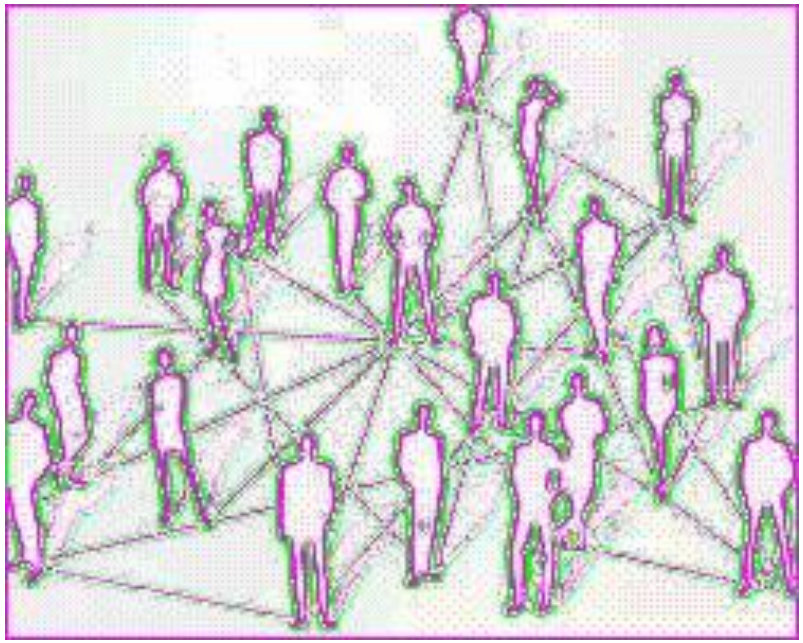


Eilat-Eilot Green Energy 6th International Conference, December 7-9, 2014

Open Innovation and the Urban Infrastructure of the Smart City

Professor Erel Avineri (avineri@afeka.ac.il)

Head of Department, Engineering and Management of Infrastructure Systems
AFEKA, Tel-Aviv Academic College of Engineering

Overview

- What is Smart Infrastructure?
- What is Open Innovation?
- How can they be combined?

Smart Infrastructure - Definition

- "A smart system uses a feedback loop of data, which provides evidence for informed decision-making.
- The system can monitor, measure, analyze, communicate and act, based on information captured from sensors".

- Different levels of smart systems exist:
  - collect usage and performance data to help future designers to produce the next, more efficient version;
  - collect data, process them and present information to help a human operator to take decisions;
  - use collected data to take action without human intervention

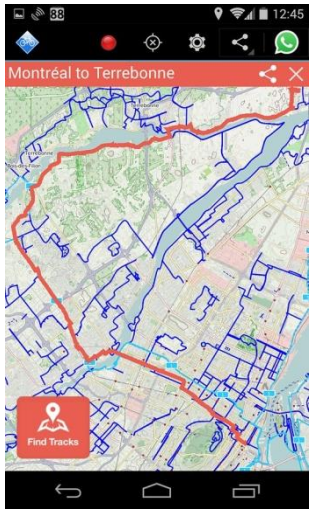
The Royal Academy of Engineering (2012)

Smart Infrastructure – Some Applications
(at the consumer level)

Energy
- smart metering
- increasing ability of individual consuming devices to negotiate for power usage)

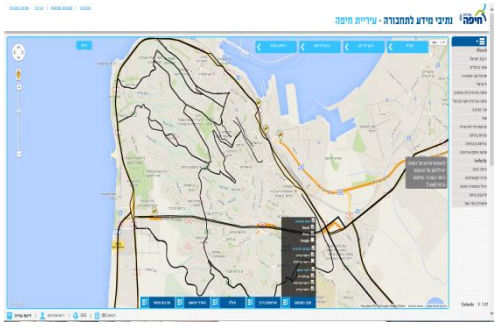
Water
- smart metering
- smartphone 'apps' for water bill monitoring and payments)

