



Spatially Enabled Society

Drivers, definitions, and examples

Ian WILLIAMSON
Abbas RAJABIFARD
Jude WALLACE
Rohan BENNETT

Australia



Overview

- What is spatially enabled society (SES) and spatially enabled government (SEG)?
- The role of property in SES
- Broad challenges for government and industry



What is SES and SEG?



Spatially enabled society (SES)

- An evolving concept where *location, place* and other spatial information are available to governments, citizens and businesses as a means of organising their activities and information
- Simply, SES is about *managing information spatially, not managing spatial information*
- *Transparent or ubiquitous use of spatial information*



Spatially enabled government (SEG)

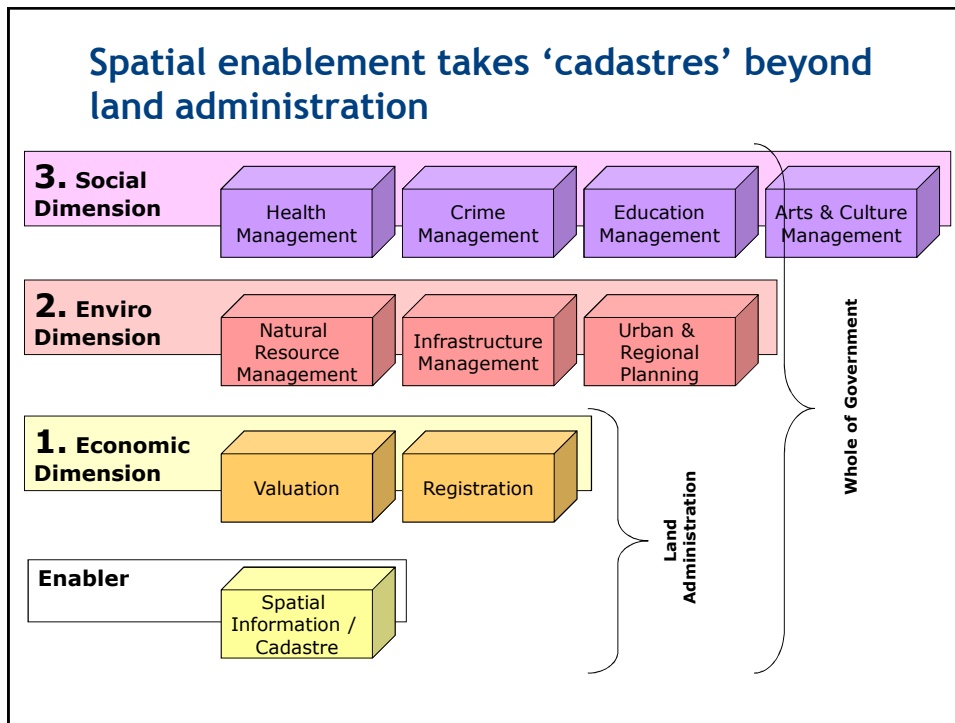
- Same principle as SES but applied to *management and delivery of government services* - part of e-government initiatives
- Requires a “*whole of government*” approach
- Applies to *all levels of government*. Local, county, state or provincial and federal (where countries are federations of states)
- Particular challenges where *large scale parcel level data* is managed at either local, county or state level



What is SES and SEG?

- Location or place is used
 - initially to *organise* government spatial information
 - then to *re-engineer* government processes to deliver better policy outcomes by using location to reorganise other information
- *Place* is used in a *transparent or ubiquitous* manner. The vast majority of users do not know they are “spatially enabled” - and don’t care!





The role of parcels and properties in SES

The key to SES is the property base
or for the initiated...

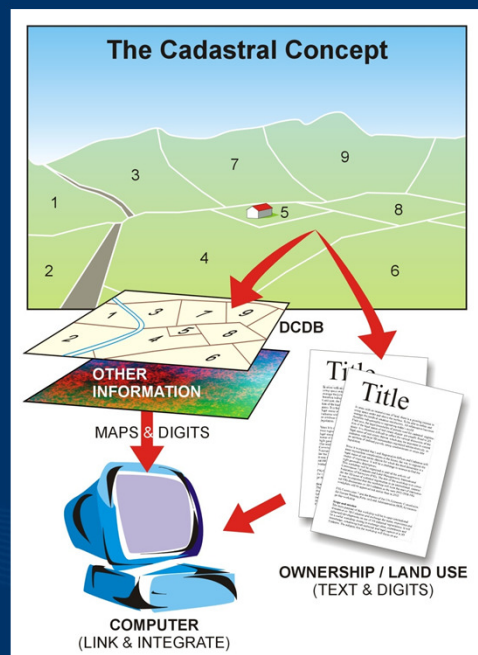
“the cadastre”

