

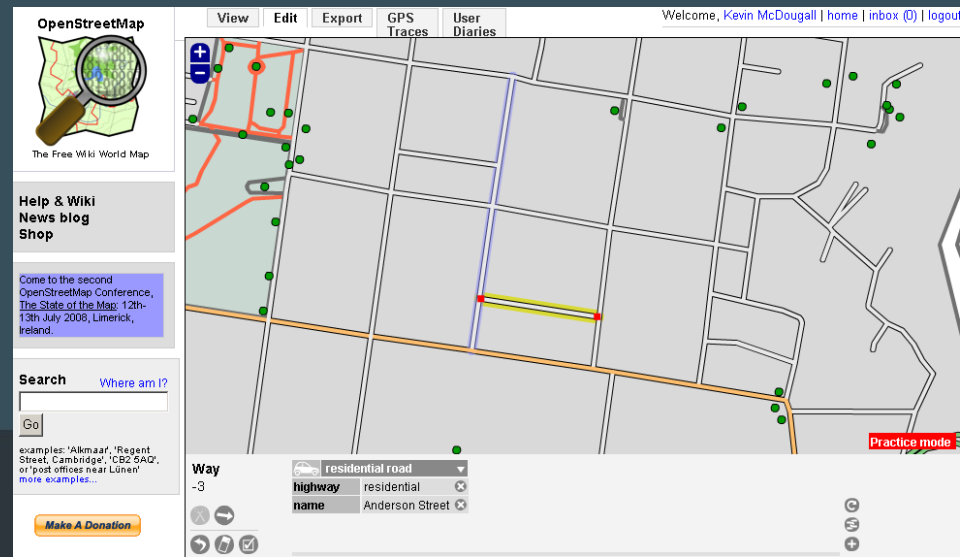
A stylized world map in shades of blue and green, overlaid with a white grid of latitude and longitude lines, serving as the background for the slide.

**Facilitating Volunteered Geographic  
Information Through SDI Policy  
Frameworks.**

Associate Professor Kevin McDougall  
Head, Surveying and Spatial Science, USQ

## Overview of Presentation

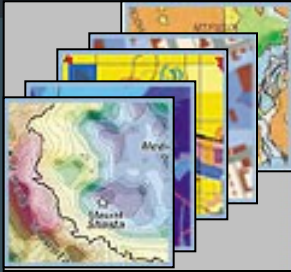
- Technology as a Change Driver
- Trends in Spatial Data Collection and Utilisation – Public Sector, Private Sector and Individuals
- SDI and Volunteered Geographic or Spatial Information
- Adapting SDI policy frameworks
- Future challenges and innovation



## Technology Driving Change

- In 2000 developing countries accounted for around one-quarter of the world's 700 million mobile phones by the beginning of 2009 that share had grown to three-quarters but the number had risen to over 4 billion.
- MySpace, YouTube and Facebook had over 250 million visits in the last 2 months – 6 years ago they didn't exist
- 5 years ago we were talking about convergence – it's here plus more
- Average American teenager sends over 2,200 text message a month
- iTunes Apps Store opened in July 2008 there are now over 300,00 Apps available





