Role and Impact of Crowd-sourced and Open Data

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Blade Runner [1982]

Source: Allstar Picture Library

Source: Allstar/Warner Bros/Sportsphoto Ltd

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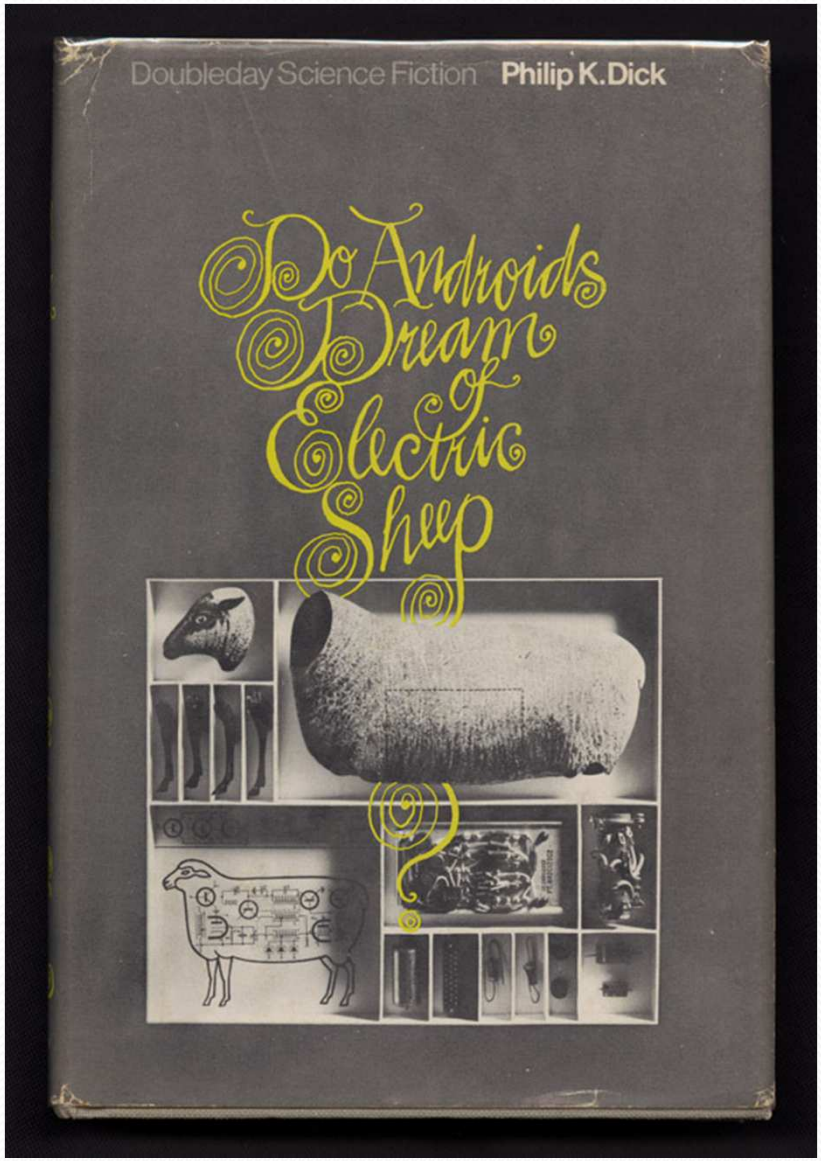
Philip K Dick's (1968) 'Do Androids Dream of Electric Sheep?'



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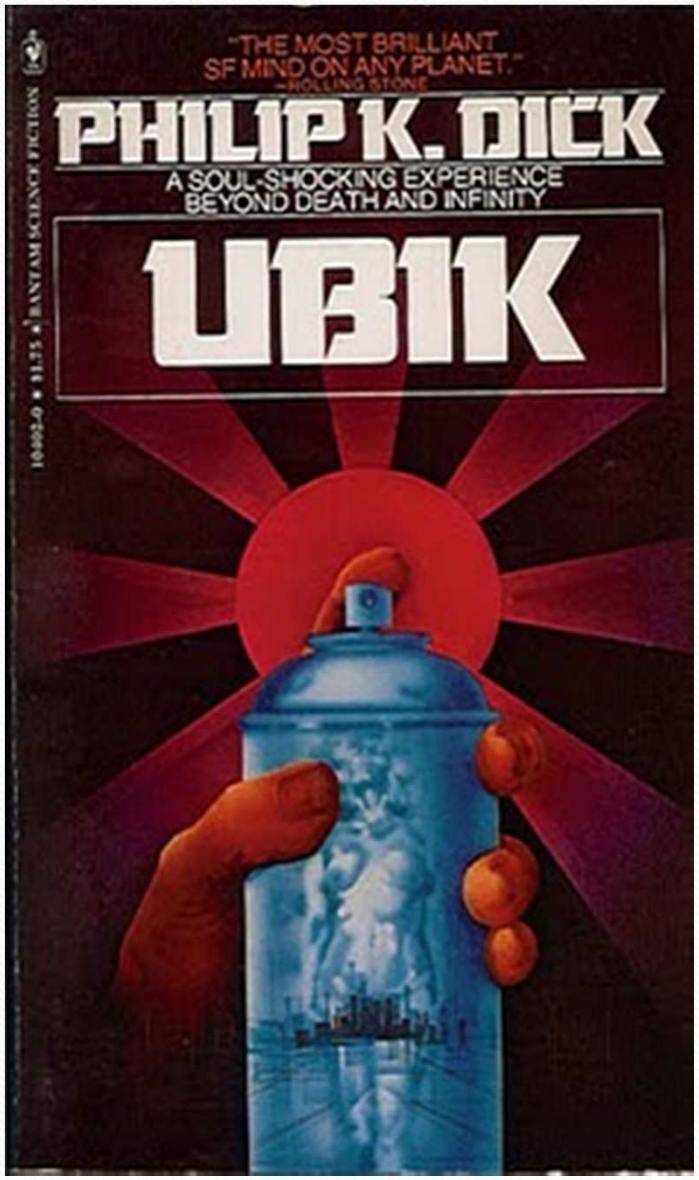

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Why the Internet of Things will not work under capitalism [Philip K Dick's "Ubik" (1969)]

He vigorously strode to the apt door, turned the knob and pulled the release bolt.

The door refused to open. It said ‘Five cents, please.’

He searched his pockets. No more coins: nothing. ‘I’ll pay you tomorrow,’ he told the door. Again he tried the knob. Again it remain locked tight. ‘What I pay you,’ he informed it ‘is in the nature of a gratuity; I don’t *have* to pay you.’

‘I think otherwise,’ the door said. ‘Look in the purchase contract you signed when you bought this canapt.’

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Why the Internet of Things will not work under capitalism [Philip K Dick's "Ubik" (1969)]

In his desk drawer he found the contract; since signing it he had found it necessary to refer to the document many times. Sure enough; payment to his door for opening and shutting constituted a mandatory fee. Not a tip.

‘You discovered I’m right,’ the door said. It sounded smug.

From the drawer beside the sink Joe Chip got a stainless steel knife; with it he began systematically to unscrew the bolt assembly of his apt’s money gulping door.

