

Data city

from hard to soft infrastructues

new urban actors



Current technology requires information to be served from somewhere and delivered to somewhere. Heisenberg's uncertainty principle not withstanding, at geographic scales **a bit always has an associated location in real geographic space**. (Goodchild 1997)

Goodchild, M. F. (1997). Towards a geography of geographic information in a digital world. Computers, environment and urban systems, 25(6):377–391.

Sentient City

the end of the ephemeral



Digital footprinting



Paris Through Velib'



Fabien Girardin, Universitat Pompeu Fabra Revealing Paris Through Velib' Data: <u>http://www.girardin.org/fabien/tracing/velib/</u>

Sunny Sunday in BCN



Spatial clustering from bike mobility patterns















Kaltenbrunner, A., Meza, R., Grivolla, J., Codina, J., and Banchs, R. E. (2008). Bicycle cycles and mobility patterns - exploring and characterizing data from a community bicycle program. CoRR, abs/0810.4187.



Nowadays tourists leave digital footprints behind them that reveal their presence

Digital footprinting



Girardin, F., Dal Fiore, F., Ratti, C., and Blat, J. (2008). Leveraging explicitly disclosed location information to understand tourist dynamics: A case study. Journal of Location-Based Services 2, 1, 41–54.



Act of communication

Types of visitors



Tourists and locals can be recognized from their practice 60% of users disclose their home country

Space and visitors activities



Girardin, F., Blat, J., Calabrese, F., Dal Fiore, F. & Ratti, C. (2008) Digital Footprinting: Uncovering Tourists with User-Generated Content. IEEE Pervasive Computing, October/November 2008, pp. 36-43.

Responsive city

observe, evaluate and improve



NYC Waterfalls



Comparative Relative Strength



Girardin, F., Vaccari, A., Gerber, A., Biderman, A., and Ratti, C. (2009). Quantifying urban attractiveness from the distribution and density of digital footprints. International Journal of Spatial Data Infrastructure Research,

Centrality (PlaceRank)



Affordances (weather)



Nova, N. and Girardin, F. (2009). Framing the Issues for the Design of Location-Based Games, chapter Digital Cityscapes: Mergining digital and urban playspaces. Peter Lang Publishers

Limitations

- Provide a glimpse to reality. Sense what is cheap to sense, plus lack of data calibration and interoperability
- Reveal phenomena. But does not explain them.
- Need to prove that these data bring at least the same amount of knowledge than their "manual" data (e.g. surveys).
- Need of new skills and techniques to analyze and grasp the significance of these data



We become a "world of witnesses" with a the production of myriads of little stories – a messy infinity of 'Little Sisters' rather than one omniscient 'Big Brother'

I. gathering data from people without their knowledge?

II. the risk to reveal individuals from anonymized and aggregated sensor data?

III. how much are people willing to give to get a service in return?



People as actors

of the data city

Open research Citilab



bit @Lab.



Thank you