The property base connects people to land

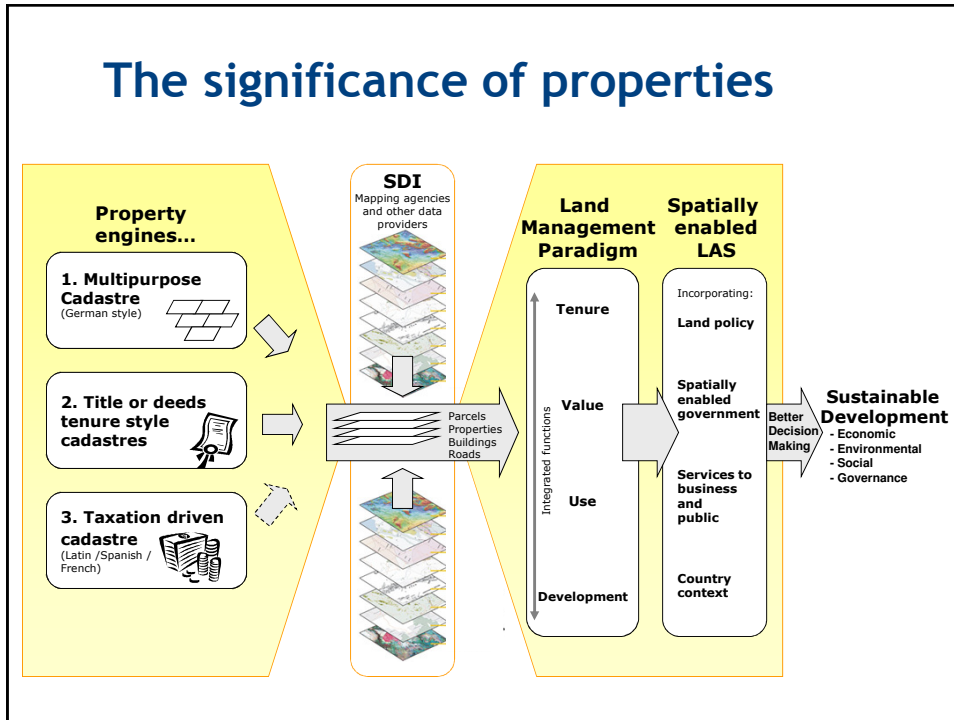


The Cadastral Concept

- The traditional view of the cadastre (buying, selling, leasing and mortgaging interests in land).
- The new approach makes the *cadastre central to spatially enabling government*

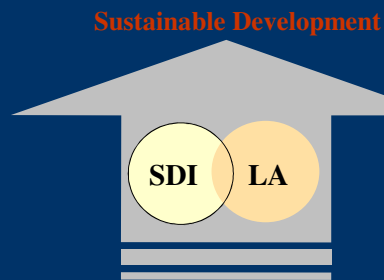


The significance of properties



Spatially enabling LAS

- Land administration (and particularly the core cadastre) generates information about places (parcels, street address)
- SDIs organise spatial information.
- Together they provide information about *unique places people create (built) and use (natural)*.



*A holistic approach
is to integrate cadastre, land
administration and SDI*

*The cadastre is the core of large
scale SDIs*



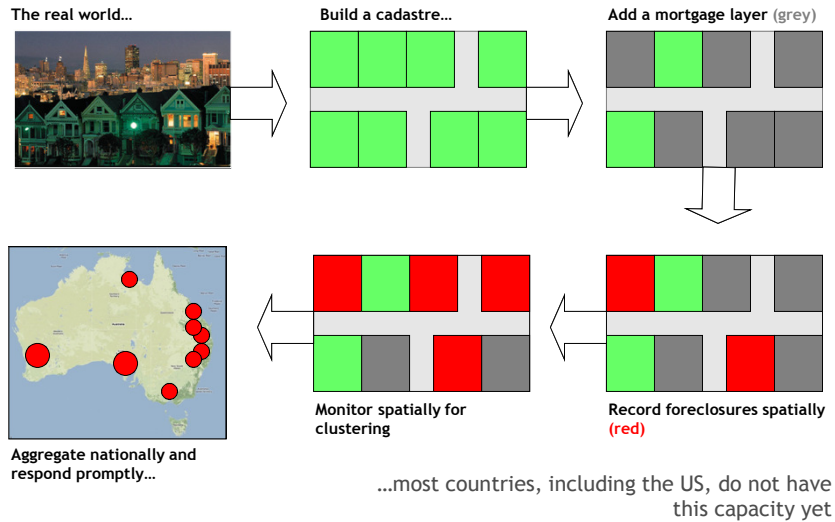
Example of SEG - the big one!