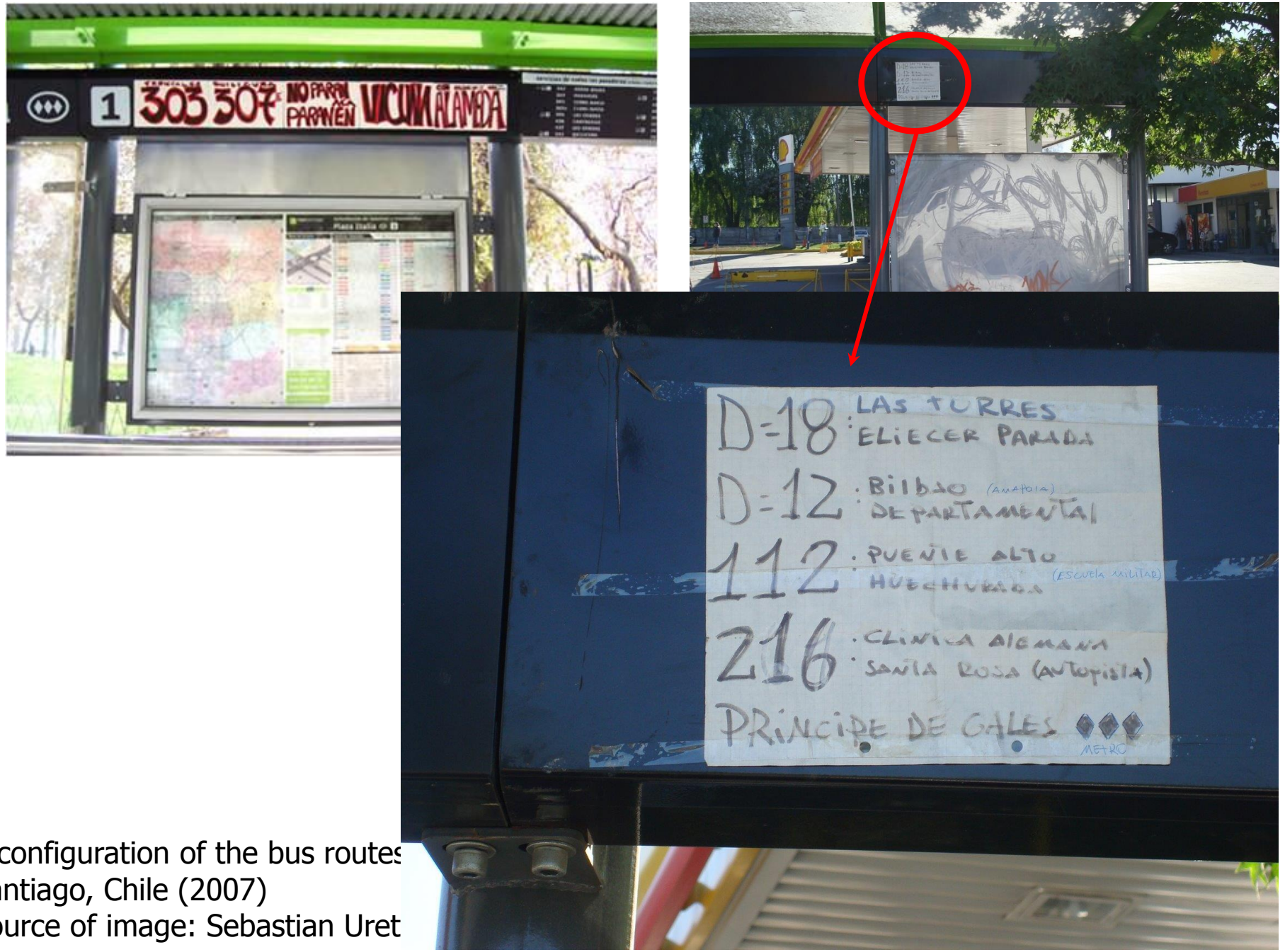
Transportation
- crowdsourced navigation through social media
- community car sharing programs



Sensorisation of Things

- Multi-Factor sensory-based trackers revolutionize the field of personal devices: touch, voice, eye, facial, gesture…
- Use of Floating Car Data as sensors in monitoring traffic in real time
- Miniaturisation, wireless-enablement and interoperability of sensors are key industry drivers that have allowed sensors to be key part of smart infrastructure systems.





reconfiguration of the bus routes
Santiago, Chile (2007)
Source of image: Sebastian Uret

Open Innovation and the Smart City

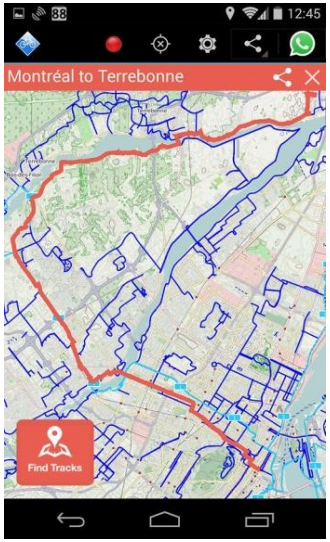
- Among the characteristics of the Smart City:
- Engages effectively with local people by use of open innovation processes and e-participation.

- **Open Innovation** paradigm – "firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology".