**Digital Mapping**  
Seamless / Scalable /  
Multi-dimensional

**Internet**



**facebook.**

**twitter**

**DCDB**

**SDI Ver 1**

**SDI Ver 2**

**SDI Ver 3**

**1980**

**1990**

**2000**

**2010**

**Information &  
Communication Age**



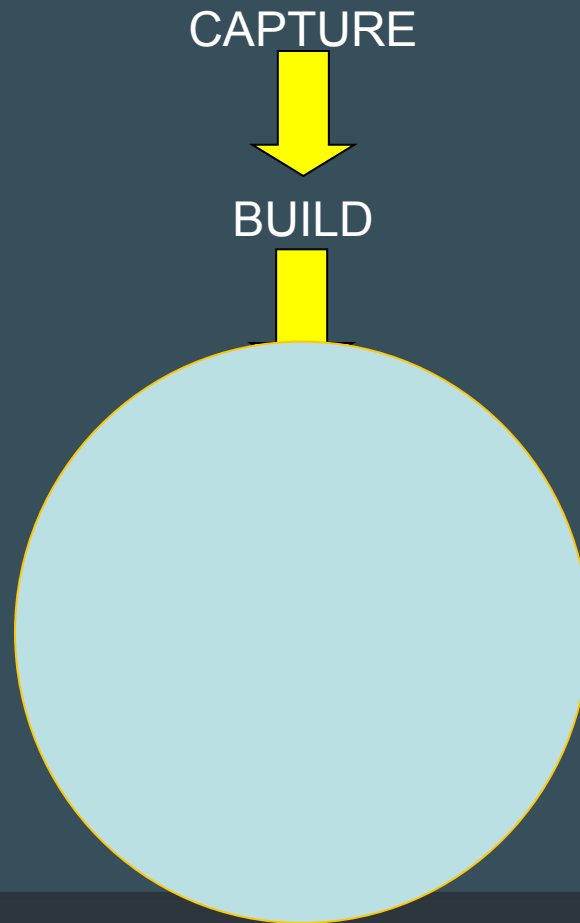
**You Tube**

## Where to in the Future..

“as we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns -- the ones we don't know we don't know”