‘I’ll sue you,’ the door said as the first screw fell out.

Joe Chip said, ‘I’ve never been sued by a door before. But I guess I can live through it.’

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Open Data

Source: http://www.shutterstock.com/pic-11778223

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Open Data Proposition

Source: http://www.uitp.org/

- **New Transparency**: allows citizens to see how Government money is spent, reduces scope for corruption.
- **Efficiency**: better data sharing within Government cuts duplication.
- **Innovation**: strong political justification as developed economies struggling to achieve growth.
- **Serendipity**: unexpected “spinoff” benefits in other application areas.

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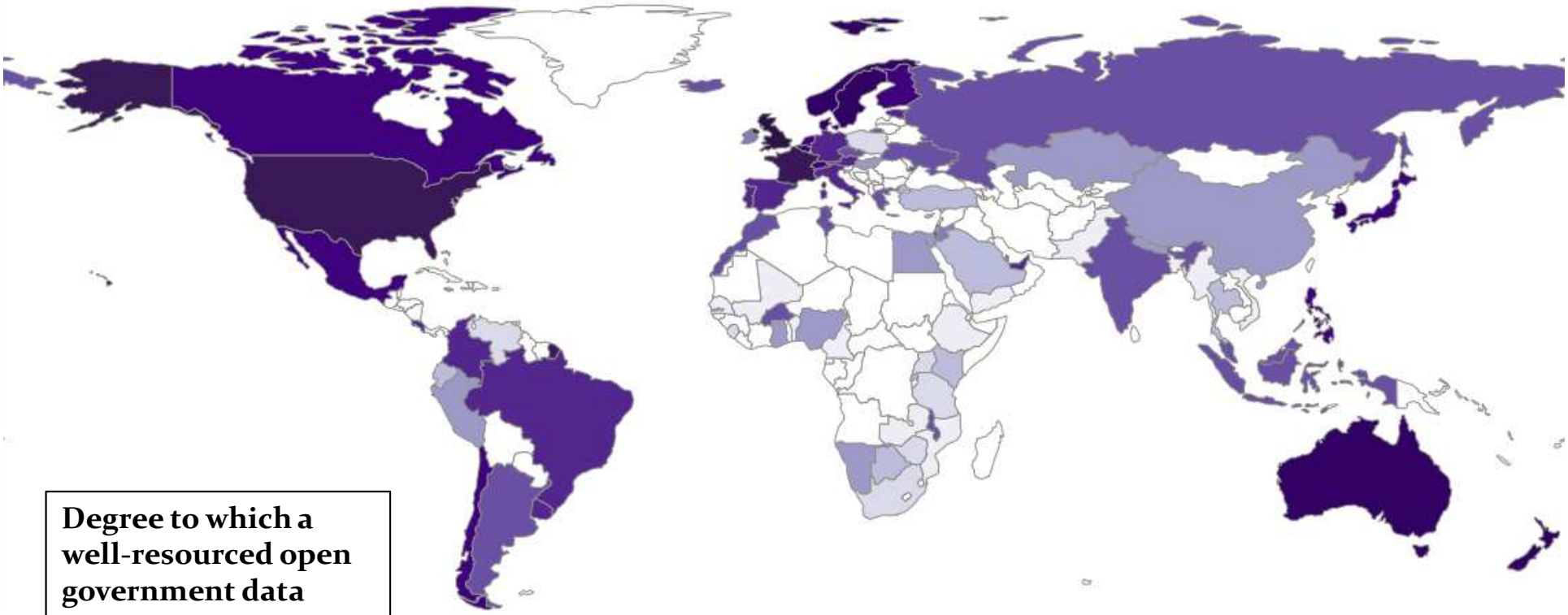
Open Data Barometer (ODB)



Degree to which a well-resourced open government data initiative exists in each country On a scale of 0-10, lightest to darkest.

Source: Open Data Barometer, Global Report, 2nd Edition
http://www.opendatabarometer.org

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Five ways open data can boost democracy around the world

1. **Fairer taxes** – Open data to unpick complex corporate networks and highlight the extensive use of tax havens.
2. **Protecting the public purse** - Open data about public contracts give civil society organisations and journalists the means to hold contractors and public bodies to account.
3. **Controlling corporate lobbyists** - Open data about lobbying to shine a light on the composition of the influence industry.

Source: http://www.theguardian.com/public-leaders-network/2015/feb/20/open-data-day-fairer-taxes/

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Five ways open data can boost democracy around the world

4. **Fighting pollution** – Open data can be an indispensable campaigning and reporting tool to fight back against pollution.
5. **Holding politicians to account** - Open data tools offer citizens and civil society groups a rich base of evidence and analysis to enable them to hold their elected representatives to account.

Source: http://www.theguardian.com/public-leaders-network/2015/feb/20/open-data-day-fairer-taxes/

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Open Data
The Issues

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'Open Data to Fuel App Innovation'

- Highlighting the Australian release of open data is expected to fuel an explosion of local civic-minded apps – according to an industry expert.
- Information about the 2015 Gold Coast Commonwealth Games venues is among the more than 10,000 high-quality datasets recently made available via Australia's first independently funded and managed open data portal.

Source: http://www.spatialsource.com.au/2015/03/10/open-data-to-fuel-app-innovation/

