The Willing Volunteer – Incorporating voluntary data into national databases

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Synopsis

- Enabling trends: smartphones, education, healthy aging
- Examples of crowdsourcing applications – governmental, commercial, and scientific
- Data quality
- Comparing 50 cases of crowdsourced geographic information in government – preliminary insights
- Extending volunteer data collection to all: Intelligent maps

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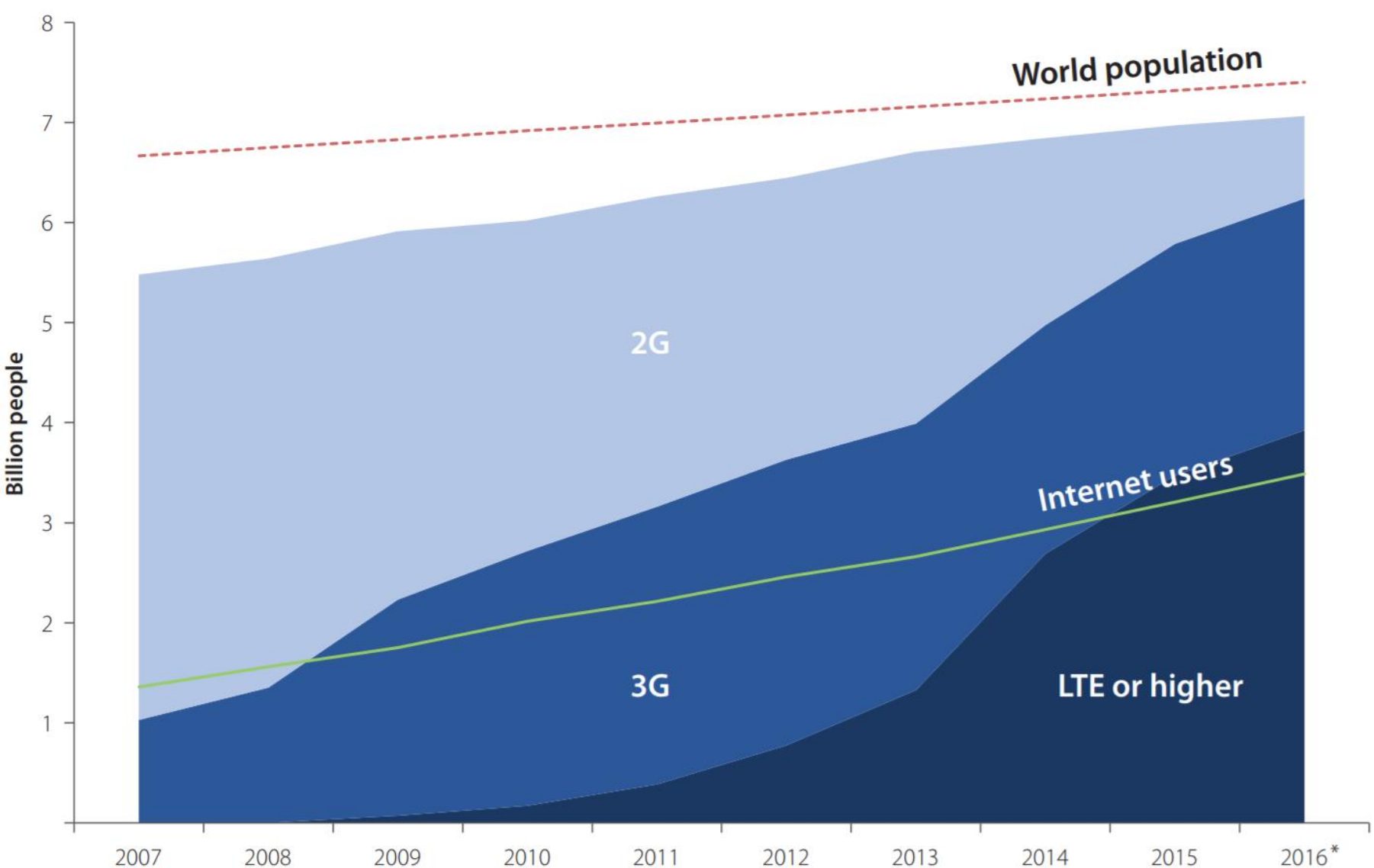
Enabling trends - highlights

- 1st May 2000 – Selective availability of GPS signal
- Dot-com crash and the increase of broadband availability
- Data storage: $10 (2000) to $0.5 (2005) per 1GB
- Web services, standards, and simplified APIs
- **Smartphones and mobile broadband (2007)**
- **Education levels**
- **Healthy aging**
- Leisure
- Sharing economy/commons based peer-production
- **DIY electronics and sensors**

Haklay, M., Singleton, A., and Parker, C., 2008, Web mapping 2.0: the Neogeography of the Geoweb, *Geography Compass*



Seven billion people (95% of the global population) live in an area that is covered by a mobile-cellular network.

Mobile-broadband networks (3G or above) reach 84% of the global population but only 67% of the rural population.

LTE networks have spread quickly over the last three years and reach almost 4 billion people today (53% of the global population), enhancing the quality of Internet use.

Source: ITU.
Note: * Estimates. Mobile network coverage refers to the population that is covered by a mobile network.

Rapid increase in education

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ducation : *Enrolment by level of education*

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Enrolment in tertiary education, all programmes, both sexes (number)

