

# Land Administration And Spatial Data Infrastructures

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## Background

- Internationally SDI concept has focussed on National SDIs;
- However, SDIs are increasingly focussing on large scale people relevant data (land parcel based data or build environmental data);
- A central aspect in understanding these developments is the **evolution of mapping, and the growth of land administration systems** and national mapping initiatives in different countries.

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The evolving nature of SDIs away from a simple national concept to a complex hierarchy where large scale SDIs are the major influence.

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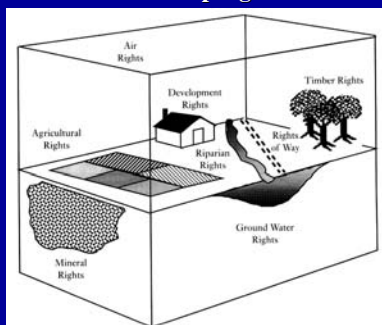


To understand the role of SDIs at a sub-national level (eg. state level) we must understand the relationship between **SDIs and land administration.**

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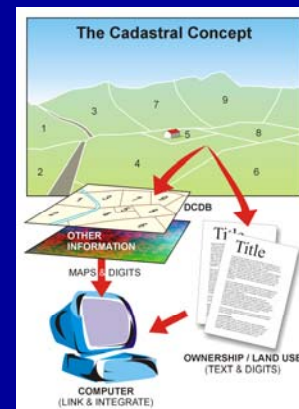


## The cadastral parcel and ownership rights



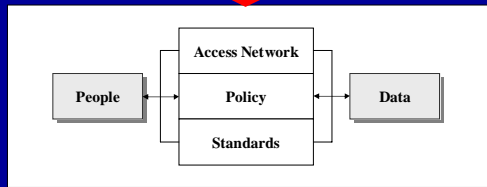
Source: Land Administration (Peter Dale and John McLaughlin)

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## Nature of SDI Components

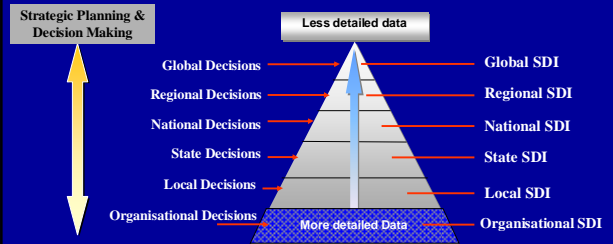
Dynamic



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## Hierarchy of SDI

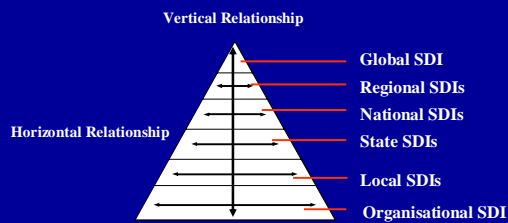


Success depends on cooperation between individuals and agencies

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## Relationships Among Different SDIs



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## Current SDI initiatives

- Global Level - GSDI
- Regional Level (Asia-Pacific, Europe, Americas, Africa)
- National Level (~70 countries)
- State Level (many states world wide – in fact most SDI activity is at this level)
- Local Level (1000s of cities world wide)

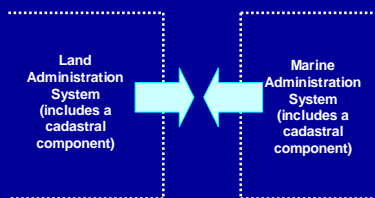
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LAND

SEA

Coastal Zone



**Spatial Data Infrastructure**  
(includes cadastral data)

Administering the Land and Marine Environments  
(Resolution 3 – PCGIA P Workshop on Administering the Marine Environment – Malaysia 2004)