**Defence Secretary Donald Rumsfeld**

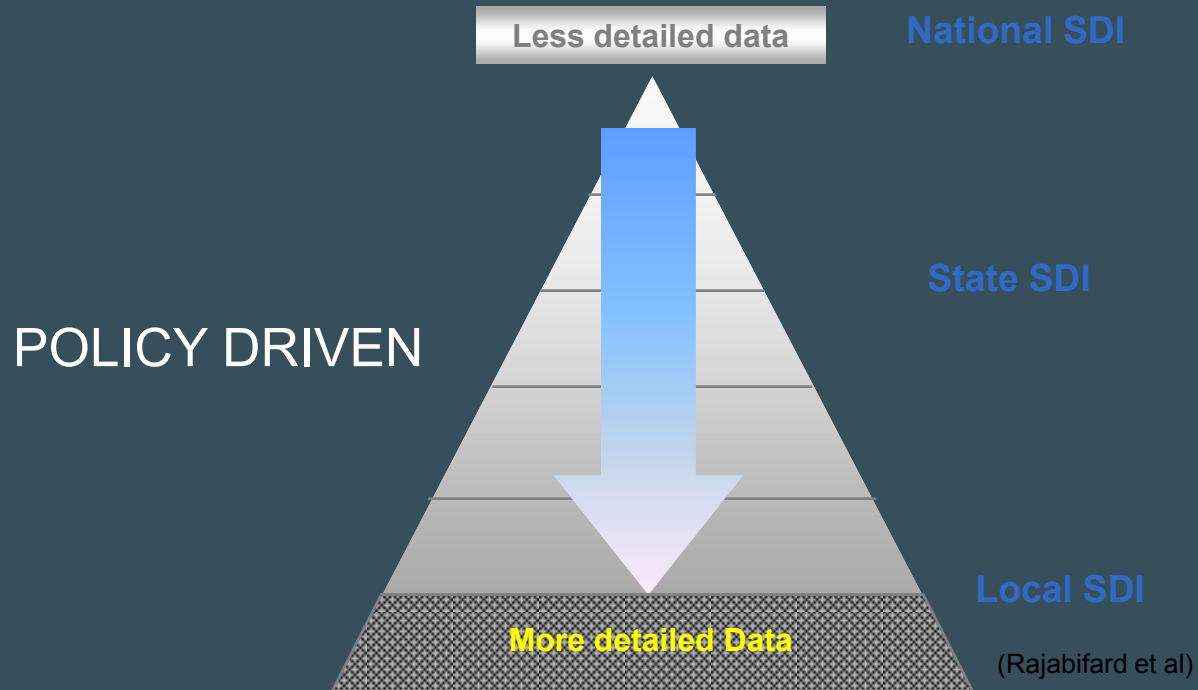
## Trends in Spatial Data Utilisation



## Spatial Data Infrastructure (SDI) Trends and Issues

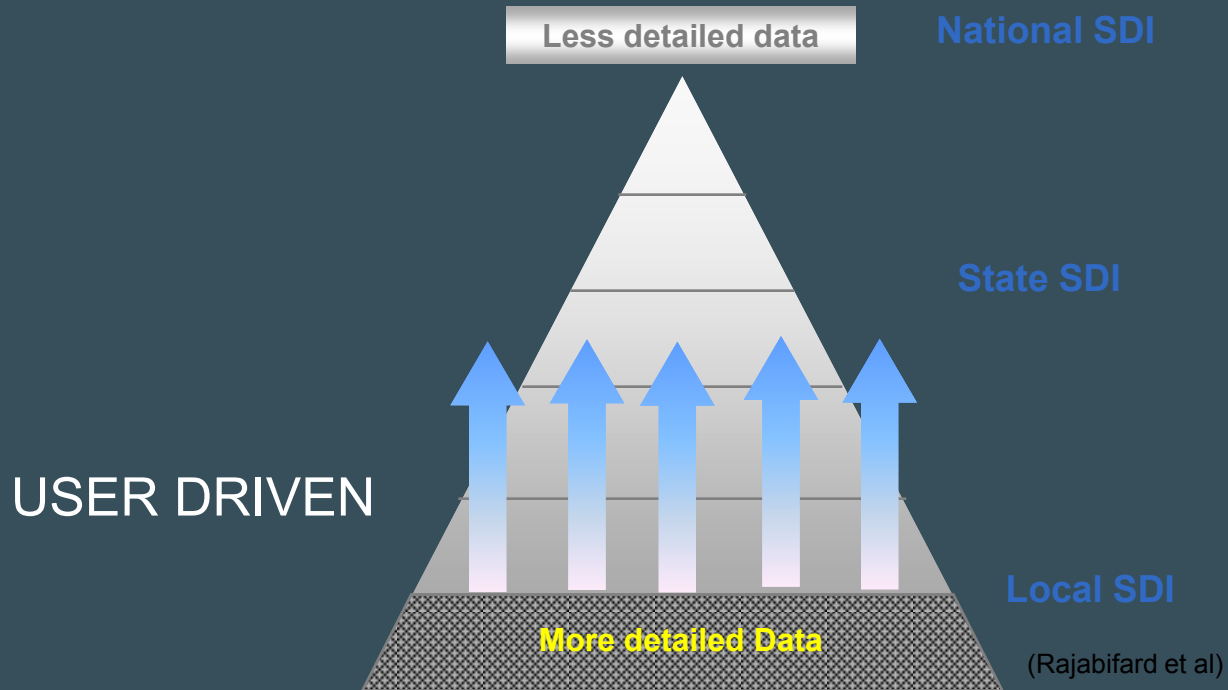
- Established by governments, primarily at national and state levels
- Policy direction through National Mapping Agencies and state government spatial information council (co-ordination roles)
- Increased focus on local government and private data holdings, and citizens particularly for emergency response management

# Traditional Top Down SDI National Policy and Producer Driven





# Bottom Up SDI User Driven

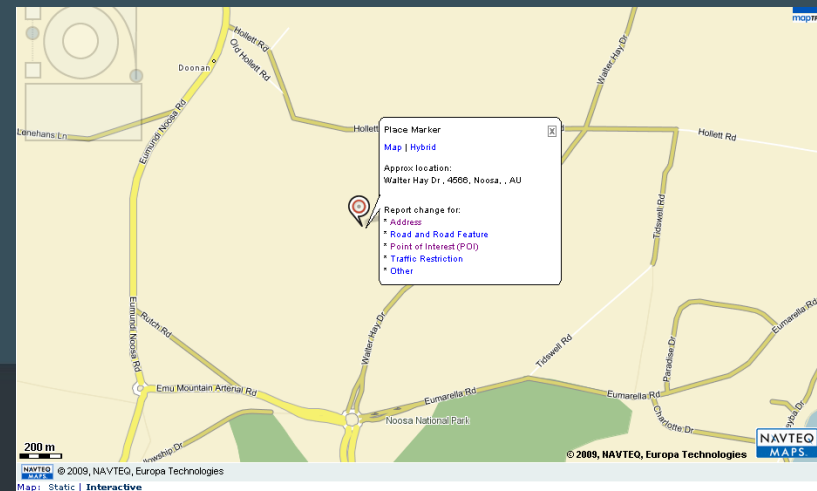


## So – What Does This Mean?

- We need to recognise that current systems/institutional processes are/were not designed for a dynamic and demanding information environment
- Government bureaucracies are still the warehouse/custodian of much of our fundamental data – but have a significant degree of institutional inertia
- May not necessarily be models of innovation or more responsive information management
- ***Users now more interactive and often driving change***

## Some Issues in Volunteered Geographic Information

- Non-geographic/spatial users supplying data
- Large variations in quality
- Greater level of subjectivity
- Multiple entries
- Possible IP issues
- Possible legal issues
- Existing data standards not designed for ad-hoc users
- Metadata variable



## Traditional SDI versus VGI

	Government-centric SDI	User-centric VGI
SDI Structure	Highly structured	Ad-hoc and simplistic
Standards	Close adherence to standards	Loose based on communication standards
Maturity of data holdings	Highly mature	New and current but variable
Spatial Accuracy	Complying with mapping standards	Variable
Metadata	Contain detailed metadata	Few standards – ICT based
Openness	Highly controlled	Often new data sets
Data Update	Often slow and overly bureaucratic	Fast and flexible
Potential data maintenance and collection base	Limited to the budget and staffing	Potentially a huge user and contributor base
Adaptability	Low – retrained by mandate, resources and bureaucracy	High