>200 million

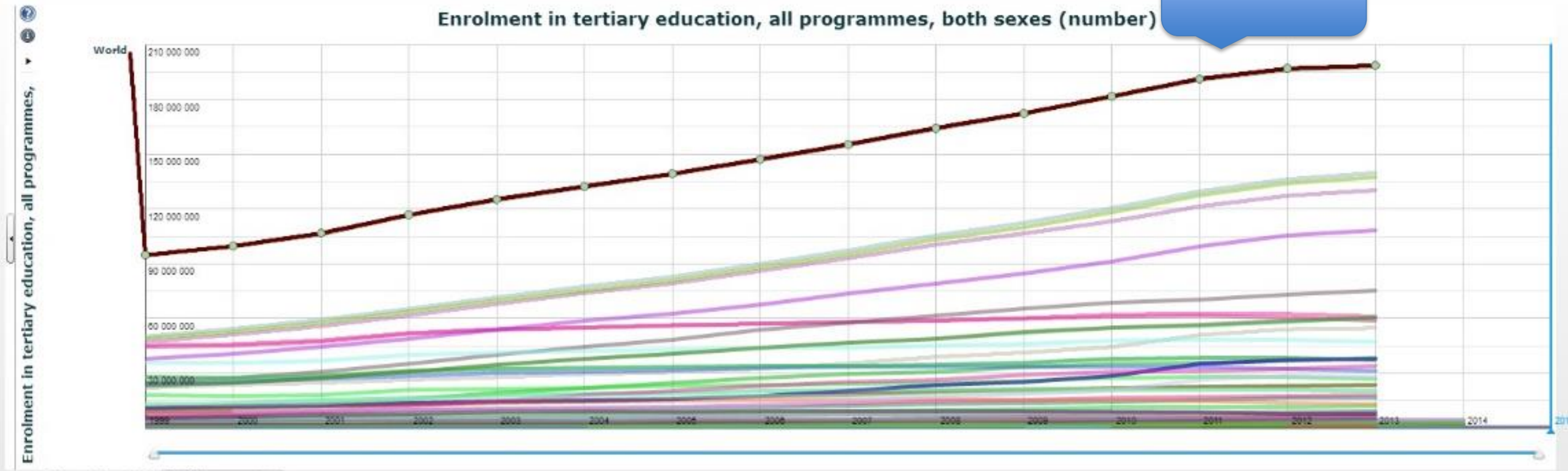


Chart Software NComVA© English

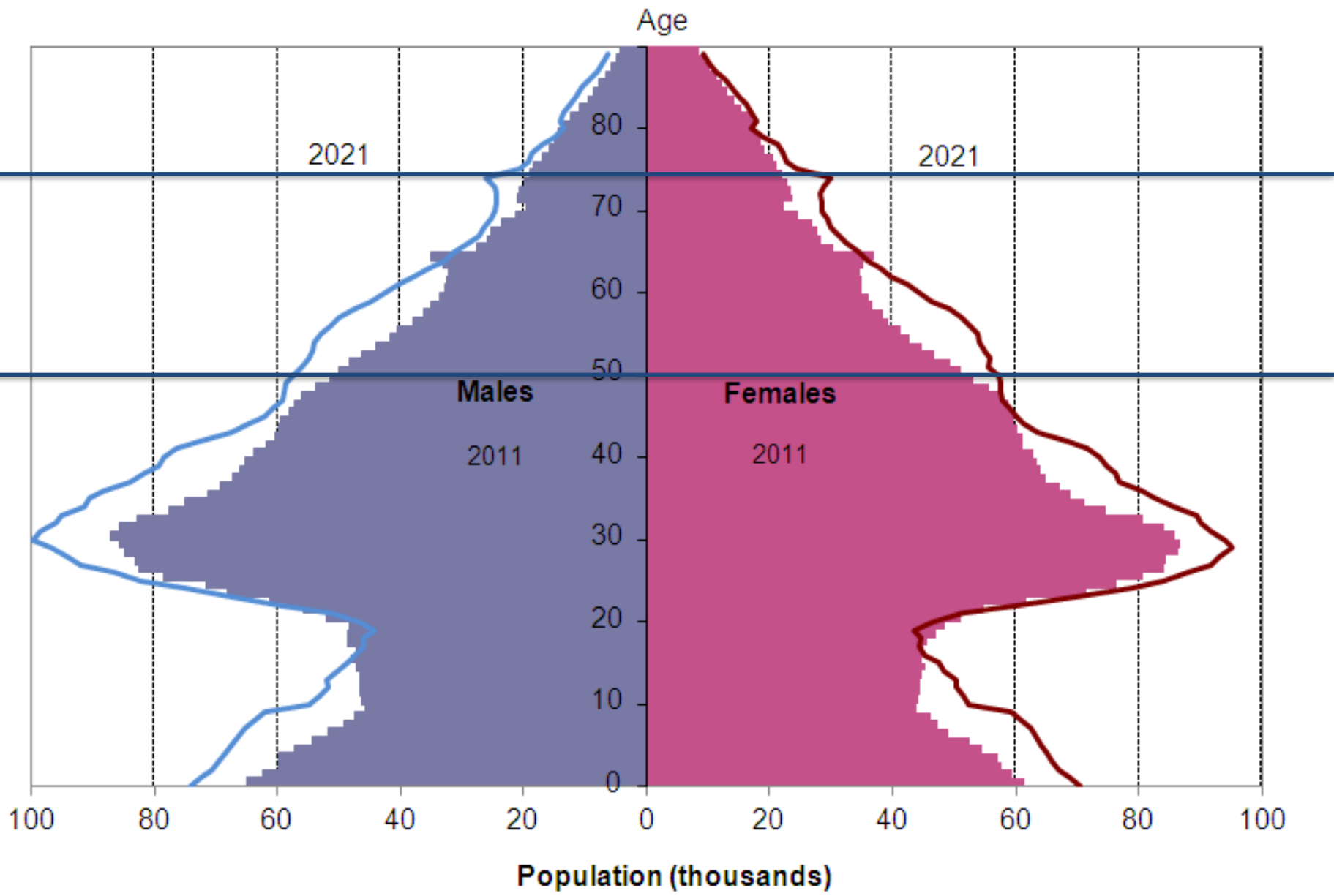
0.25x 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

Amanda Slater

Stephen Matthews

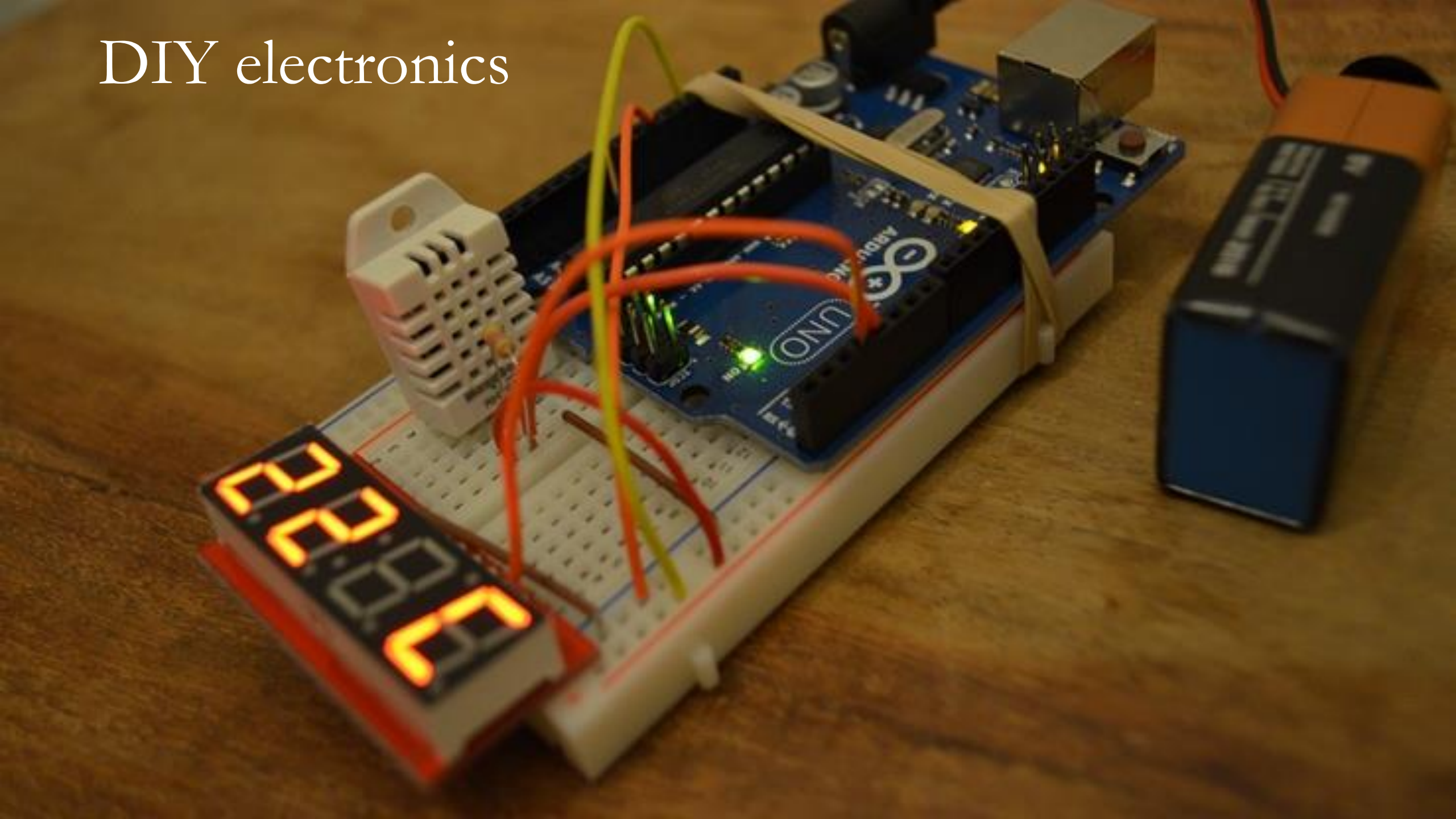
Source: DCMS

Estimated and Projected Age Structure for London, Mid-2011 and Mid-2021



Source: ONS

DIY electronics



The emergence of volunteer GI

- Volunteered Geographical Information (VGI) Goodchild (2007) - Crowdsourced geographic information
- Citizen Science

Examples:

- OpenStreetMap
- Google Local Guides
- Citizen Science - iSpot

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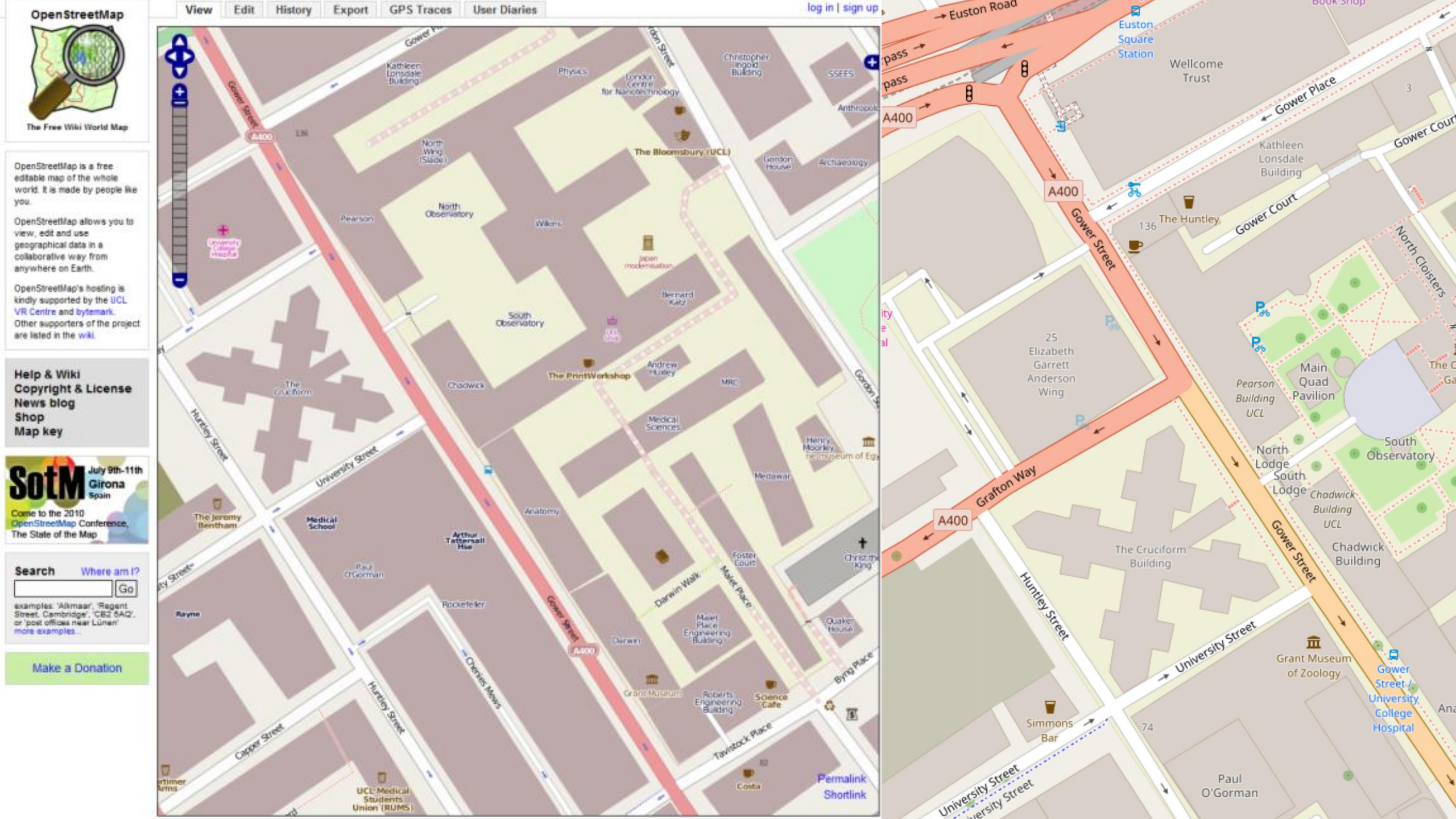
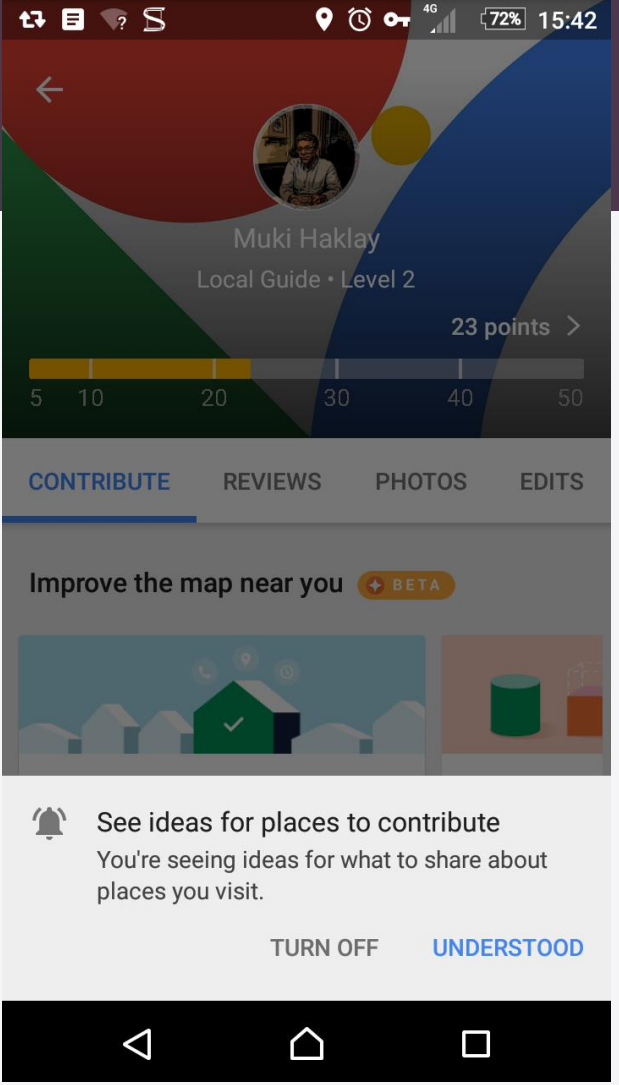
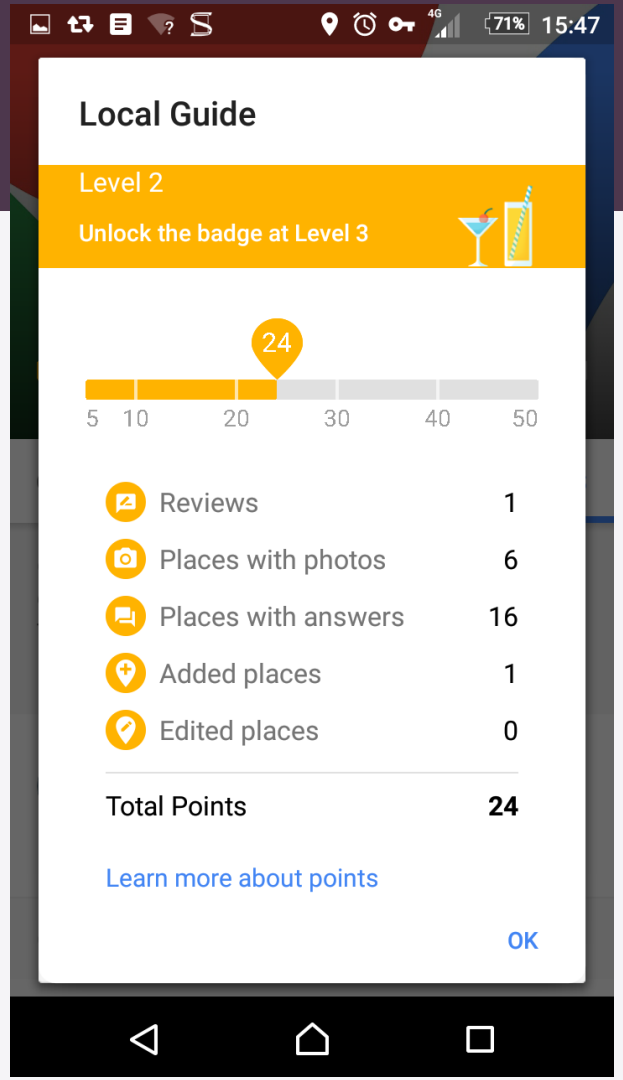
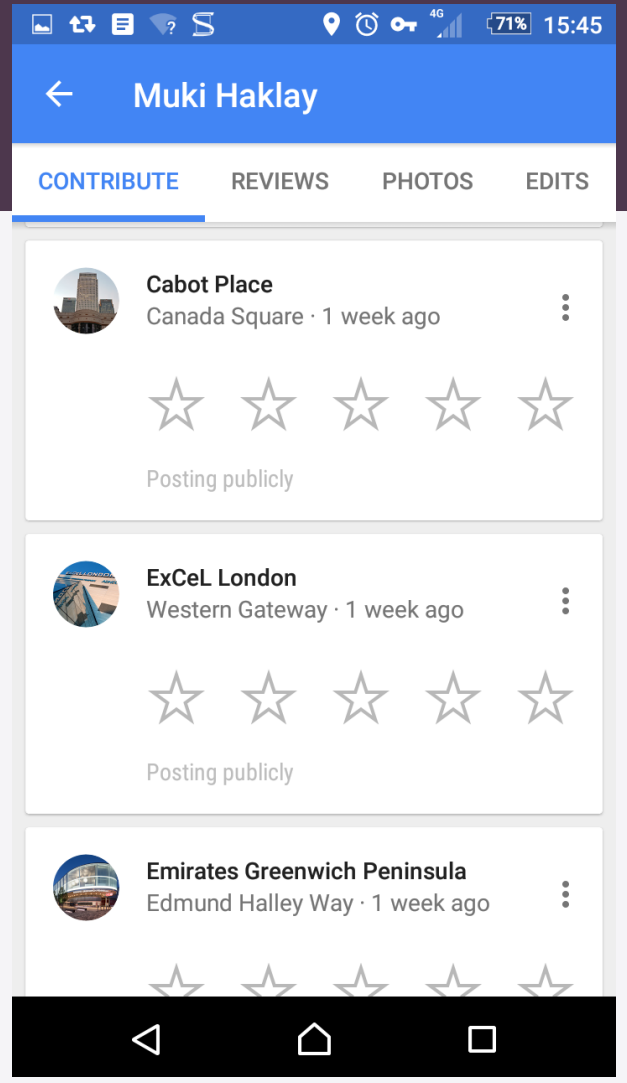