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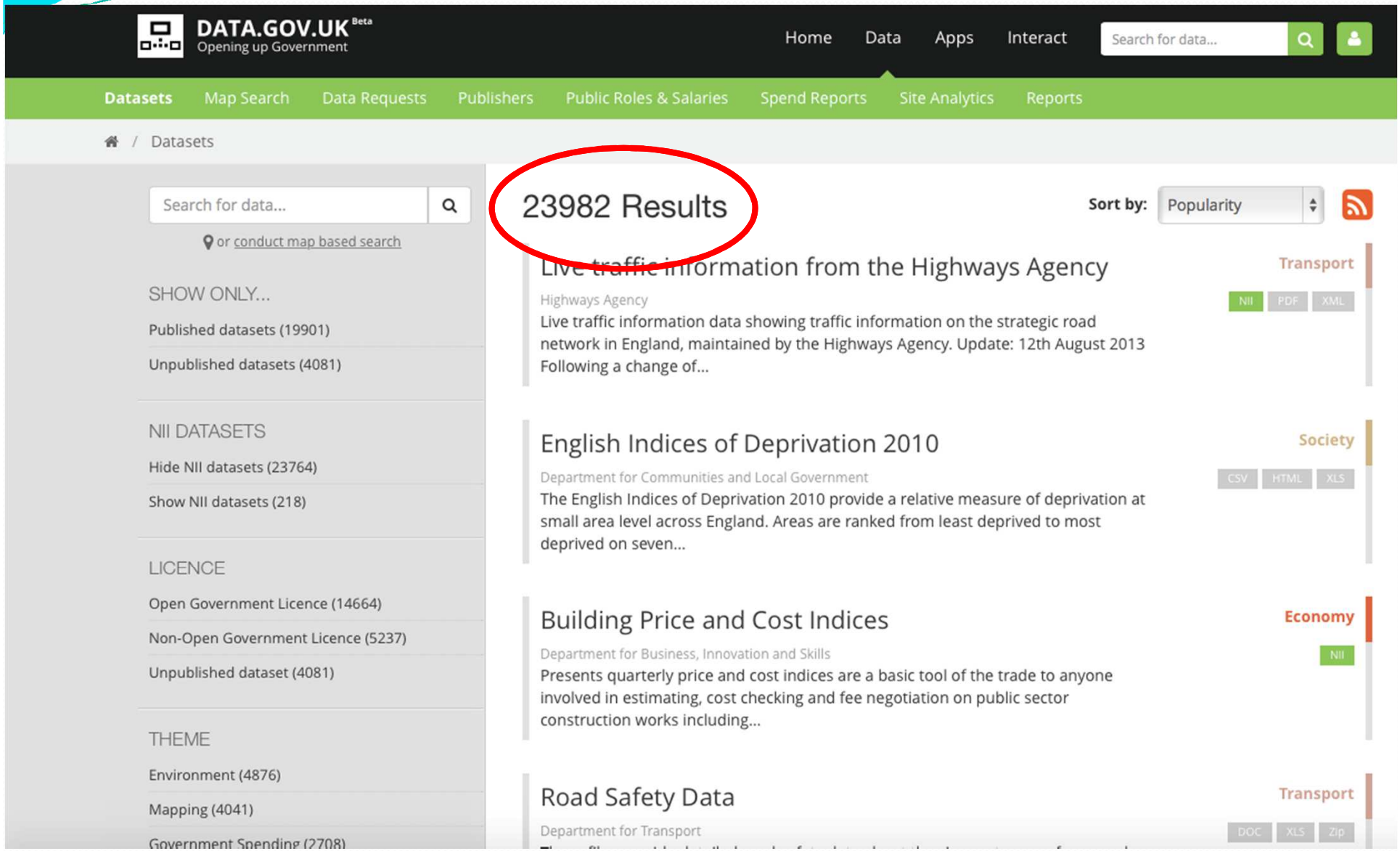
UK Government Open Data Portal



Source: http://data.gov.uk/data/search

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UK Government Open Data Portal

DATA.GOV.UK Beta
Opening up Government

Home Data Apps Interact Search for data...

/ Apps / Latest apps

Search apps...

Click search icon to see all content in this category

365 Apps

Scope Nights

Astronomy Weather Reports

Walkonomics

How walkable is your street?

Floodalerts API

FloodAlerts API

Source: http://data.gov.uk/data/search

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Beyond the 'free or fee' argument

- Not all data published under open data policies will generate commercial value.
- Simply releasing data freely to the public will not automatically deliver commercial value.
- Open data needs to be about providing the type, quality and format of data at a price point that meets the needs of the broadest section of the market – value add before use, e.g. linked data.
- Transform raw custodian data into national assets - the first step in the value adding chain.

Source: http://www.spatialsource.com.au/2015/03/03/open-data/

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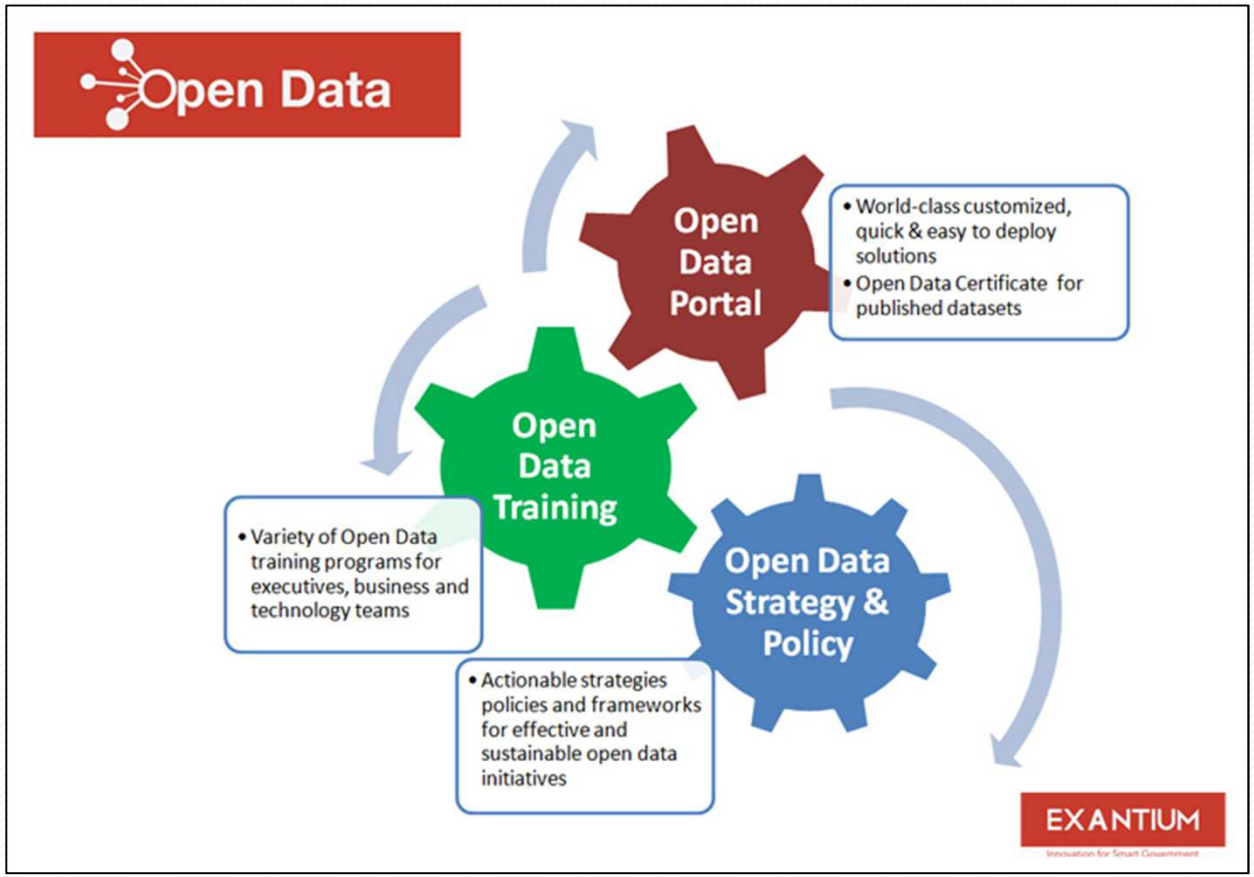
Beyond Data

Need a deeper discussion focused on what needs to be done for an open data framework to deliver the benefits.



Source: http://exantium.com/?page_id=201

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Why Do We Need Crowdsourcing?

