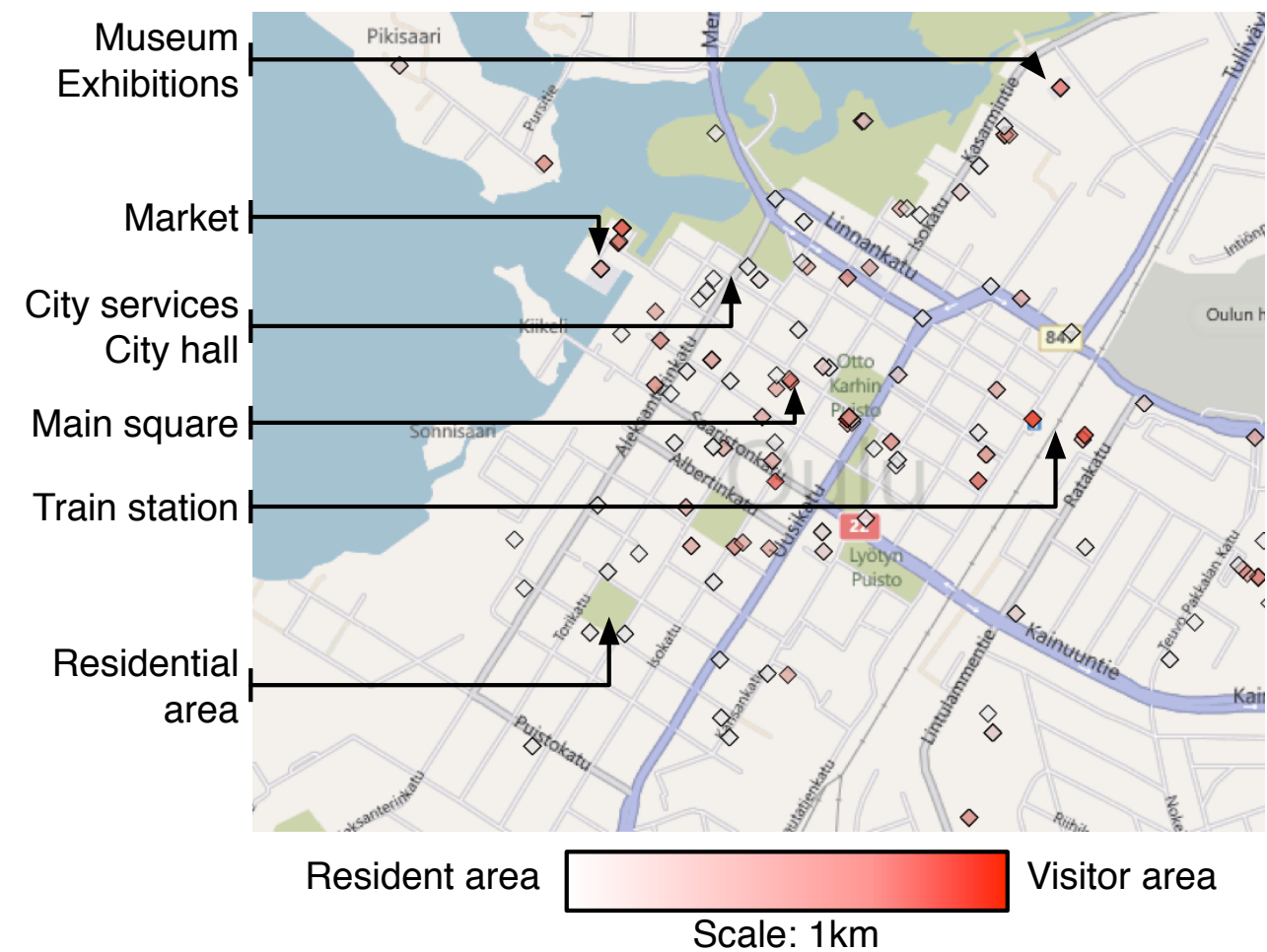