OpenStreetMap
The Free Wiki World Map
OpenStreetMap is a free editable map of the whole world. It is made by people like you.
OpenStreetMap allows you to view, edit and use geographical data in a collaborative way from anywhere on Earth.
OpenStreetMap's hosting is kindly supported by the UCL VR Centre and bytemark. Other supporters of the project are listed in the wiki.
Help & Wiki
Copyright & License
News blog
Shop
Map key
SotM July 9th-11th Girona Spain
Come to the 2010 OpenStreetMap Conference, The State of the Map
Search
Where am I?
Go
examples: 'Alkmaar', 'Regent Street, Cambridge', 'CB2 5AQ', or 'post offices near Lünen'
more examples...
Make a Donation
View
Edit
History
Export
GPS Traces
User Diaries
log in | sign up
Gower Street
A400
Euston Road
Euston Square Station
Wellcome Trust
Gower Place
Kathleen Lonsdale Building
Gower Court
The Huntley
136
North Cloisters
25 Elizabeth Garrett Anderson Wing
Pearson Building UCL
Main Quad Pavilion
South Observatory
North Lodge
South Lodge
Chadwick Building UCL
Grafton Way
The Cruciform Building
Chadwick Building
Huntley Street
University Street
Grant Museum of Zoology
Gower Street / University College Hospital
Simmons Bar
74
Paul O'Gorman
Physics
London Centre for Nanotechnology
Christopher Ingold Building
SSEES
The Bloomsbury (UCL)
North Wing (Slade)
Pearson
North Observatory
Wilkins
Japan modernisation
Bernard Katz
South Observatory
The PrintWorkshop
Andrew Huxley
Chadwick
MRC
Medical Sciences
Henry Moseley
Medawar
Anatomy
Foster Court
Darwin Walk
Malet Place
Malet Place Engineering Building
Darwin
Roberts Engineering Building
Science Cafe
Quaker House
Byng Place
Tavistock Place
Costa
Rockefeller
Cleveland Mews
Capper Street
UCL Medical Students Union (RUMS)
The Jeremy Bentham
Medical School
Arthur Tattersall Hse
Paul O'Gorman
Rayne
The Cruciform
Permalink
Shortlink



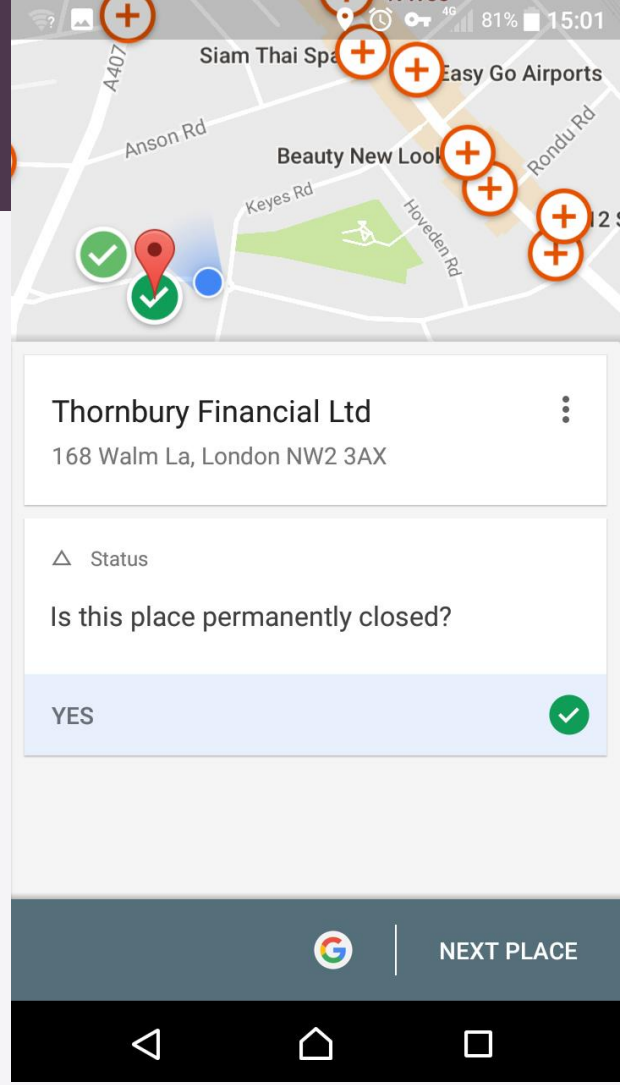
Recruitment



Personal goals



Location context alerts



Microtasks

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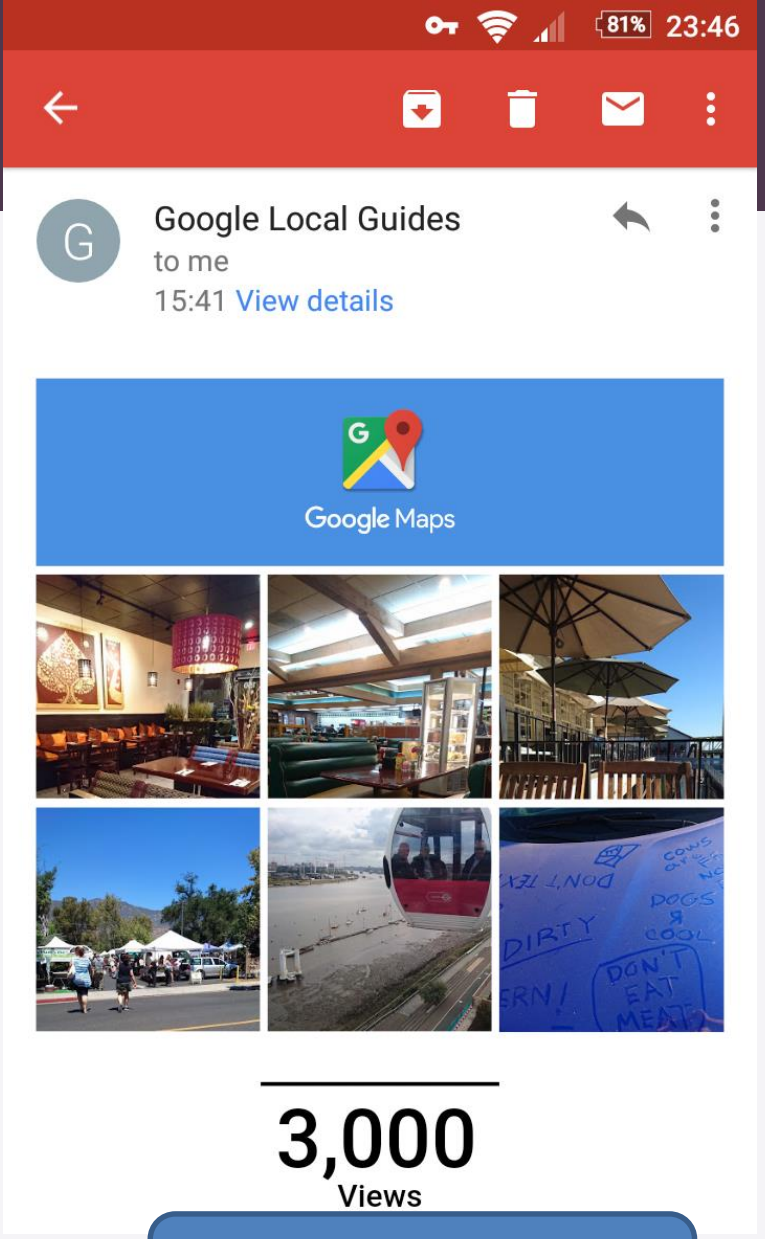