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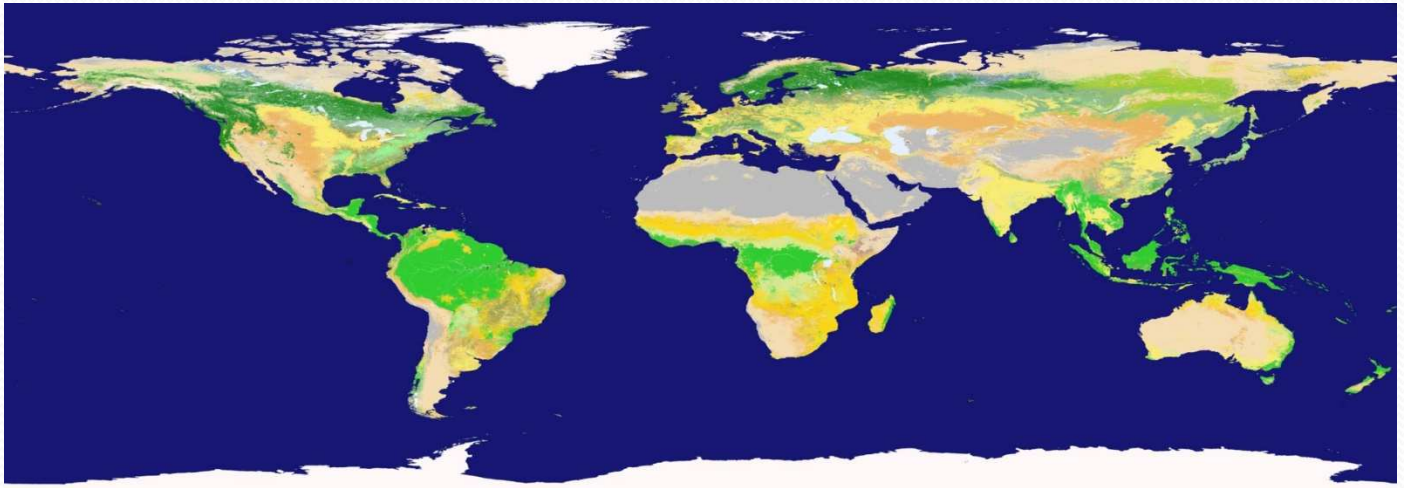
The need for scale

Current Land Administration Systems are geographically limited and lack scale



Source: http://earthobservatory.nasa.gov

Only operational in 30 - 50 mainly OECD and transition countries in central Asia.

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Having the capacity to deliver

Limited Land Professional capacity

Source: www.flikr.com

FIG represents 350,000 Land Professionals world-wide

1,100,000,000 Slum Dwellers world-wide

In 2010 Uganda only had 38 licensed surveyors

There are not enough professionals.
The current paradigm is frustrating demand.

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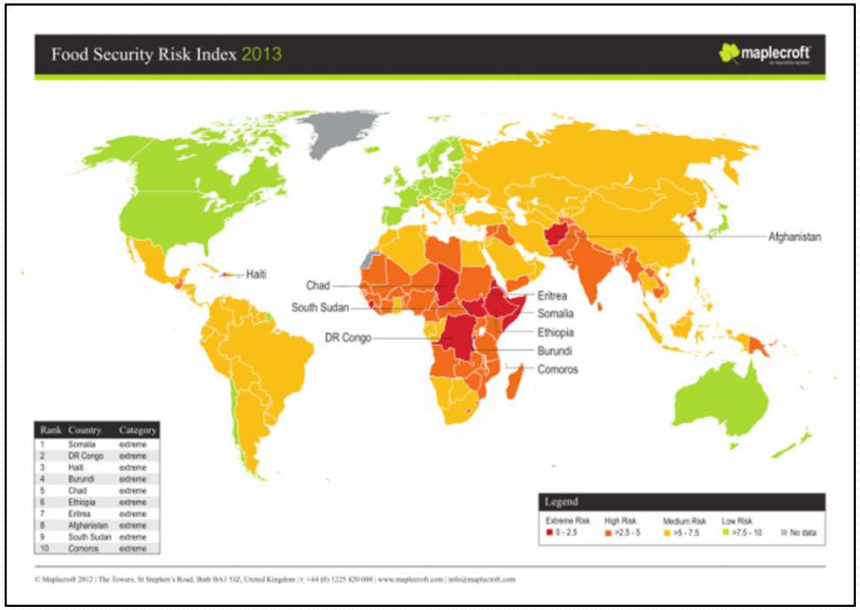
Recognizing everyone

Focus of Crowdsourcing

75% world's population have no access to formal Land Administration services

Only 25% of the 6 billion land parcels worldwide are formally registered and have robust security of tenure.



Source: http://reliefweb.int/map/world/world-food-security-risk-index-2013

Tenure insecurity has a knock on effect on sustainable cities, climate change management, food security, poverty alleviation and more.

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Who is the Crowd?

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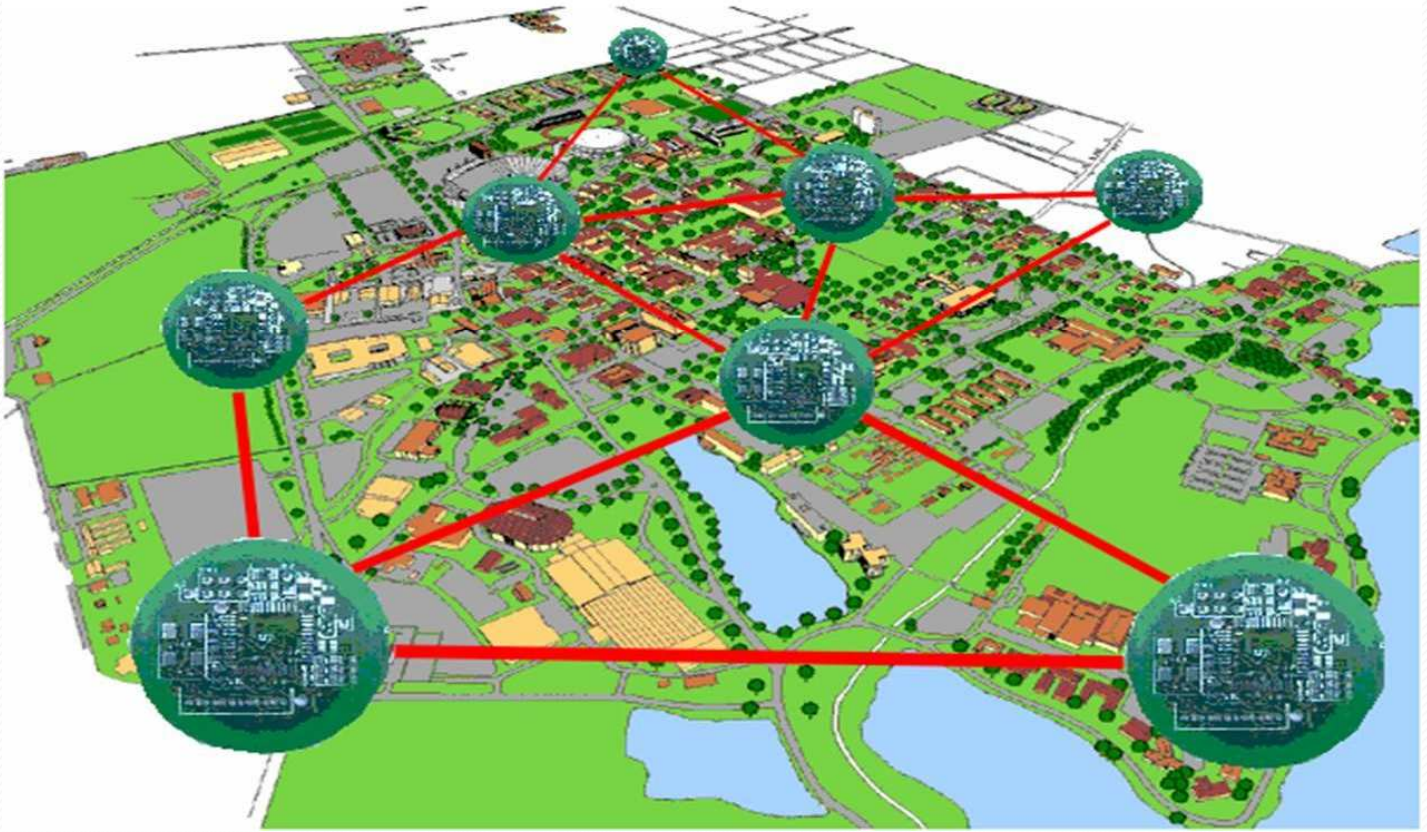
The Sensor Crowd