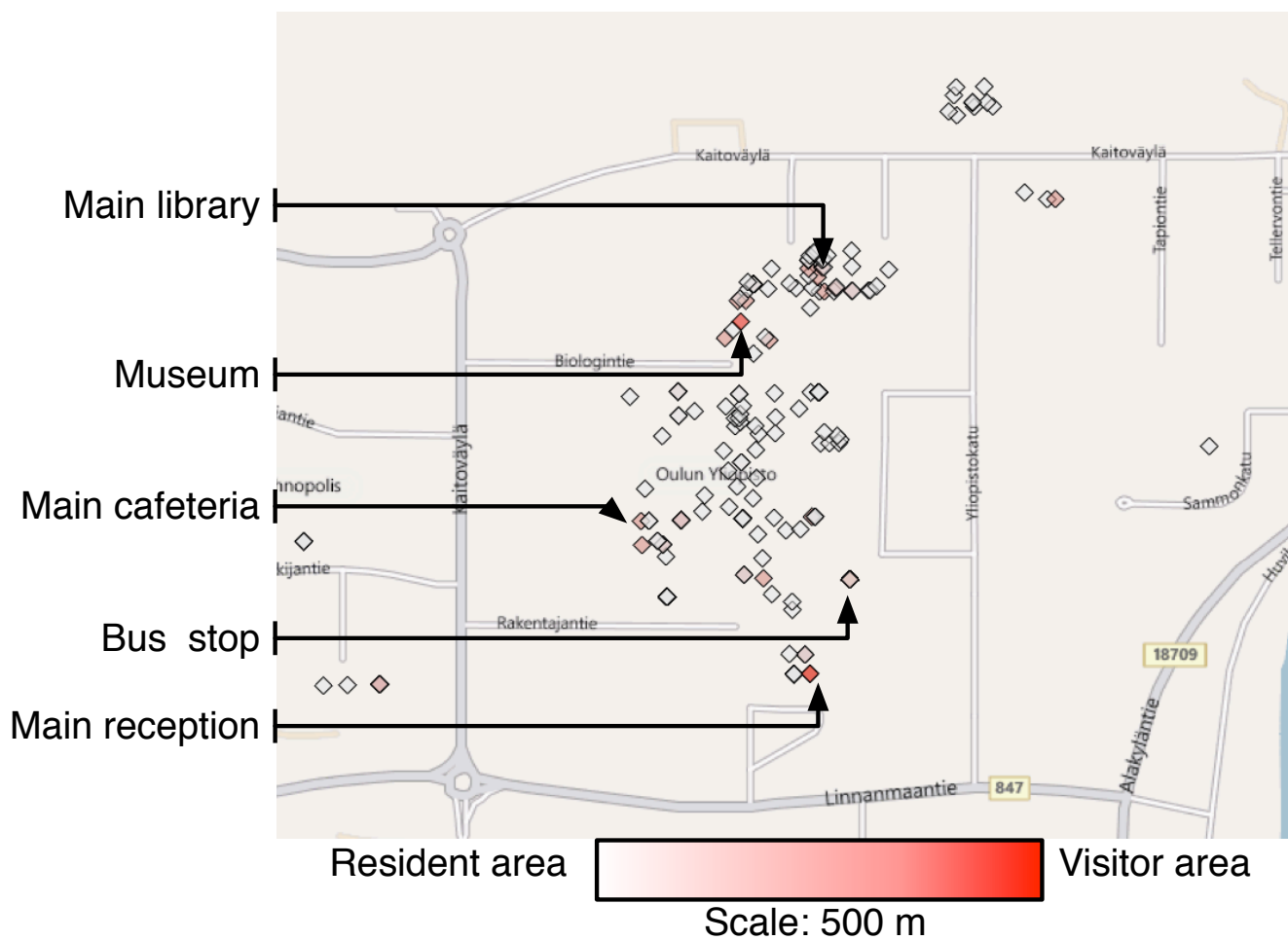