**So what is the link between SDI and land administration?**

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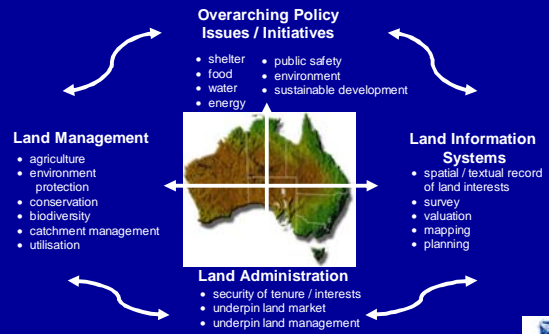
## As an example lets look at Victoria



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## Good information is the bedrock of good decision making and good governance



After DSE, 2004

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## Access to land information

*Remember what the majority of users want – street address and basic cadastral and topographic data*

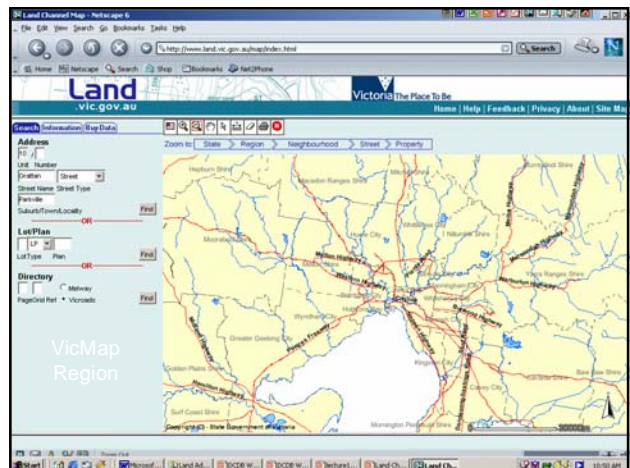
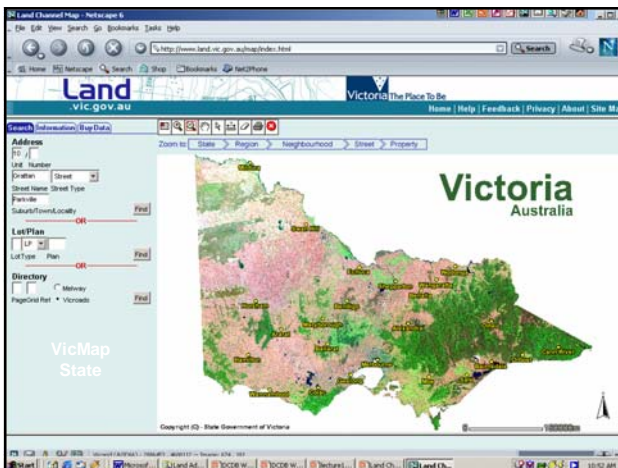
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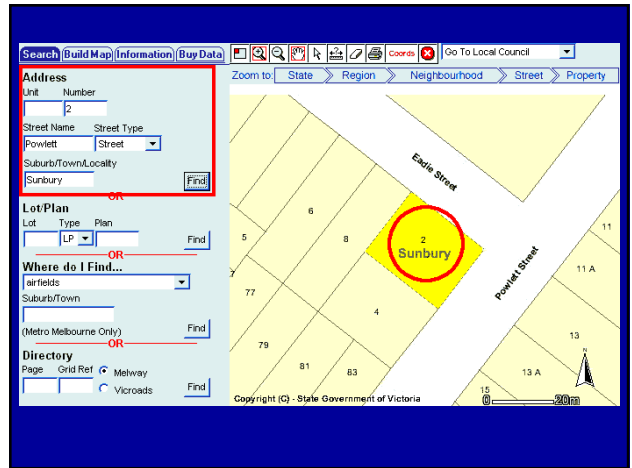
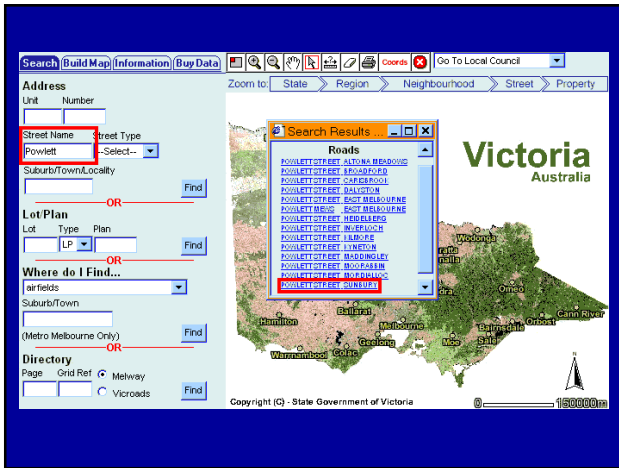
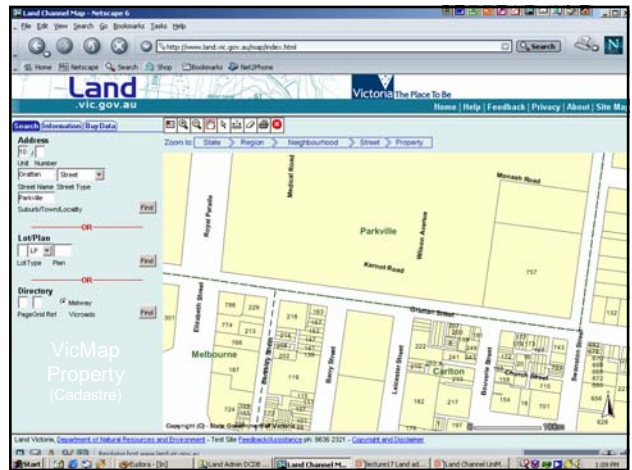
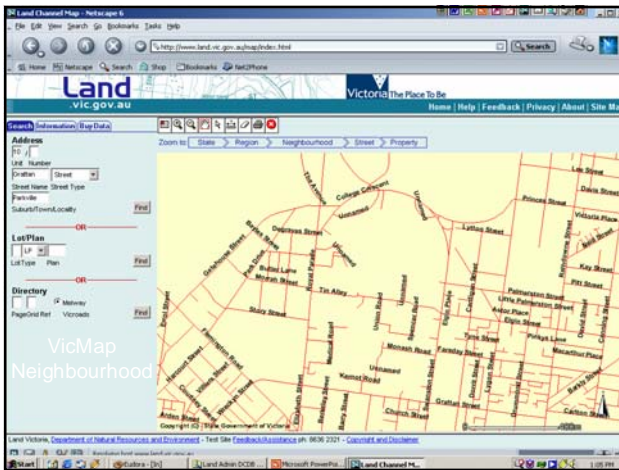