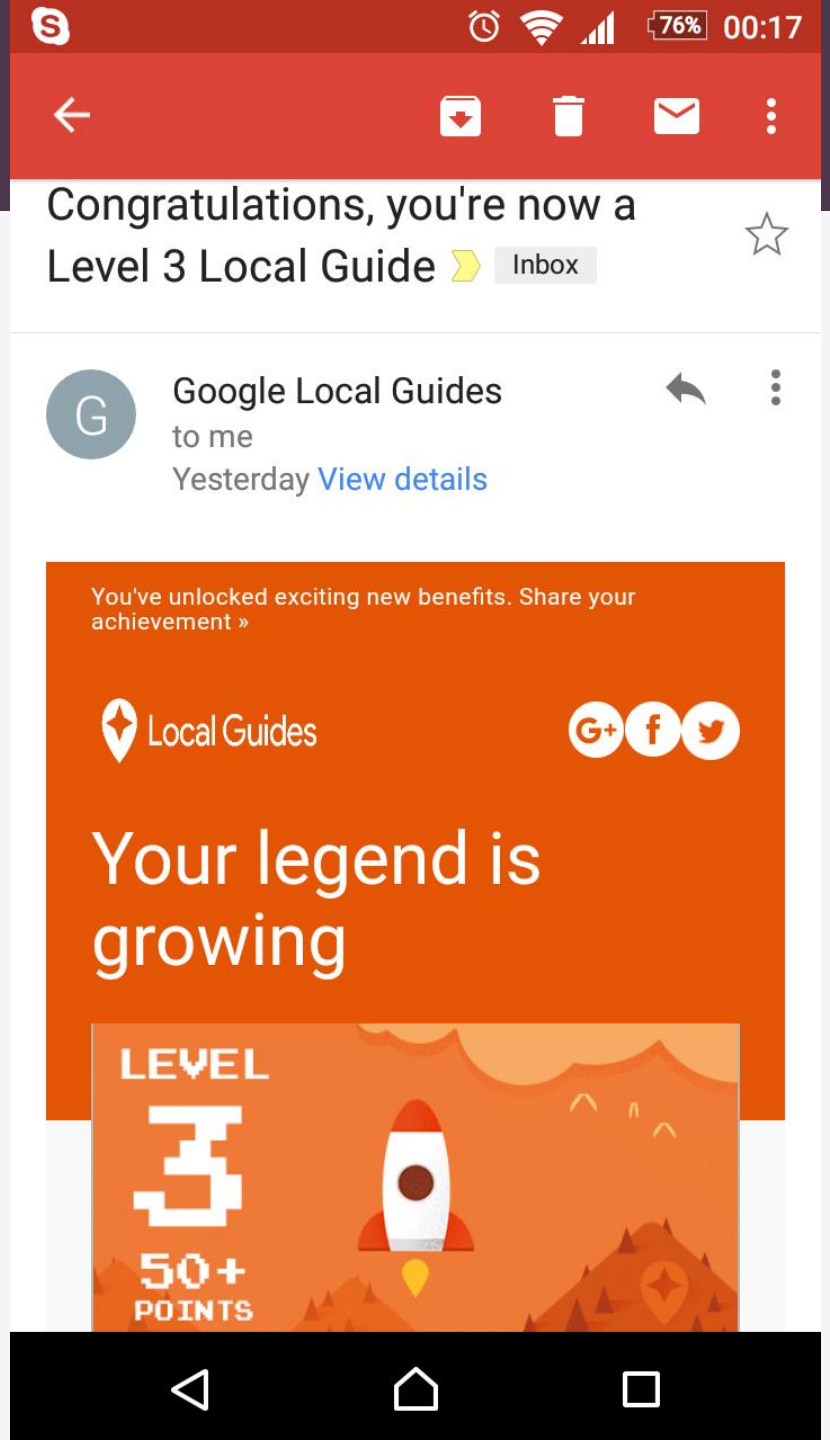

Ongoing incentives / motivations

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iSpot
your place to share nature

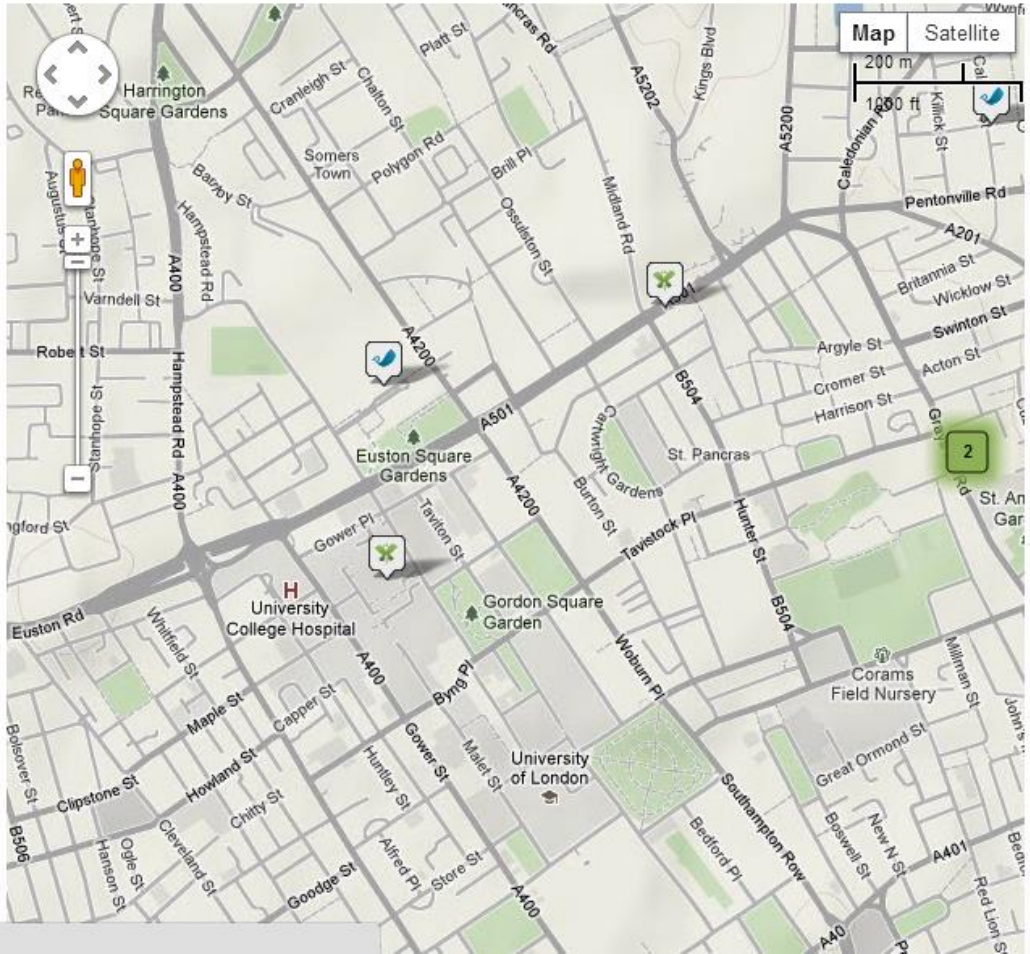
News Groups Forums Observations Keys In Your Area Help