Location, location, location





Kukka, H., Kruger, F., Kostakos V., Ojala, T., and Jurmu, M. (2011). Information to Go: Exploring In-Situ Information Pick-up “In the Wild”. In Proc. **INTERACT**, pp. 487-504.



Successful services

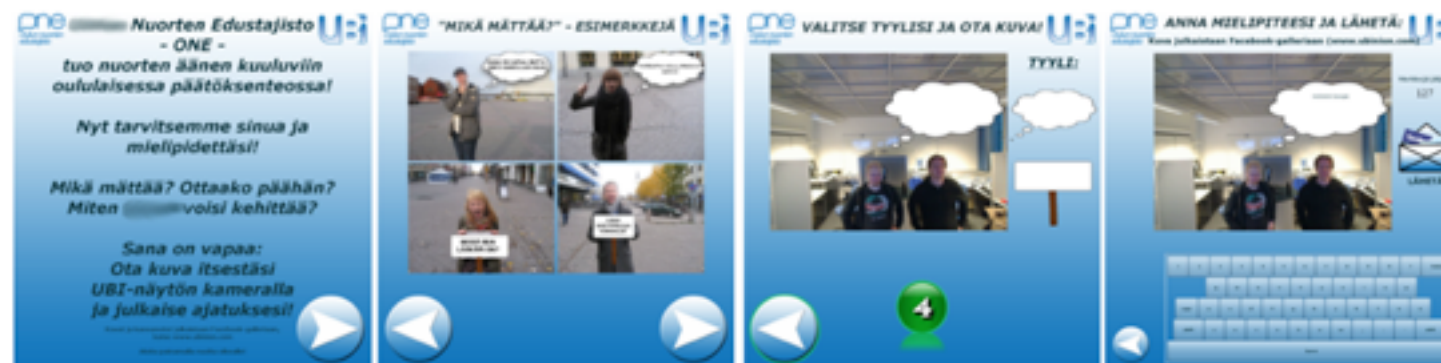
UbiPostcard



Hangman

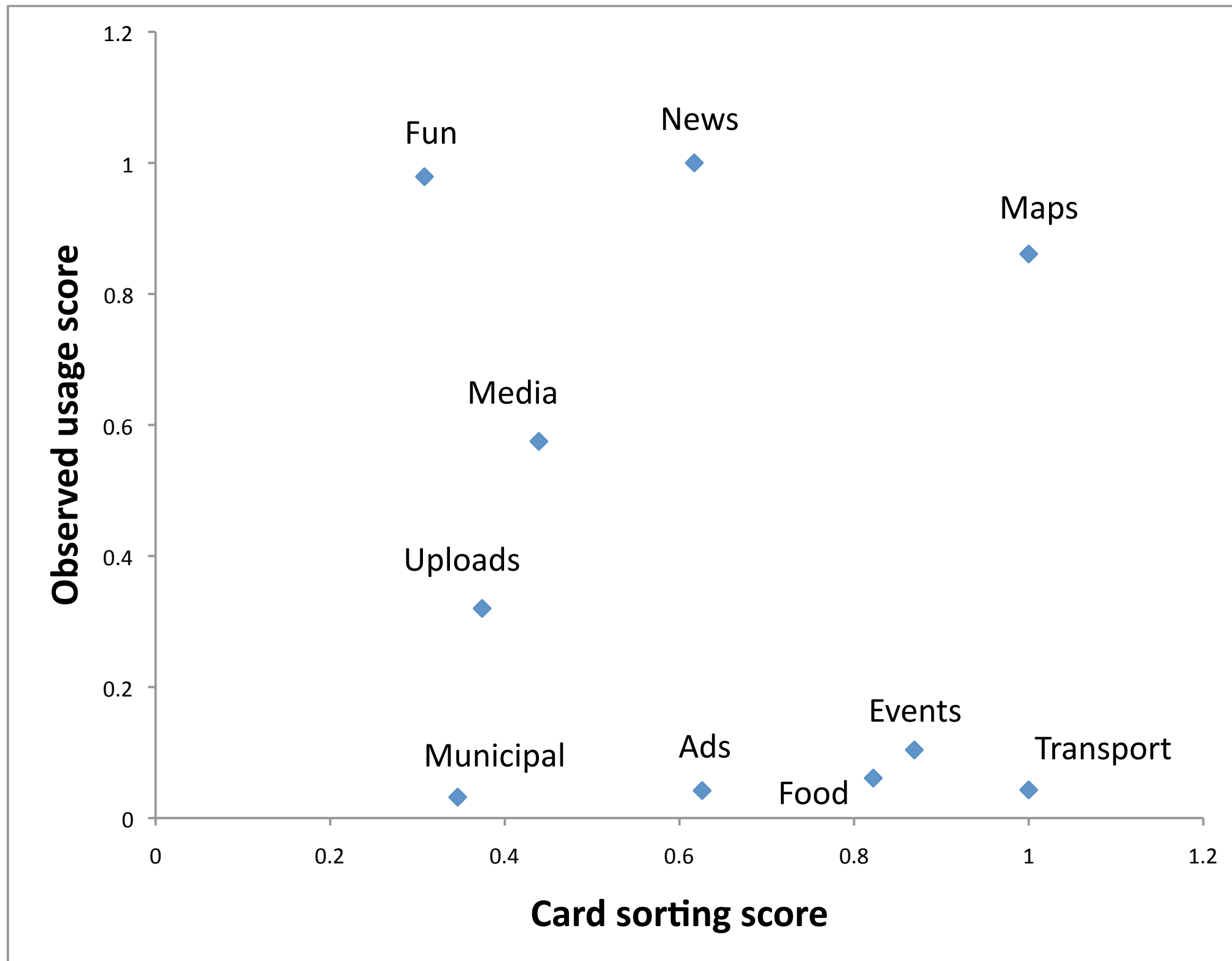


Ubinion



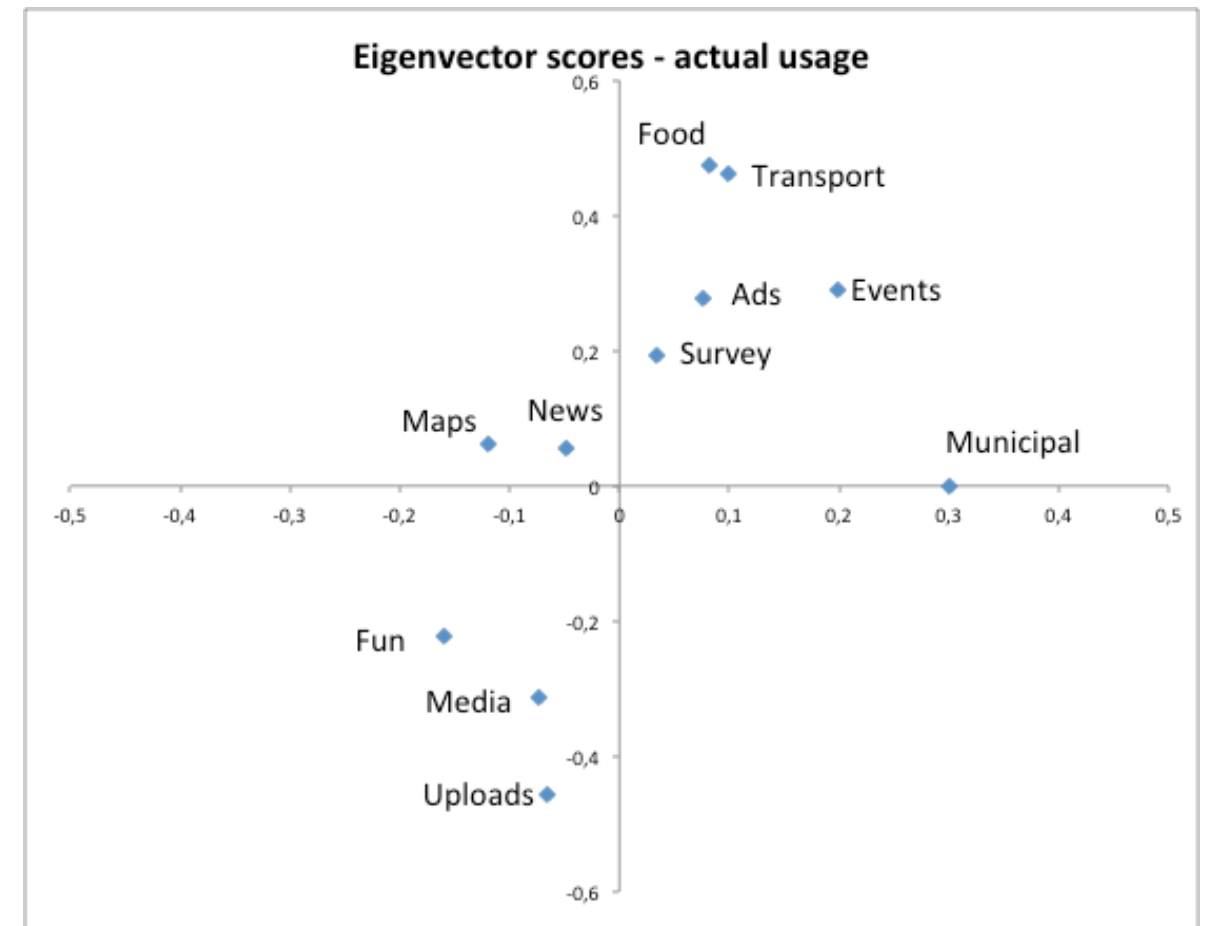
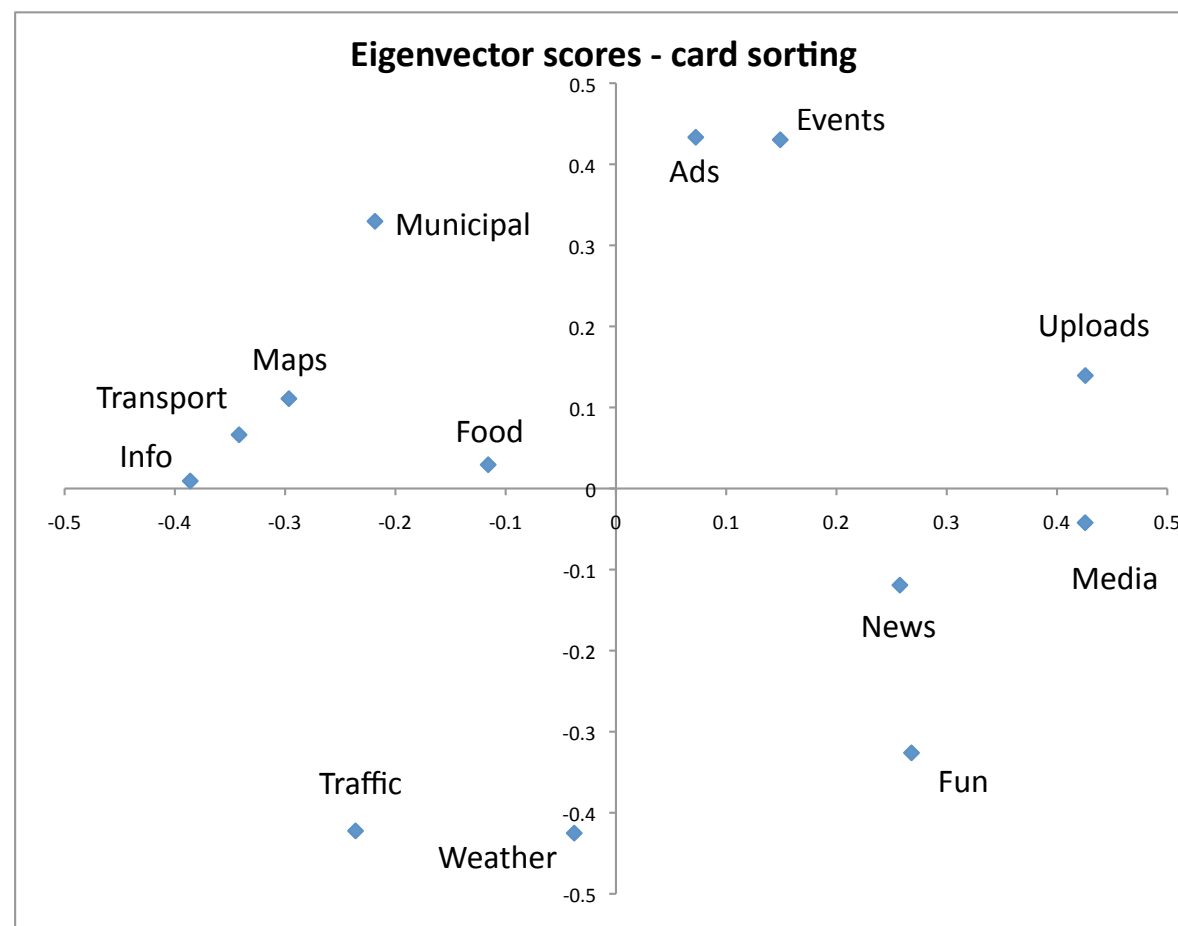
Hosio, S., Kostakos, V., Kukka, H., Jurmu, M., Riekk, J., Ojala, T. (2012). From School Food to Skate Parks in a few Clicks: Using Public Displays to Bootstrap Civic Engagement of the Young. In Proc. Pervasive 2012, Newcastle, UK.