## Access to land information

- Drill down through layers
- Use a street address or parcel identifier

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**Property Information Report**

**Address Details**  
 2 POWLETT STREET SUNBURY VIC  
 Lot and Plan Number: 10 LP7457  
 Standard Parcel Identifier(SPI): 10LP7457  
 Council Property Number: 202912  
 Parish: BUTTLEJORRK

**Dimensions (approximate)**  
 Area: 736 m<sup>2</sup>(approximate)  
 Perimeter: 109 m(approximate)

**Local Government Area**  
 HUME CITY

**State Electorates**  
 Legislative Council: MELBOURNE NORTH  
 Legislative Assembly: TULLAMARINE

**Utilities**  
 Power: SOLARIS  
 Water: WESTERN

*This comes from the land administration system but it requires an SDI component*

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## Now look at SDIs

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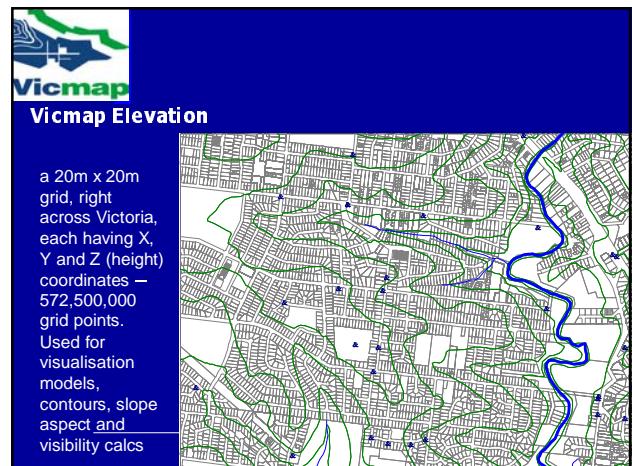
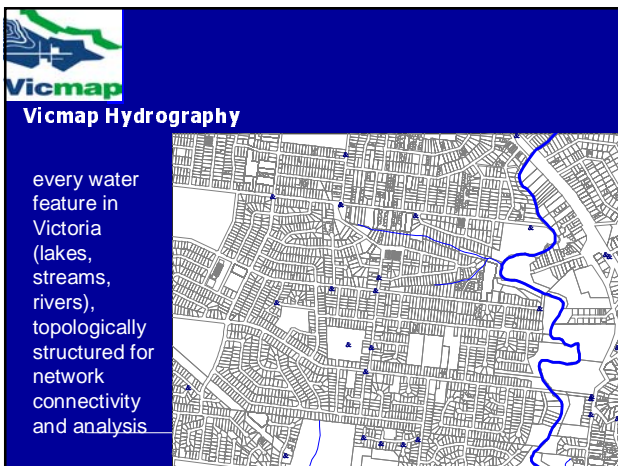
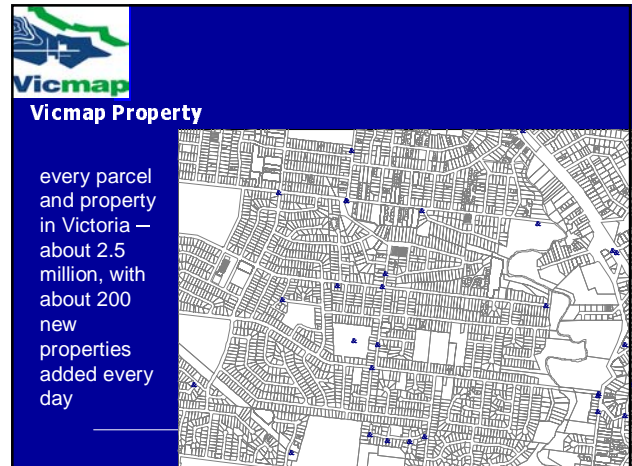


## Spatial information: Vicmap

Vicmap is Victoria's framework information

- GPSnet
- Property
- Address
- Transport
- Administrative boundaries
- Hydrography
- Elevation
- Imagery

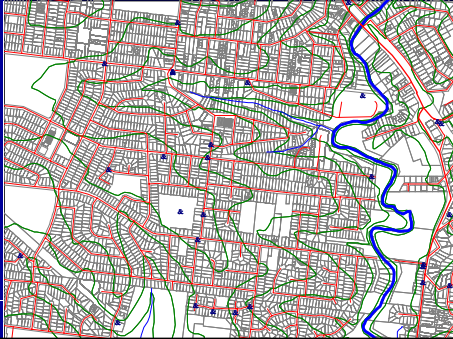
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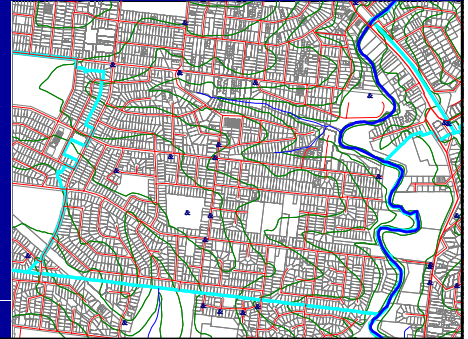
### Vicmap Transport

trafficable roads in Victoria, (about 410,000 km) including 2wd and 4wd tracks, topologically structured for network connectivity and analysis. About 15 new roads are added every day



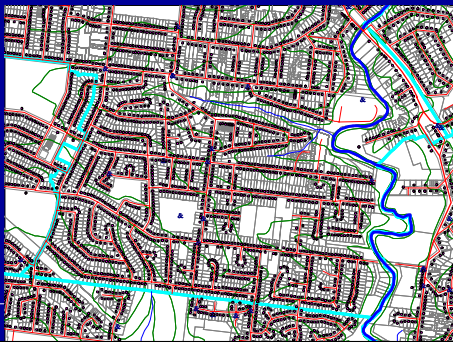
### Vicmap Administrative Boundaries

post codes, localities, local government areas and wards, electoral boundaries, departmental regional boundaries and many service and despatch areas