‘Network of Sensors’



Source: http://csc.lsu.edu/sensor_web/images/LSU-sensntwk.jpg

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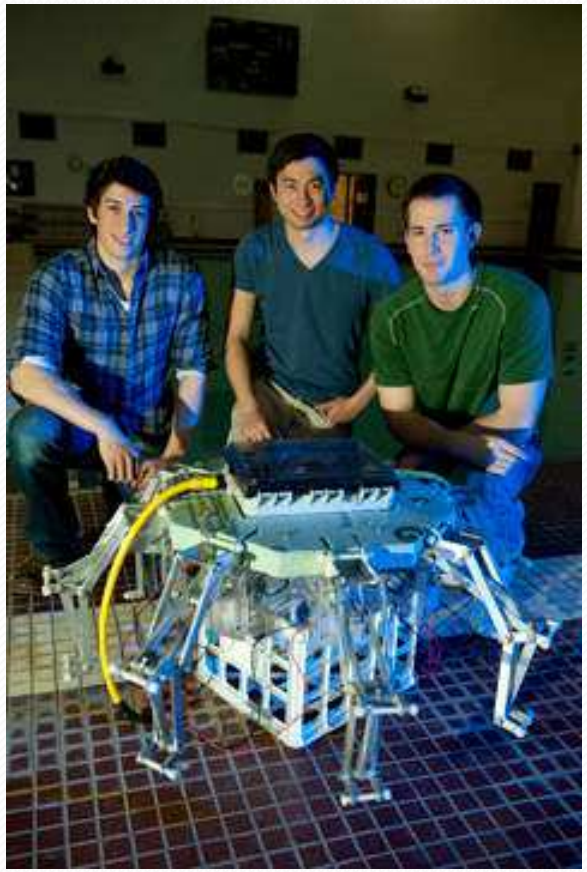
The Robot Crowd

Large Robotic Jellyfish to Patrol Ocean

- Lifelike, autonomous robotic jellyfish the size and weight of a grown man: 1.70m in length and weighing 77kg.
- The goal is to place self-powering, autonomous machines in waters for the purposes of surveillance and monitoring the environment, studying aquatic life, mapping ocean floors and monitoring ocean currents.



Source: http://www.hydro-international.com

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The Robot Crowd

Exploration & Mapping with Autonomous Robot Teams

Source: http://mags.acm.org/communications/201303#pg1

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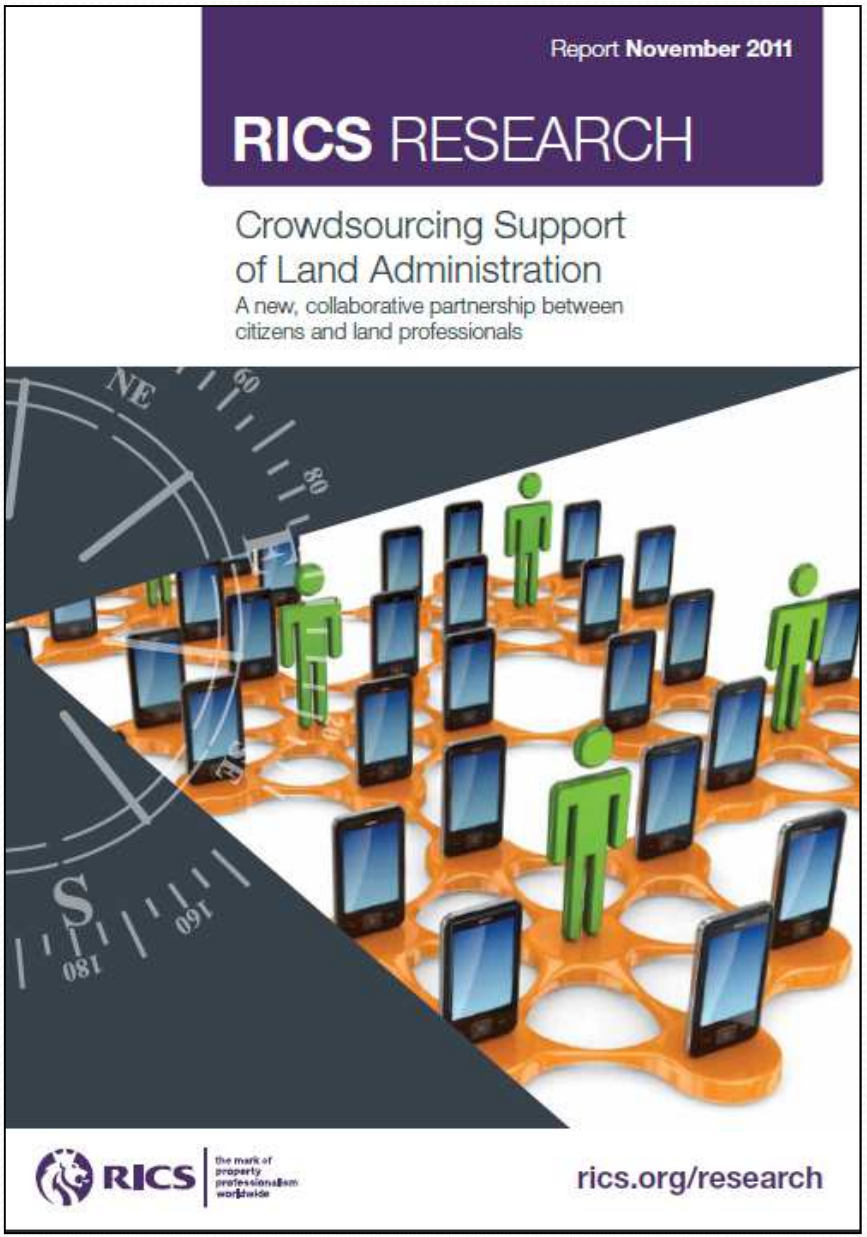
The Citizen Crowd

The Citizen as a Sensor

Capturing evidence of land rights

Robin McLaren (2011)



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Smaller, smarter, cheaper tools

The majority of Mobile Phones are Smart Phones

Mobile phone 'Cyborg' functionality ideal for crowdsourcing of land rights and other land information

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Family of Mobile Devices

Land rights capture will involve a range of devices in the mobile ecosystem, such as tablets, cameras, GNSS, mobile remote sensing / photogrammetry and mobile power.