- Users expect to benefit from using the product rather than benefit from selling the product
- Users innovations focus on functional novelty and are associated with rich understanding of user needs.

Example 1: CycleStreets

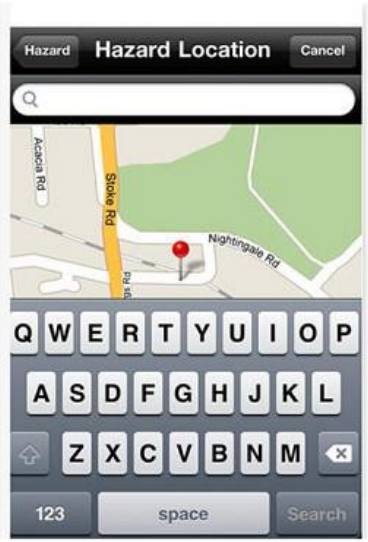
- "a UK-wide cycle journey planner system, which lets you plan routes from A to B by bike. It is designed by cyclists, for cyclists, and caters for the needs of both confident and less confident cyclists".
- CycleStreets draws upon the success of another user innovation - OpenStreetMap
- The UK national government version of a cycle journey planner - cost of nearly £2.4M (2007-2010); processed 24,000 requests.
- CycleStreets has been achieved on £12,000, 76,107 journeys have been planned

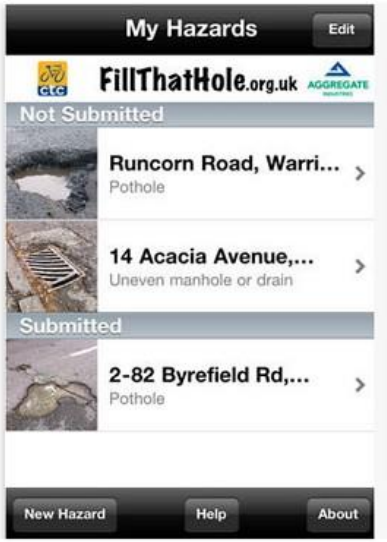


Lyons et al. (2012) ,The emergent role of user innovation in reshaping traveler information services

Example 2: Fill that Hole

- £20m was paid in compensation by local authorities across England due to the poor condition of their roads
- 'Fill that Hole' sends local authorities up-to-the-minute information about potholes which the council may not otherwise have known about, allowing them to identify trouble spots needing action fast.
- Over 91,000 pothole reports filed by cyclists and other road users.
- DfT has pledged £30,000 to enable CTC to develop a new app compatible with Android.



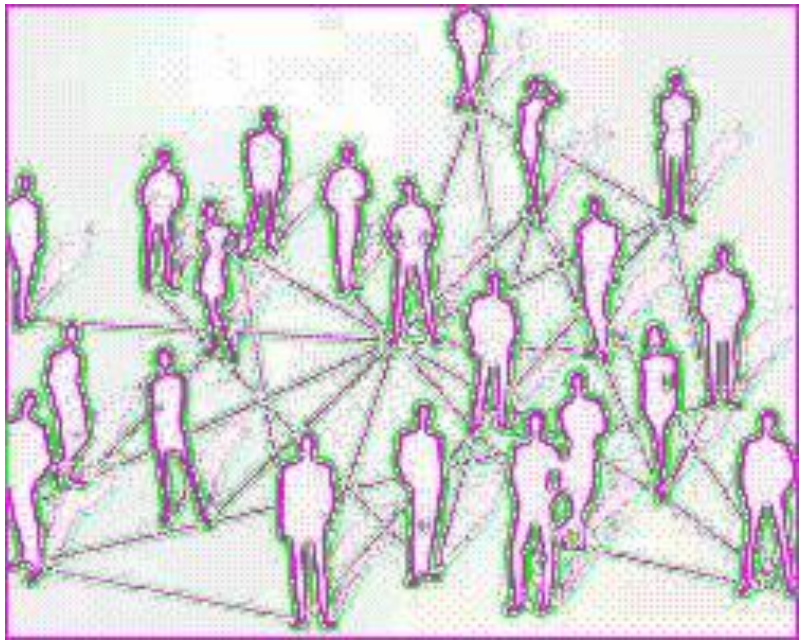


Open Innovation and the Smart City

- The world of urban infrastructure of the smart city is frequently viewed from above, the top-down view from the heights of Central/Local Government policy or the upper floors of established industry.

- A Supplementary path towards smart cities :

- looking up and out through the eyes of city residents, examining how they take the challenges of travel, energy use, water use, etc., and turn them into innovations that solve their problems.



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