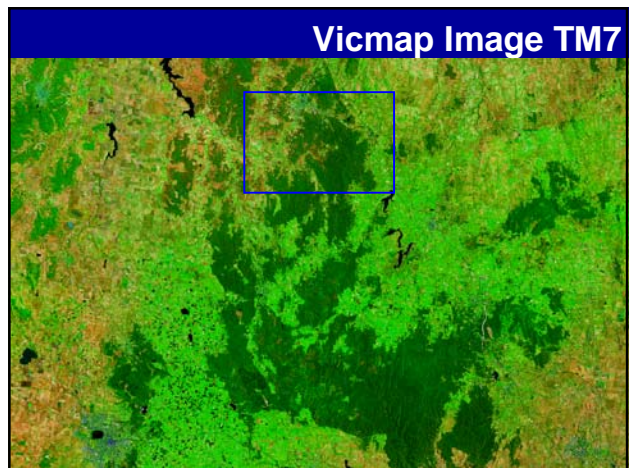
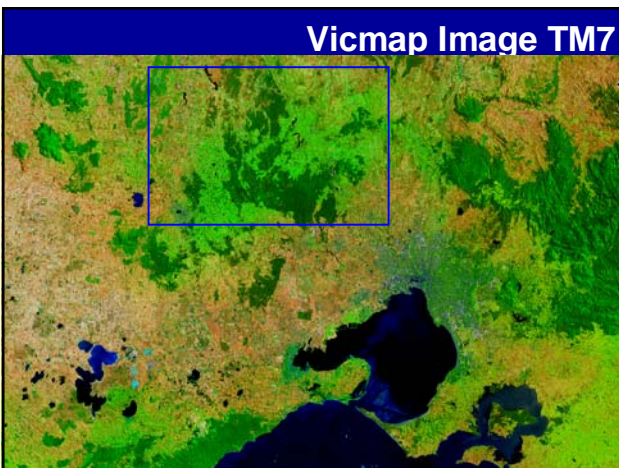
### Vicmap Address