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Trusted based systems are replacing (complementing) legal based systems

Source: http://www.clker.com

Source: http://socialevolutionforum.com

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Global Cadastre

Closing the cadastral divide

MapMyRights™ Movement

Grassroots land rights recordation

Trust based land rights solutions

Source: http://pixdaus.com

Crowdsourced land rights

Open Tenure

Democratisation of land rights

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Current Experience
Democratisation of Land Rights

- USAID Mobile Applications for Secure Tenure (MAST) Tanzania
- Resource Rights Initiative
- Rainforest Foundation UK
- BRAC
- The Indigenous Peoples Alliance of the Archipelago (AMAN)
- Namati
- First Peoples Worldwide
- Open Tenure (SOLA)
- ……..

Source: http://uwnews.org

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Why Do We Need A Global Platform for Crowdsourced Evidence of Land Rights?

Source: http://www.shutterstock.com/pic-11778223

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Why a global platform that is secure, free, open and transparent to all?

- Need to reduce fragmentation - NGOs and stakeholders are developing their own platforms and islands of information.
- Need industrial strength, robust platform that users can trust and is scalable.
- Need to provide appropriate levels of information security that users can select.
- Need to monitor and minimise misuse.
- Need to introduce Wiki and e-Commerce quality assurance approaches.

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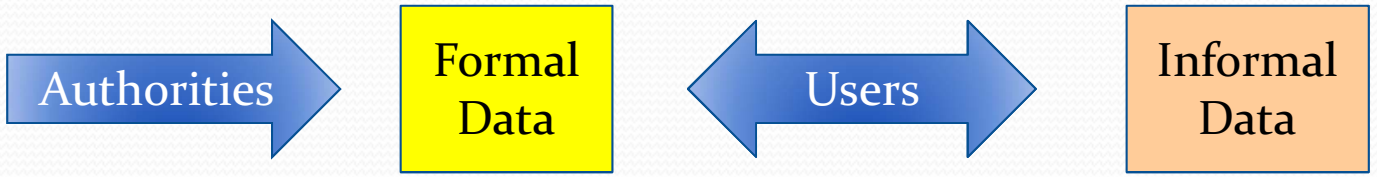
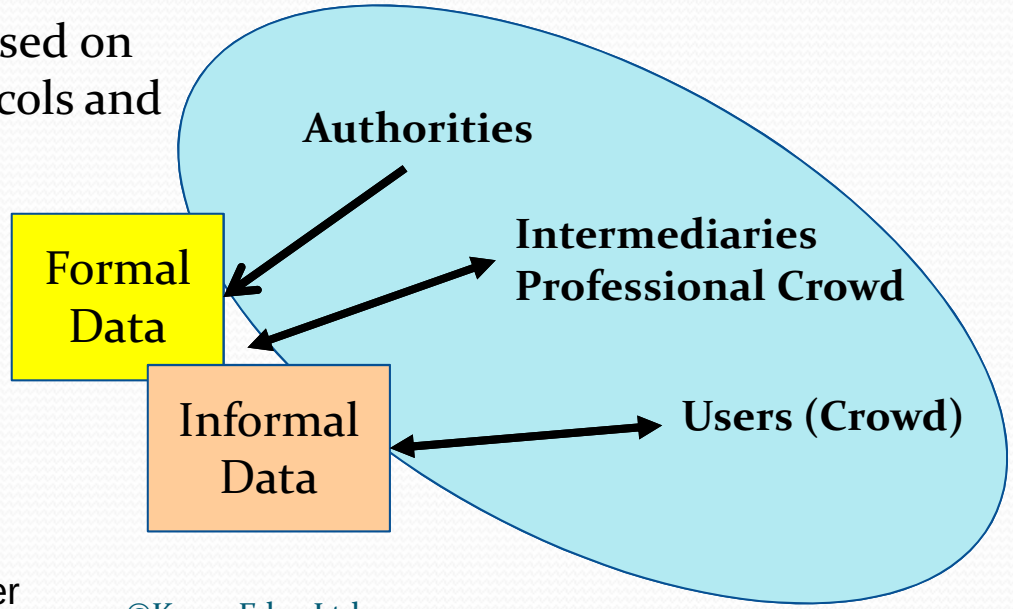
The Professional Crowd:

Relationships amongst crowdsourcing stakeholders is changing



OLD

Network based on trust, protocols and rules



NEW

Source: Dutch Kadaster

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Semi-Professional Crowd:

Use of trusted intermediaries / Para-Surveyors

- Avoid open crowdsourcing at the outset.
- Land professionals / NGOs train trusted intermediaries in communities.
- Self-organize into collaborating networks.
- Intermediaries could be shared with other information services, e.g. health and agriculture.
- Land rights simply a bi-product of other services, e.g. microfinance, micro-insurance.

Source: www.flikr.com

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Existing Customer Crowd:

Cleansing Records on the Web with Customer Feedback

- Obtain feedback from citizens and communities on the quality of existing land registration and cadastral records.
- Good examples are Ukraine, Croatia, Bulgaria and Serbia.

Source: http://uzhgorod.in/en/news/2014/iyul/f

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Ukraine experience in crowdsourcing

INNOVATION WORK

CROWDSOURCING FOR IMPROVED DATA QUALITY AND COMPLETENES

FAST DATA QUALITY IMPROVEMENT - Examples from Ukraine

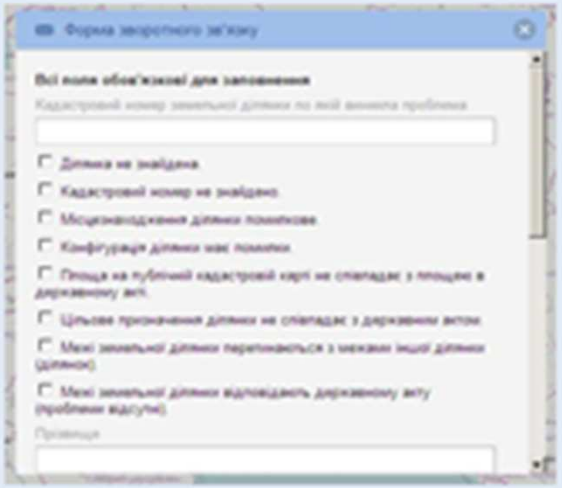
- ***Crowd sourcing*** *- online service for reporting errors*

During the first month:
11 000 errors reported
8 000 corrected.

- **16.8 mil ownership documents (35 mil pages)** scanned, indexed, data entered, verified, uploaded to a secure DB in 5 months.

- ***Created Unified Cadastre Map*** *– 1 460 local coordinate systems transformed in unified system in 2013. Many errors identified and in process of correction*

- ***Automatic tools for error identification, classification and correction created and piloted***



In Kiev:
Out of 88 reported errors,
56 were found to be similar.

The correction of 56 errors led to automatic correction of more than 2000 errors

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Source: Rumyana Tonchovska (UN-FAO)

What are the Trends in Crowdsourcing Evidence of Land Rights?