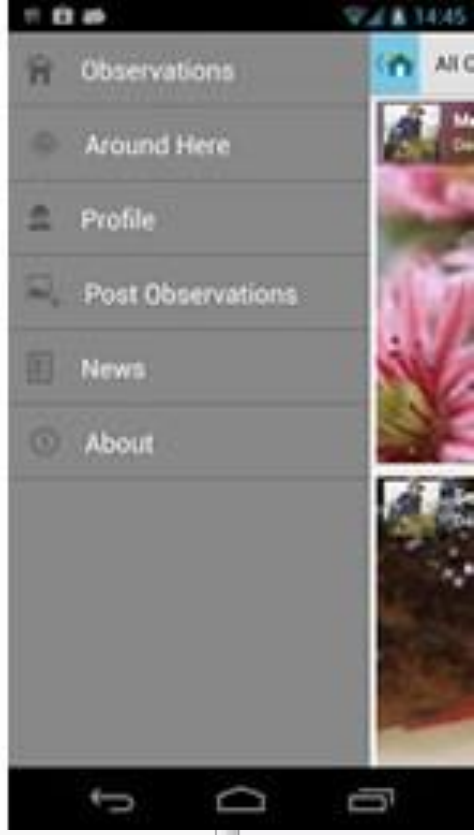
Home

Observations Map click here for help

Go to a location using: Address finder

Address finder: Go





Filter by group

Filter by taxonomy

Filter by likely ID

Filter by date

Filter by habitat

Filter by tag

Apply filter

Search iSpot

Observation preview

Gold Bug

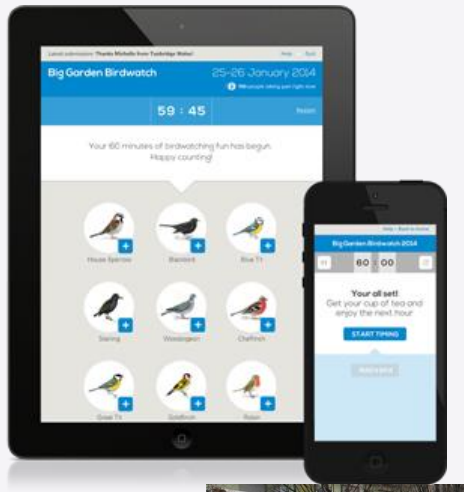
By: Rif
Location: St Pancras International (Stop A), London
Observed on: 20th October 2010
Added to iSpot: 20th November 2012
Likely ID: Rosemary Beetle (Chrysolina americana)
Identifications: 1
Agreements: 4
Comments: 0
Description: I was in the grounds of the British Library and this bug settled on my pannier. I wasn't sure what to do with it, so just flicked it off as it was reluctant to leave. It has puzzled me every since - has anyone seen something like this before? What is it called?

Close

Quality: scarcity & abundance

- Scarcity

- Abundance




Participating in Big Garden Birdwatch (source: RSPB)

Quality: scarcity & abundance

- **Scarcity**
  - Investment in training
  - Maximising output from each transaction
  - Top-down procedures to ensure ‘once & good’ – optimisation
  - Standard equipment and software
- **Abundance**
  - assumption of variable skills and training
  - Ensuring microtasks are enjoyable and rewarding
  - Multiplicity of procedures and interactions to ensure engagement
  - Multiplicity of equipment with limited information about characteristics

1. **Crowdsourcing requires different thinking about quality**
2. **Not either/or but a hybrid model of operation**

Quality Assurance

- **Crowdsourcing** - the number of people that edited the information
- **Social** - gatekeepers and moderators
- **Geographic** - broader geographic knowledge
- **Domain knowledge** - the knowledge domain of the information
- **Instrumental observation** – technology based calibration
- **Process oriented** – following a procedure

Understanding crowdsourcing in government

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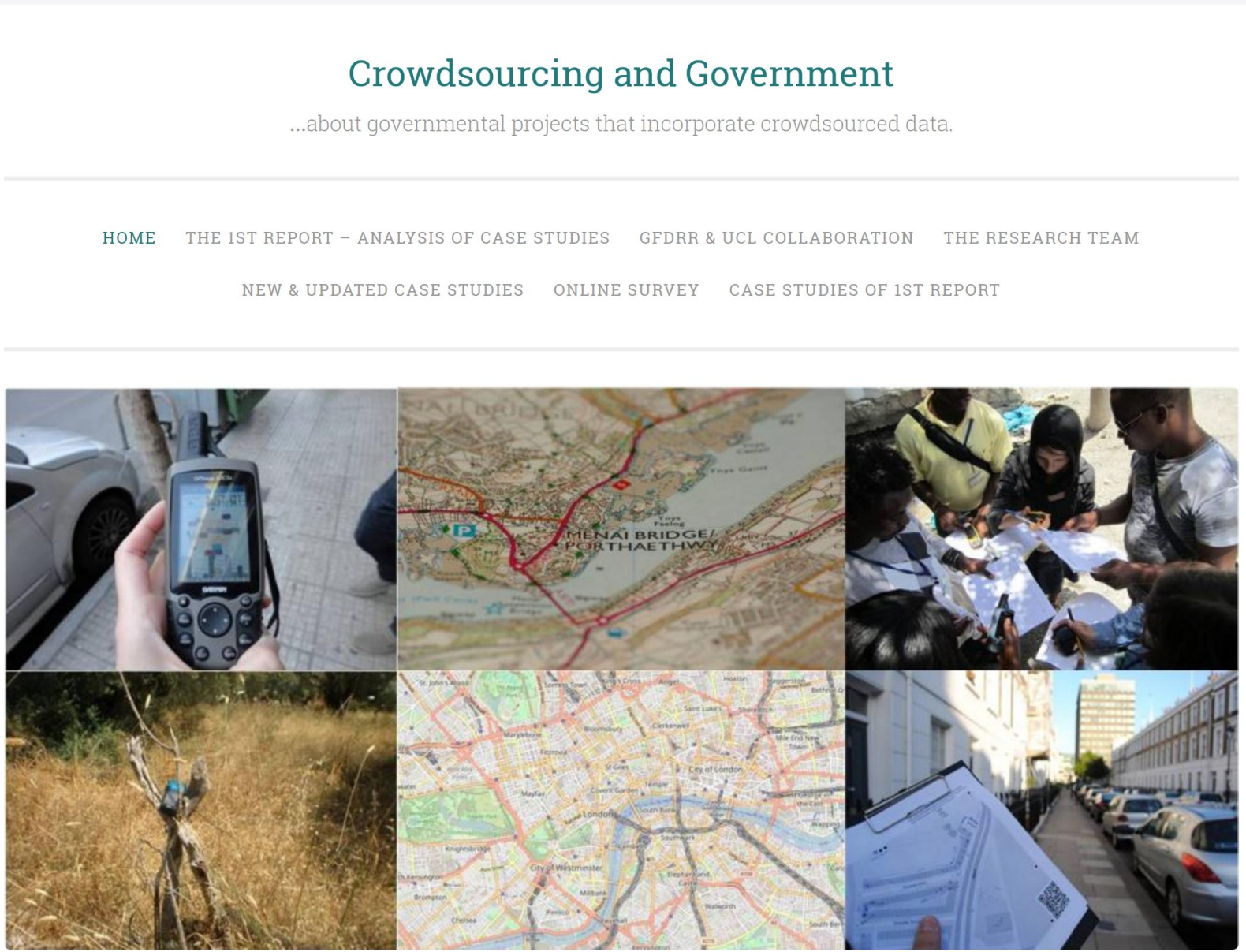
- Funded by GFDRR
- 2014 – 29 case studies
- 2017 – 50 case studies
- Comparison of success factors



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Example Case studies

Participatory mapping and decision support tools for disaster risk reduction, the Philippines.

