

Urban Data Collection Through Citizen Involvement

Good practices & Challenges

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Three Challenges of Urban Data Collection



Cost

- Systematic, reliable, complete and timely data is costly.



Time

- Time to market vs. obsolescence.



Scale

- For some types of data (e.g. housing) it's difficult to have enough resolution to appropriately inform policies.

Involving citizens as sensors

- ▶ Distributed, low-power data gathering relying on consumer technology (chiefly mobile phones & wearable IT).
- ▶ Citizens **gather and package information through apps** and transmit it to institutional databases.



- ▶ Potential for cost-cutting, redundancy, scale, flexibility.
- ▶ Successful experiences in science-based projects, less so in collecting urban data.
- ▶ High potential for maintenance of Urban Infrastructure, including Housing

MyStreet



Urban Maintenance App developed in UK in 2007 by MySociety.

Citizens report malfunctioning urban infrastructure: Trash, broken benches, potholes etc.

1.4 million reports in UK since 2006.

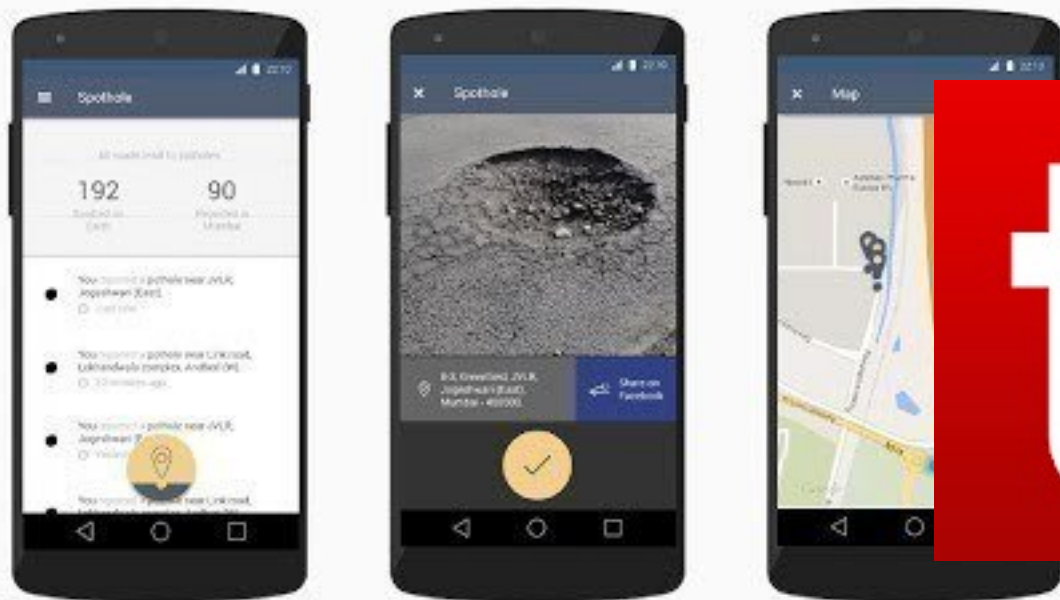
Granular data on citizens' mood, quality of infrastructure, investment needs.

The screenshot shows the website for 'fixmystreet.brussels', which is used for reporting incidents in the Brussels public area. The page features a navigation menu with links for 'ALL INCIDENTS', 'ABOUT US', 'HELP', 'FAQ', and 'TERMS OF USE'. A central map displays numerous blue circular markers, each containing a number, representing reported incidents across the city. Below the map, there is a search bar with the text 'Search' and a 'GO' button. Underneath the search bar, there is a 'Status' dropdown menu currently set to 'All statuses'. Three incident cards are visible at the bottom, each with a photo and a title: 'INCIDENT NR 42043' (Avenue Emile Max 102), 'INCIDENT NR 41594' (Avenue Léon Mahillon 1), and 'INCIDENT NR 43091' (Bus Wiertz 1). The top right corner includes a 'LOGIN' button and language options for 'EN', 'FR', and 'NL'.

Thank you! Your feedback is valuable.

Though it is present, it should be there.

... and others



SPOTHOLE APP. SPOT. CLICK. REPORT.



Harmonised Smart City APIs

Cook Book for Cities



Apps for housing

Maintenance Manager
Maintenance Manager

Active Requests [Refresh](#)

Reference
M2602

Requested On
10-Nov-2014

Summary
Roof leaking

Description
Roof is leaking in the 3rd bedroom

Severity
Unknown

Status
In progress

Trade Supplier
Bob's Builders (1)
P 02 9999 9999
M 0400 000 000

Copyright © 2014 PropertySafe

3 4G 2:42 pm 64%

54 Gordons Road
Melbourne

Rent Arrears
A friendly reminder that your rent was due 140 days ago.

Monthly Rent
\$8,640.00 Incl GST

Next Inspection 20 July 2017 >

Property Manager Dane Coles >

Property Owner Waters and Sons

Tenancy Contacts >

TENANCY DETAILS

Start 01 September 2016

Expiry 31 August 2019

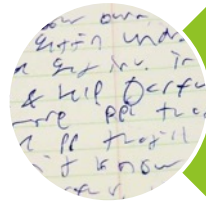
Home Documents Log Issue Settings

4 Challenges of Citizen-Based Data Collection



Incentive Structure

- A lot of operational cost is shifted to users (time, attention, knowledge, space on your mobile phone, battery...)



Quality of Data

- Strict interface constraints vs. qualitative data.



Critical Mass

- Useful data resolution only achievable if enough people are convinced to adopt the tools.



Political Cost

- Localities sometimes do not like systematic accounting and visualization of their performance.

The strongest incentive is **IMPACT**



Citizens

- Drop out when they see the data they input has no impact.

Localities

- Drop out when they see citizens do not care/report enough.



A (crude) model for committment

$$\textit{User Committment} = \frac{\textit{Proximity} + \textit{Emotion} - \textit{Cost}}{\textit{Missed Impacts}}$$

Design Priorities

Paradigm shift

TECHNOCRATIC

Design system
Deploy system
Incentivize institutions to adopt
Pray it works

TRUST BASED

Design incentive structure for local institutions and reduce their political risk.
Design system.
Check feedback loops are in place before deploying
Deploy

- Quick decline after initial burst.
- Spotty, low-resolution data.
- Lower initial political cost, higher maintenance costs.

- Satisfaction leads to steady use.
- More robust, consistent data
- Higher initial political costs, lower maintenance costs.

Thank you

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Tarantino M., Tosoni T., “*Spatial Annotation for the Improvement of Urban Space: A Learning-by-Doing Approach*” in *The Electronic Journal of Communication*, 24 (1-2), 2014