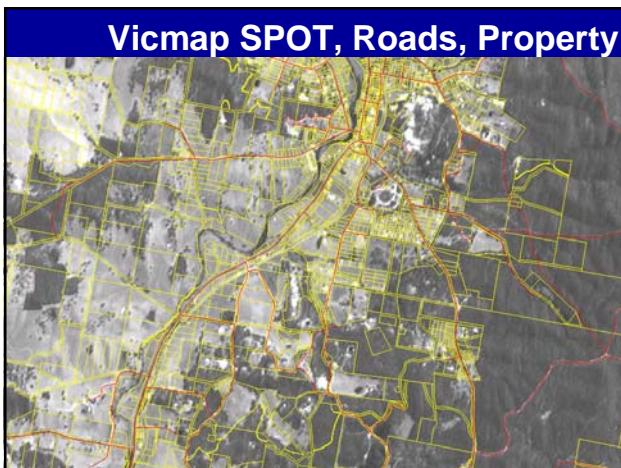
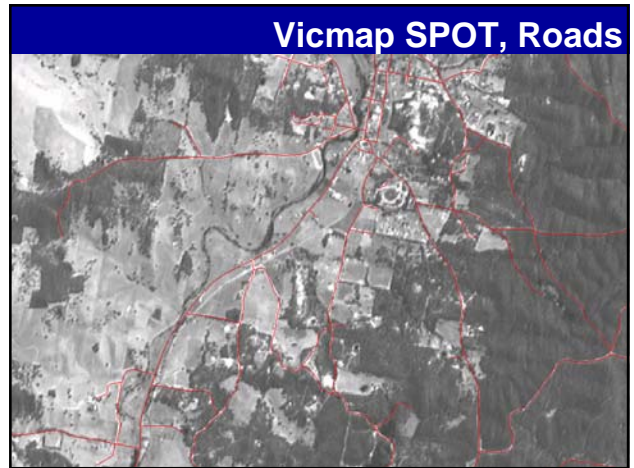
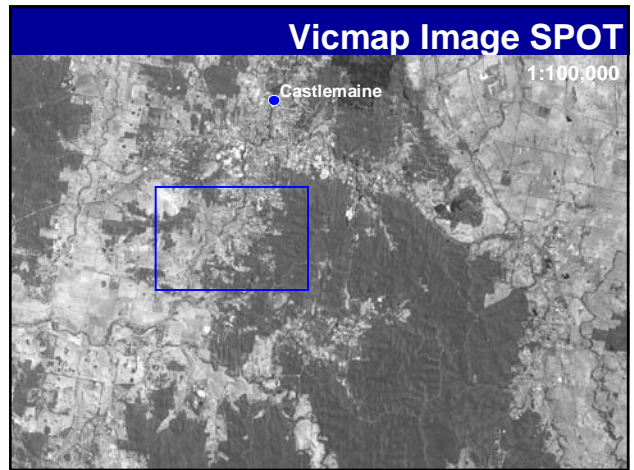
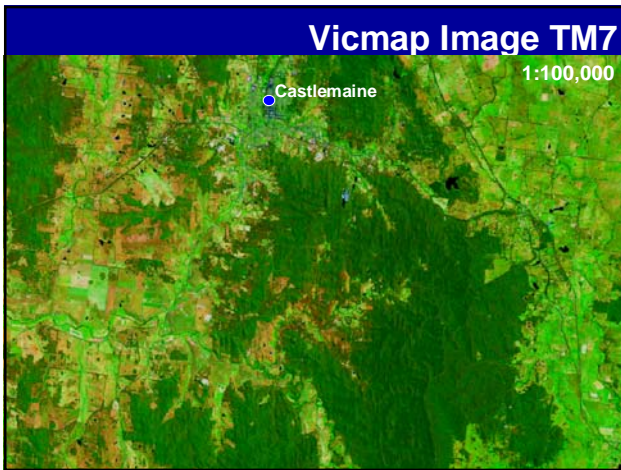
- every property address in Victoria — about 2.5 million, with about 200 new addresses added every day.
- strong cross links and validity checks with postal address (Australia Post)



### Vicmap Imagery


Satellite imagery at a range of scales and resolutions, and a selection (not whole State coverage) of aerial photography





**But this is a state and local government focus,  
what is happening at a national level?**

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**CADLITE**

PSMA

**Statistics & Coverage**

State/Territory	No. of Parcels
ACT	212,000
NSW	12,500,000
NT	100,000
QLD	4,800,000
SA	900,000
TAS	200,000
VIC	12,000,000
WA	2,000,000
Total	34,000,000

**CADLITE Development Features**

- Continuous Access to cadastral mapping data
- Standardised Data
- Standardised Metadata
- Standardised Data Formats
- Standardised Data Access
- Standardised Data Delivery

APPROX.

FORRESTER

**Geocoded National Address File (G-NAF)**  
Courtesy PSMA

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**Mesh Blocks to be tested by ABS for the 2006 Census**

Courtesy ABS

PHILIP SMITH CENTRE  
TAFE  
Domain House Centre

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**“It is the richness of this large scale information and people relevant data which breathe life into SDIs”**

Don Grant in Chapter 7, State SDI Initiatives, “Developing SDIs: from concept to reality”. Taylor and Francis, 2003

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**The challenge is the relationship between Built (cadastral) and Natural (topographic) Environmental Datasets**

**Sustainable Development**

Built Dataset

Natural Dataset

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*As such you cannot separate land administration and SDI*

*Land administration is at the core of sub-national (ie State) SDIs*

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## Conclusion

- The main game for spatial information managers is now the delivery of a **virtual world** which facilitates decision making at a **community** level within a **national** context.
- This requires integration of the **natural** and **built** environmental data sets and the need for a **SDI** that facilitates this integration.

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