Community Mapping for Exposure in Indonesia.

Flood preparedness through OpenStreetMap, Jakarta, Indonesia.

Humanitarian OpenStreetMap Team Mapping in Ulaanbaatar, Mongolia.

Mapping schools and health facilities in Kathmandu Valley, Nepal.

Informal settlement mapping, Map Kibera, Nairobi, Kenya.

National Biodiversity Data Centre, Ireland.

Mapping for Natural Resources Canada, Canada.

Open data initiative, New York City, US.

OpenStreetMap Community of Practice, US Census Bureau.

Crowdsourcing The National Map, National Map Corps, US

Places of Interest project, National Park Service, US.

Crowdsourcing satellite imagery in Somalia.

Ramani Huria, Dar es Salaam, Tanzania.

Land Tenure in Tanzania.

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Why crowdsourcing/VGI?

- Value / Transaction cost ratio (e.g. hotel rooms, inside restaurants, remote villages)
- Temporal coverage – can't be everywhere all the time (e.g. floods, disaster)
- Resources constraints (e.g. ecological observations)
- Bypassing structural complexities (e.g. OSM for de facto mapping)

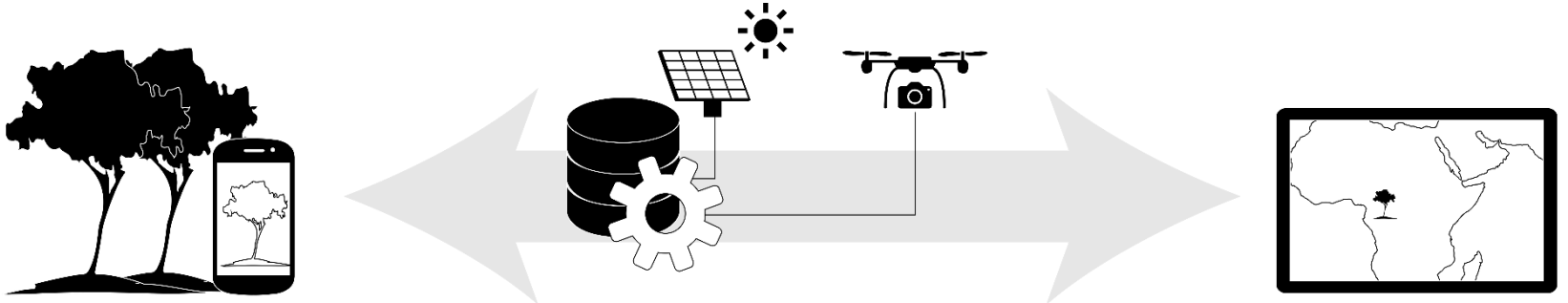
Preliminary finding - inputs

- Looking at the **inputs**: use of new technology, direct investment in establishing a post and organisational resources, carrying out training activities, and engaging large number of partners
- Successful projects where mainly:
  - New Technology and direct investment
  - Direct investment and training but without partners
  - Having multiple partners without training, new technology and direct investment
- Most new technology are Western cases, while less developed places benefit from established technology and training

Preliminary finding - organisations

- Looking at the **organisational conditions**: having a champion, updating authoritative data sets, and focusing on accuracy and quality
- Successful projects where mainly:
  - With a champion, and not with updating authoritative dataset
- Indicating that organisations are starting with secondary datasets and not using the crowd to update authoritative datasets directly

ExCiteS technologies



Data collection
Sapelli, ODK, EpiCollect, CyberTracker

Data repository and management
GeoKey

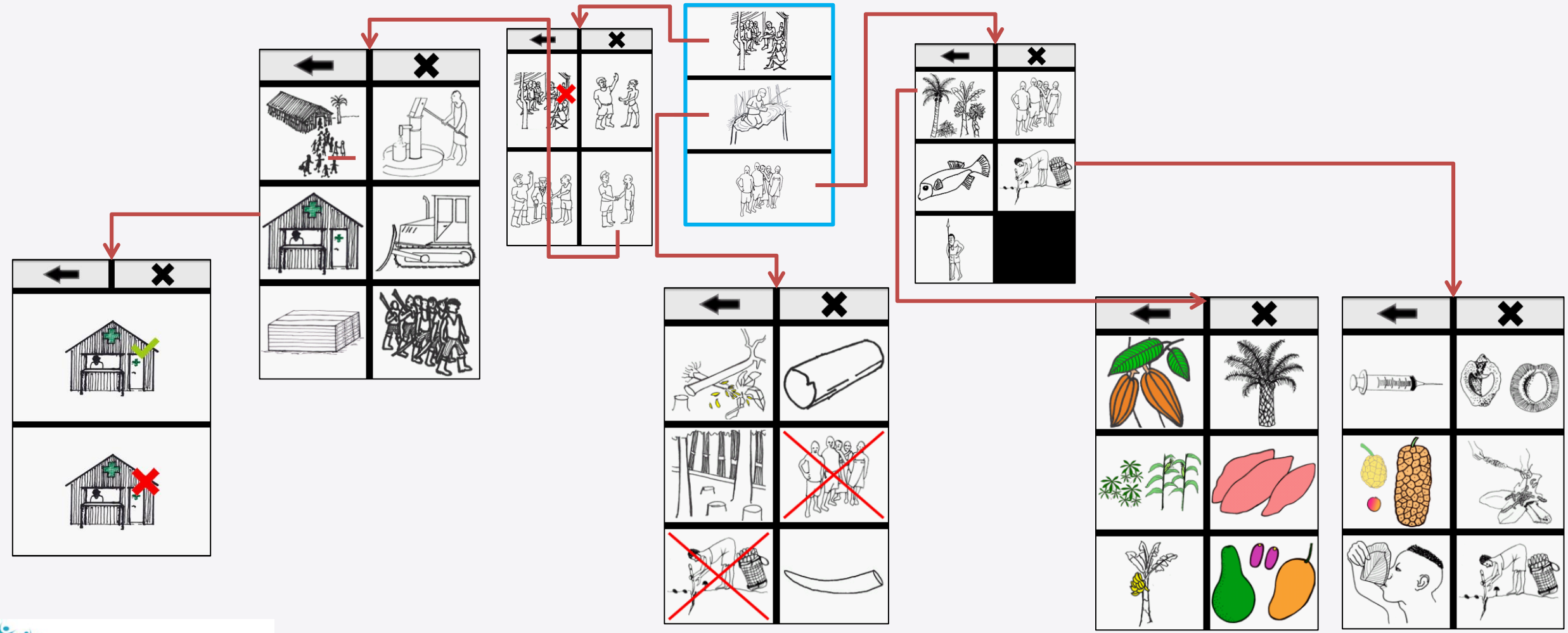
Data analysis and visualisation
Intelligent Maps

EPSRC Engineering and Physical Sciences Research Council
erc European Research Council

Engagement: Free, Prior Informed Consent (FPIC)