Kukka, H., Kostakos, V., Ojala, T., Ylipulli, J., Suopajarvi, T., Jurmu, M., Hosio, S. (2011). This Is Not Classified: Everyday Information Seeking and Encountering in Smart Urban Spaces. **Personal and Ubiquitous Computing** (online first)

Users don't know what they want

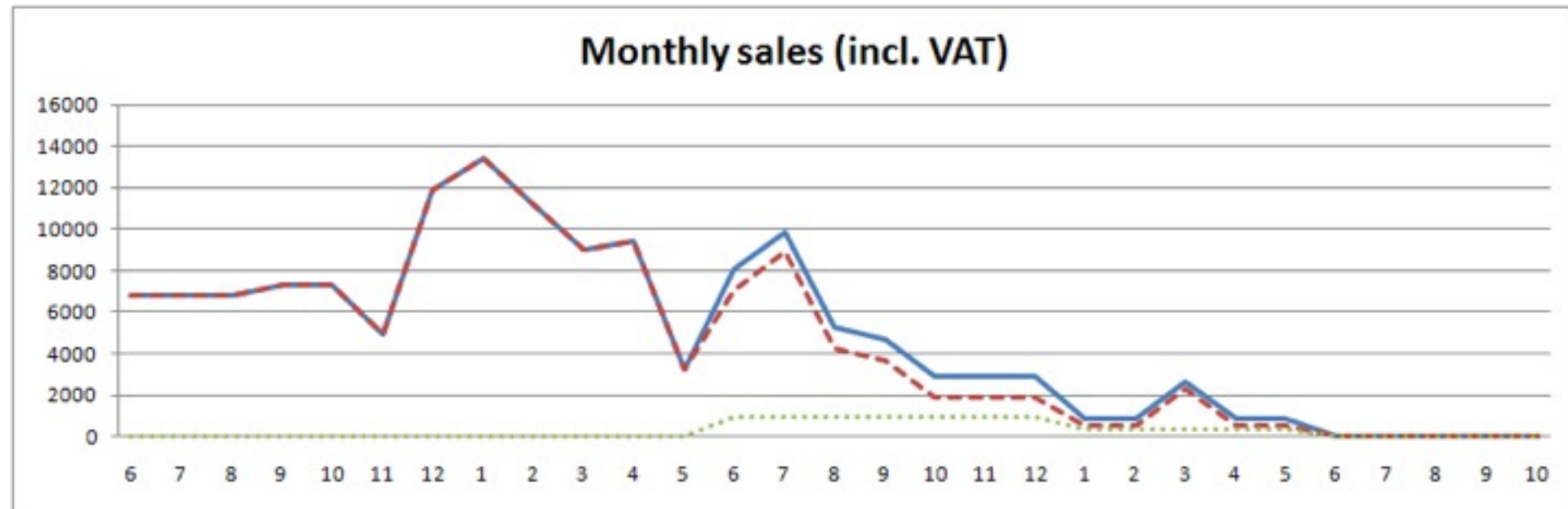


Kukka, H., Kostakos, V., Ojala, T., Ylipulli, J., Suopajarvi, T., Jurmu, M., Hosio, S. (2011). This Is Not Classified: Everyday Information Seeking and Encountering in Smart Urban Spaces. **Personal and Ubiquitous Computing** (online first)



Sustainability

140 880 €



Ojala T, Orajärvi J, Puhakka K, Heikkinen I & Heikka J (2011). panOULU: Triple helix driven municipal wireless network providing open and free Internet access. Proc. **Communities & Technologies** (C&T 2011), Brisbane, Australia, 118-127.



Maintenance & Moderation



Curiosity



Novelty



Interaction blindness



Ojala, T., Kostakos, V., Kukka, H., Heikkinen, T., Linden, T., Jurmu, M., Hosio, S., Kruger, F., Zanni, D. (to appear).
Experiences from the long-term deployment of multipurpose public interactive displays in a city center. **IEEE Computer**.



Motivational studies



The end

- 3rd Ubi Summer School 2012
 - <http://www.ubioulu.fi/en/UBI-summer-school-2012>
- Researcher in Residence program
 - <http://www.ubioulu.fi/en/UBI-RIR-program>
 - UbiChallenge: <http://www.ubioulu.fi/en/UBI-challenge>
- Or just come visit!

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