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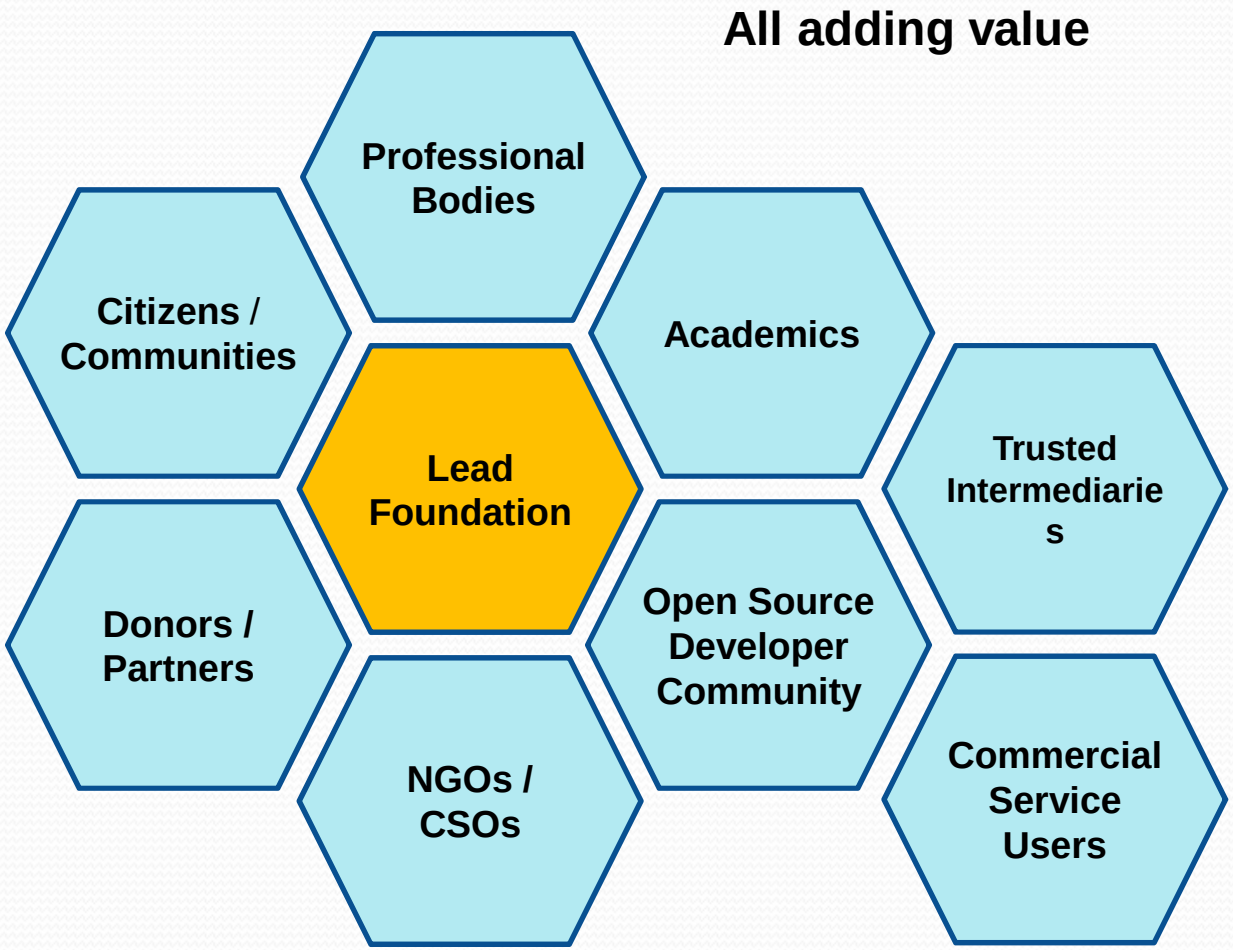
The crowd is morphing into ecosystems

Source: http://pixdaus.com



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Crowdsourced data is an entry point on a pathway to authoritative data

- Agree pathway with governments to upgrade and formalise crowdsourced land rights.
- Support of Fit-For-Purpose approach to land administration.

Source: http://www.usaid.gov/news-information

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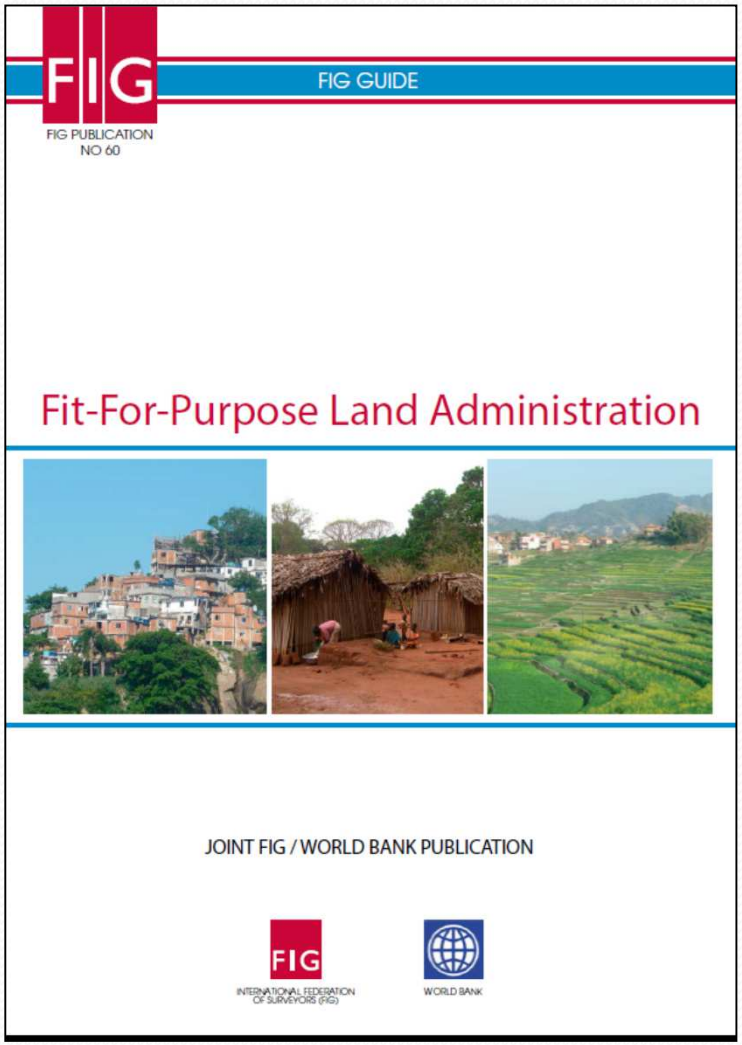
Crowdsourced data supports Fit-For-Purpose approach

- **Flexible** in the spatial data capture.
- **Inclusive** in scope to cover all tenure and all land.
- **Participatory** in approach to data capture and use to ensure community support.
- **Affordable** for the government to establish and operate, and for society to use.
- **Reliable** in terms of information that is authoritative and up-to-date.
- **Attainable** to establish the system within a short timeframe and within available resources.
- **Upgradeable** with regard to incremental improvement over time in response to social and legal needs and emerging economic opportunities.