## Adapting SDI Policy Framework for VGI

- SDI Governance
- Access arrangements
- Standards
- Data Sharing
- Data Quality and Reuse



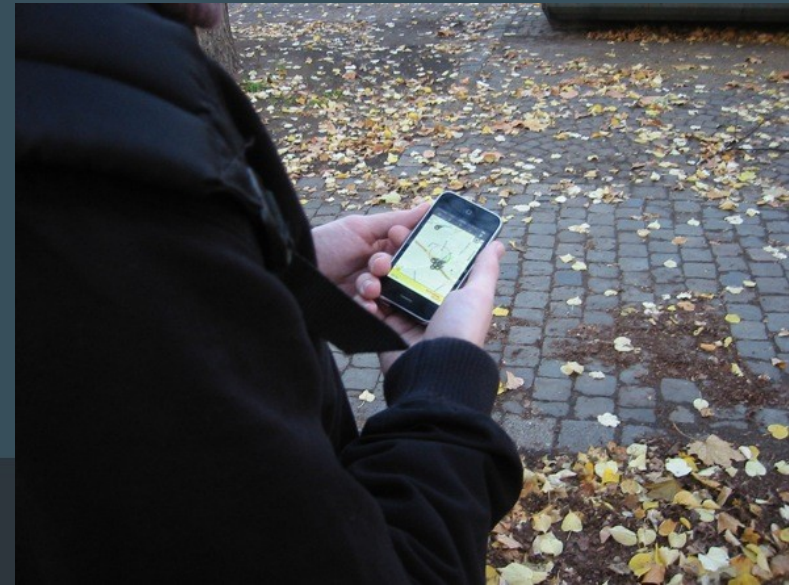
## SDI Institution Governance

- SDI governance is put in place to improve institutional and data management arrangements to support SDI
- Most existing governance arrangements include regulators, large industry organisations, government stakeholders and value adders – most if not all spatially focussed
- Future governance needs to include community groups with public interest roles
- Non-spatial organisations representative of larger business users
- Collect user input as part of the governance and development cycle



## SDI Technical Governance

- Increasing levels of complexity in managing sources of spatial information
- Moves towards technical governance through use of registries
- Procedures for publishing, managing, discovering and using spatial data
- Roles and registration of contributors - profiles



## Access Policies

- Trend toward greater access to fundamental information to the community
- Access arrangements may need to vary depending on user registration
- Volunteers may access differing versions or themes of data to improve value of their contributions
- View access versus contribute access
- Possibility to edit previous contributions and record history
- Need to be transparent and dynamic





## Data Standards

- Move to greater interoperability and open standards
- Review approached to metadata
- Volunteers less likely to provide spatial metadata
- Registration of volunteers to assist metadata collection and validation
- Automate collection of metadata through user profiles (GeoNode)
- May require greater collaboration with Telcos to assist validation

## Legal Framework

- Privacy – need to protect users
- Copyright – does basic spatial location attract a copyright requirement – decision on copyright needs to be understood.
- Traceability of data – particularly for emergency events
- Liability
- Register users and establish agreements on entry
- Current arrangements do not adequately address volunteered information – need to look to facebook and others

## SDI, VGI and Web 3.0

- Authoritative SDI still required in the near future as underlying foundation
- Need to open up public data access and entry of data
- Move to networked data under Web 3.0 – linked data with geographical position or tagging of data
- Data models needed to improve data reliability and accuracy
- May distinguish user entry
  - Registered vs non-registered user
  - Trusted vs non-trusted

## Some Challenges for Mapping Agencies

- Need to develop concept of trusted volunteered users
- Direct deposition of data in a digital form
  - Point location and attributes
  - Boundary and attributes
  - History and editing
- Validation and acceptance procedures
- Focus on data improvement and maintenance
- Who will pay for this process – client, government or value adder
- Perhaps a new business model – shared data model and costing model

## Conclusions and Challenges

- Traditional government and private sector mapping organisations need to acknowledge the power and capability of users
- Greater use of mobile technologies and positioning systems to improve the currency and positional quality
- Better collaborative models need to be established across government-private sectors to reduce duplication of data collection and improve reliability
- Policy frameworks must adapt to changing user and technology drivers

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