- Would a world's best practice spatially enabled LAS in the USA have lessened the impact of the global economic collapse?
- How can spatial enablement, particularly related to LAS, contribute to ensuring this does not happen again?
- See paper by Buhler and Cowen "The United States Mortgage Crisis and Cadastral Data" at this FIG 2010



Spatial Enablement *in action*

A GFC Early Warning System



...most countries, including the US, do not have this capacity yet

Bennett, R., Rajabifard, A., Williamson, I., (2010*), Drivers for national land administration infrastructures, Land Use Policy, *Under internal review.

Thanks to Donald BUHLER and David COWEN FIG 2010

Michael Howell, Deputy Administrator of the Office of Management and Budget (OMB) and Co-Chair of the Federal Geographic Data Committee (FGDC) Steering Committee, stated during his welcoming statement at the Mortgage Crisis Stakeholders Meeting in May:

*“This meeting is very timely, we are working across governments and with multiple stakeholders to develop effective responses to deal with the distressed housing and mortgage markets. We need to be open to innovative and creative ways to address this complex set of problems and take advantage of new tools and capabilities to develop effective responses. Parcel data is an excellent case in point. I think you will see from some of the examples today **the powerful capabilities that land parcel data can provide when combined with other data sets and analytical tools and technology**”*

(FGDC Cadastral Subcommittee, 2009)



...and again

Karen Siderelis, chair of the FGDC stated in the introduction to the 2009 Annual Report:

“Land parcel data combined with other geographic information are essential to such functions as the management of emergency situations, development of domestic energy resources, management of private and public lands, support of business activities, and monitoring of regulatory compliance. The feature story of this year’s report underscores the need for a coordinated system of land parcel information across the country.”

(FGDC, 2009)

Donald BUHLER and David COWEN, FIG 2010



Example - buying my new home

- Use real estate search engines to locate potential properties
- Search criteria - 1km either side of railway line, suburbs, town house, number of rooms, car parking, closeness to shops, price range
- Search criteria only identified one property
- Used GOOGLE MAPS to look at locality, environment
- Inspected property and bought it.

We now take this for granted



SES reality

- Remarkable as these applications are, spatial technology can be used in much more *dynamic* ways.
- Spatial enablement is not just about using geographic information systems (GIS) technologies.
- Spatial enablement *accelerates* when countries capitalise on the power that is generated from *land information within their LAS and related systems such as street addresses*
- The design of land information systems needs to be sufficiently comprehensive to take spatial enablement into account and managed through a SDI.



SES - fact or fiction?

- Current initiatives in countries worldwide, with literally hundreds of initiatives in Australia at all levels of government
- The Google phenomena
- A national cadastre for the USA - 2008 and the global economic collapse (see paper FIG 2010)
- UN resolution on SEG for member states in Asia and the Pacific - 2007
- GSDI Singapore 2010 - “Realising spatially enabled societies”
- SEG and SES conferences worldwide
- and much more



SES is already happening...

- Ubiquitous mobile phone
- Displaying imagery and maps
 - Content wars: ESRI vs. Google vs. Microsoft
- Showing properties via internet
- Tracking assets and inventory
- In car navigation systems
- Many GIS applications for emergency response, environmental management, planning and local government



International implementation of SES

- *Authoritative registers* (properties, addresses, people, businesses) especially a high integrity geocoded national address file (GNAF)
- Land information becomes a national *commodity* and supports a wider spatial information market place
- Acceptance of the concept of *SEG* and role of *place* as part of whole-of-government *e-strategy*
- Complete up-to-date *property layer* is fundamental to NSDI
- Mapping/GI and LA/cadastral organisations operate as *one*
- *SEG* facilitates *private sector* and wider society
- *R&D, education and capacity building*





17th United Nations RCC-AP, Bangkok, 18-22 September 2006

- Resolution:
SDI to support spatially enabled government
- Recommendation:
 - Member Nations develop a better understanding and pursue the principles of designing SDIs to support spatially enabled government.



Global SES issues

- Need for a national *SES vision*
- A *champion and leadership essential, either at a ministerial level or from influential large government department*
- Importance of *LAS, land parcel and street address information at a national level*
- The role of *SDI in promoting SES*
- How *SES promotes sustainable development*
- Capacity building



Every country has its own journey

But most countries have three key challenges

- *Spatially enabling* key national registers (and making land information a national commodity)
- *Integration* natural (topographic) and built (property or cadastral) data
- *Building the infrastructure* to facilitate spatially enabled government and society



**Remember SES is about
managing information spatially,
not managing spatial information**

Thank you for your attention