Participatory software design

Participatory Software design



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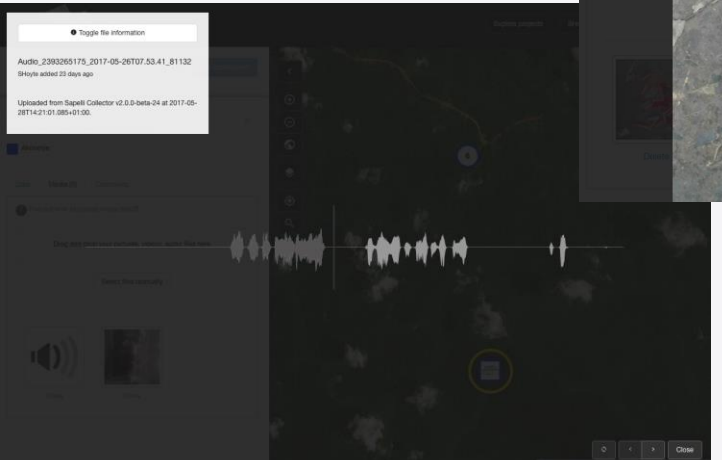
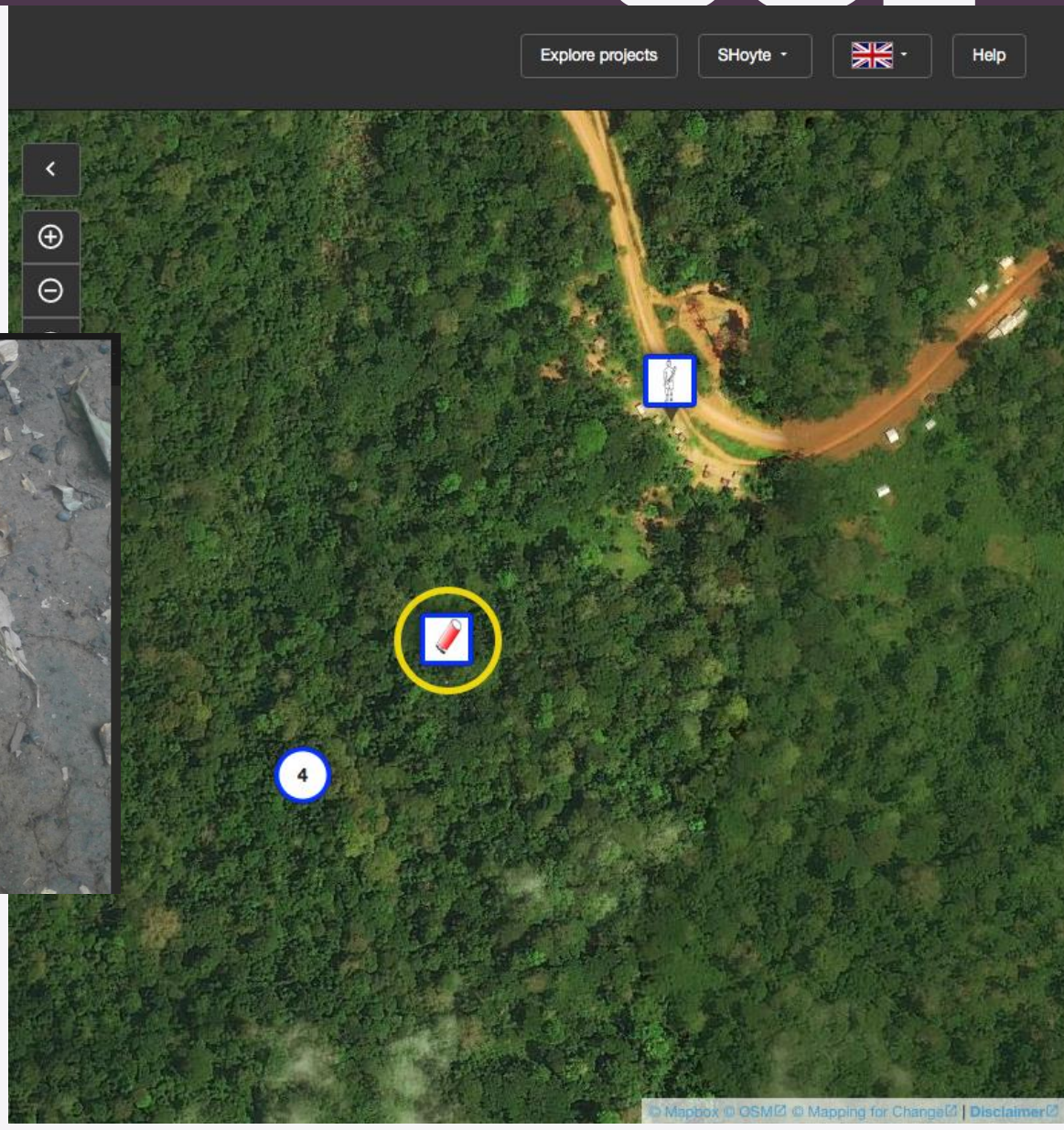
Training and support

Monitoring poaching

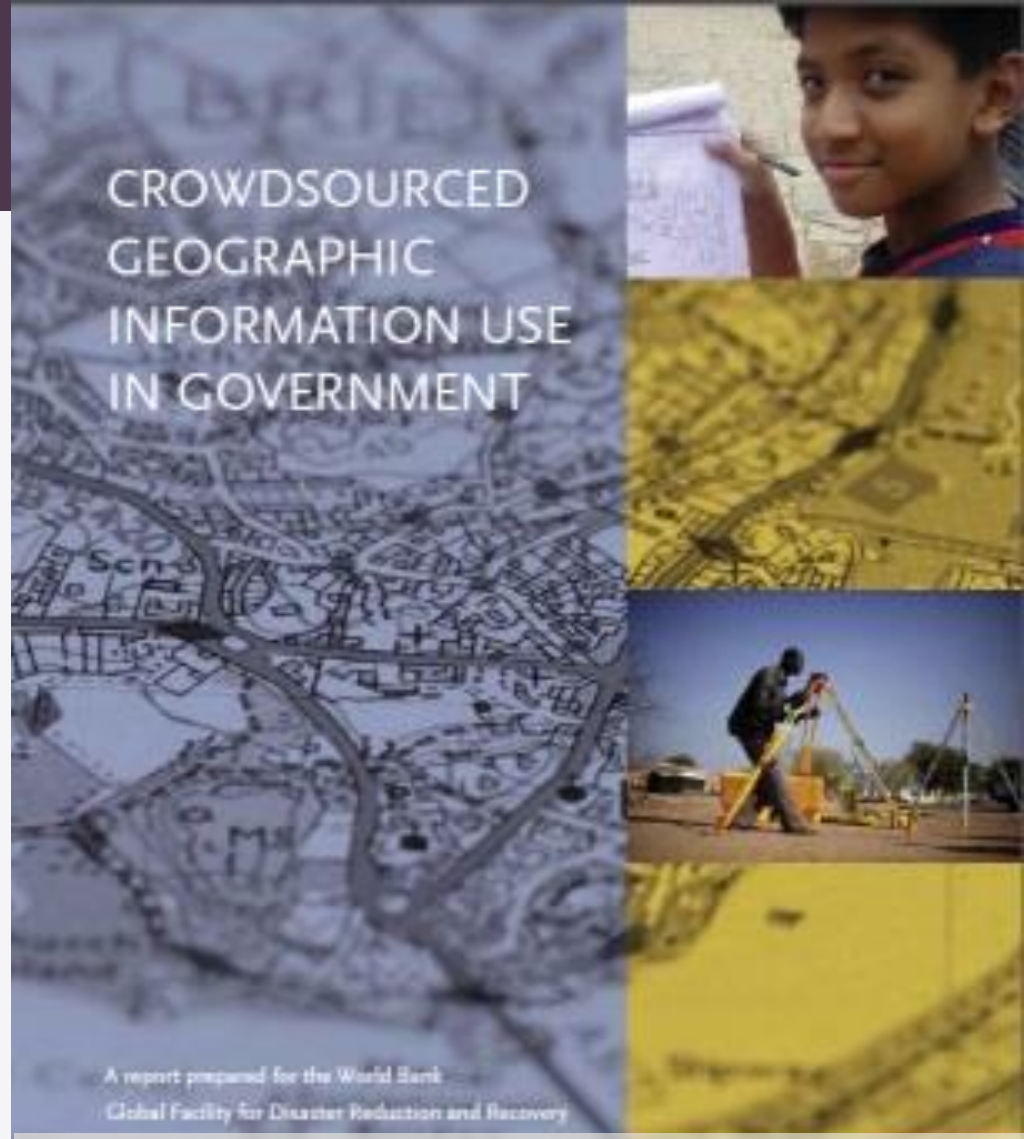




Citizen Science and Policy: A European Perspective

by Muki Haklay

The work of ExCiteS is supported by EPSRC, ERC, EU FP7, EU H2020, RGS, Esri, Forest People Program, Forests Monitor, WRI and all the people in communities that we've worked with over the years



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