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Fit-for purpose – Key principles

- **Visual boundaries rather than fixed boundaries**
  - Visual boundaries will be sufficient for most land administration purposes. Fixed boundaries may be used where relevant or necessary for any specific purposes.

- **Aerial imageries rather than field surveys.**
  - Aerial imageries are 3-5 times cheaper and less capacity demanding than field surveys, and will be sufficient for most land administration purposes,
  - Aerial imageries provide not only the framework of the parcels but also the general topography that is fundamental for a range of land administration functions.

- **Accuracy relates to the purpose rather than technical standards**
  - Accuracy should be seen as a relative term related to the use of the information. High accuracy should only be provided when needed and paid for by the beneficiaries.

- **Opportunities for updating, upgrading and improvement**
  - Building the spatial framework is **not** a one stop process.
  - Opportunities for updating, sporadic upgrading, and incremental improvement must be in place.
  - This, in turn, will establish a modern and fully integrated LAS.
  - This could be named as a **"Continuum of Accuracy**

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Building the spatial framework

Source: Didier Sagashya, Rwanda

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Artificial Intelligence (and the citizen) Crowd:

Extracting features from satellite / aerial imagery

- Tomnod supported by DigitalGlobe's platform uses AI, powered and trained by crowdsourcing, to automatically identify features of interest in satellite / aerial imagery.
- Can we use these techniques to extract parcels and identify changes to the parcel infrastructure?

Source: https://www.digitalglobe.com

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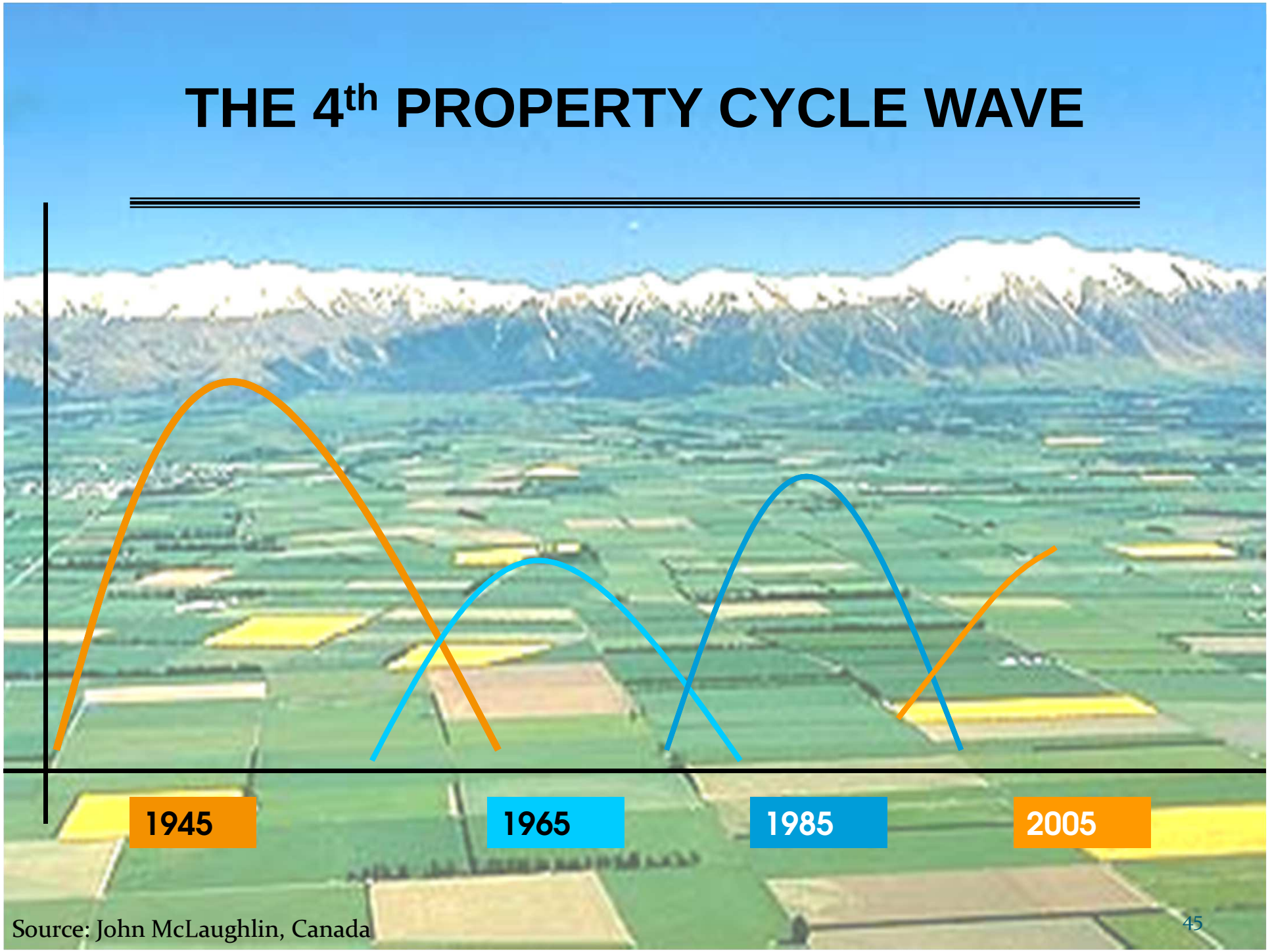
THE 4th PROPERTY CYCLE WAVE

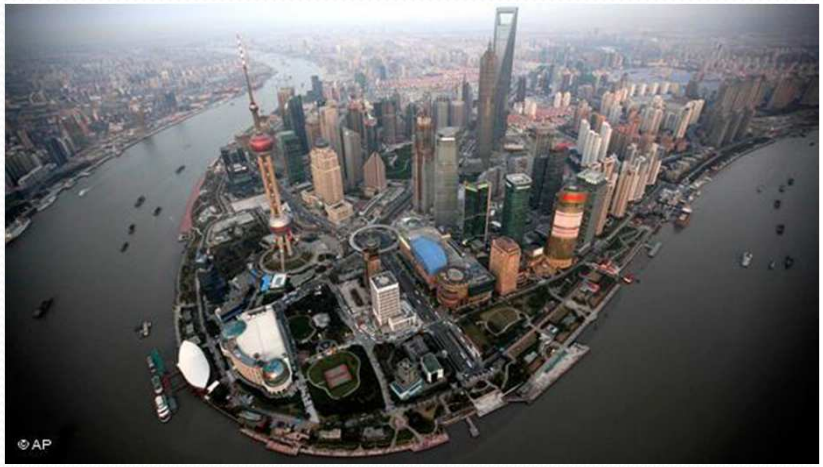


Source: John McLaughlin, Canada

4th Wave - Next Chapter of Property Reform

The next generation of academic and professional leadership is moving and evolving

- The heart of this next chapter of property reform will be based in a group of modernising nations.
- "High Development Nations" such as Uruguay, the Russian Federation, Malaysia, Turkey, Mexico, Peru, Thailand, Tunisia, China and Ecuador.



Source: http://www.dw.de/still-a-long-way-to-better-city-better-life/a-5518793

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