



## Key Drivers

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- **Population Growth & Increasing urban complexity;**
- Connected, automated and shared services;
- Digital Economy;
- **Needs and opportunities** in the context of future cities;
- **3D land and property info** to support future planning and management of urban environment (e.g. leveraging BIM, PIM) / **vertical Living;**
- Big Data and cybersecurity;
- Making sense of **smart data**, smart utilities, 4D data.



## Latest Events

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10-14 October



Hosted by  
**its**  
australia  
Intelligent Transport Systems

**SMART FUTURE CITIES**  
The Role of Spatial Data and Urban Analytics

**27-28 September 2016, The  
University of Melbourne,  
Australia**



### Major Outcomes...

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### THE 2030 AGENDA and SDGs

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**NEED FOR LINKS AND SPATIAL RESOURCES**

**BY 2030...**

**“Make cities and human settlements inclusive, safe, resilient and sustainable.”**

**Indicators:**

- Housing and basic services
- Transport systems and road safety
- Inclusive and sustainable urbanisation
- Protect and safeguard cultural and natural heritage
- Reduce impact of disasters; Hyogo framework
- Reduce environmental impact of cities
- Access to green and public spaces
- National and regional planning
- Sustainable and resilient buildings using local materials



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**By 2030...**

**60** % world's population will live in cities

**60** % global GDP

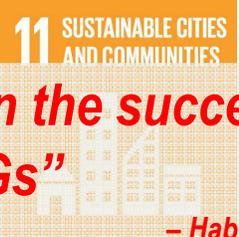
**“Cities will play a key role in the success of achieving SDGs”**

*cities will account for* **600** *trillion USD*

**11 SUSTAINABLE CITIES AND COMMUNITIES**

**– Habitat III**

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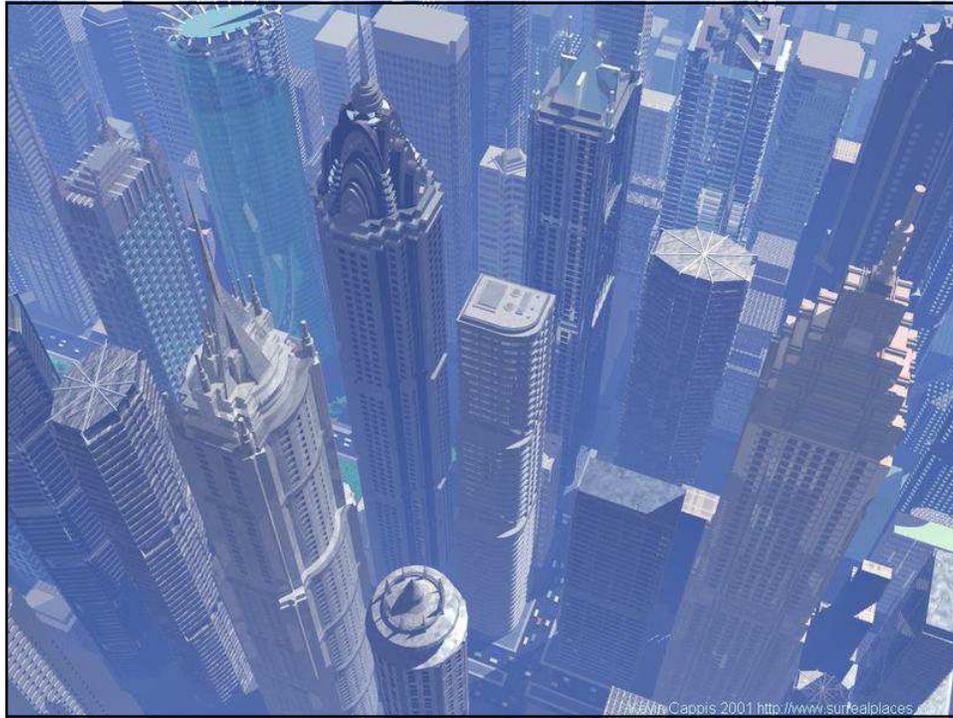



(Adopted from Dobbs et al., 2011; Bouton et al., 2013)

# Urbanisation Trend will Continue

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## Increasing Vertical Development

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*How can we accurately and readily identify all property rights, restrictions and responsibilities?*



The slide features a title 'Increasing Vertical Development' and the CSDILA logo. It includes two images of modern skyscrapers and two images of dense residential buildings. A central text box asks 'How can we accurately and readily identify all property rights, restrictions and responsibilities?'. At the bottom, there are four images: two of modern buildings with curved, tiered facades and two of modern skyscrapers in a city skyline.

## Multi-scale Analytic Platform

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**GIS**



*This requires spatially accurate map-base and cadastre as a foundation.*

City

**BIM+GIS**



**BIM**

Precinct



Building



## Complex Urban Interdependencies

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**CITIES**

- VOLATILITY OF POLITICAL AND BUDGET CYCLES
- URBANISATION
- DIGITAL TRANSFORMATION OF SOCIETY
- REAL TIME
- SENSOR NETWORKS
- BIG DATA
- TECHNOLOGICAL TRENDS
- BUDGET CONSTRAINTS
- AGING POPULATION
- AUGMENTED PUBLIC SERVICES EXPECTATIONS
- GLOBALIZATION
- COMPETITION
- AGING
- OPEN DATA

*Cadastre & SDI – the backbone in efficient urban government and governance.*



## SDI in Support of Smart Cities

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**HYPER-CONNECTED CITIES**

decision-making

*This requires good policies and legal framework as a foundation.*

Building Info, Public Safety, Architecture, Engineering, 3D Cadastres, Spatial Data Infrastructures

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## Why do SDI initiatives need policies?

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People ↔ SDI ↔ Data

**Heterogeneous Environment**

- **Multiple stakeholders**
  - Technical issues: lack of data standards, metadata, search engines, communication network/bandwidth
- **Multiple drivers for action**
  - Economic/financial issues: cost savings
  - Social/institutional/organisational issues: awareness, education, pricing, security, freedom of access
- **Not necessarily a good outcome for all**
  - sensitive data, intellectual property

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## Challenge of Collective Action

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### *SDI as a public problem*

- What is the problem?
  - When to act?
  - Who should act?
  - How to act?
  - Social benefits vs. Private costs
  - Multilateral commitment
  - Achieving agreement in general
- 
- **Decision-making**
  - **Public vs. private interests**
  - **Markets/market failure**
  - **Politics**

**SDI requires good (public) policies.**



**What is the public interest in SDIs?**  
**Should governments get involved?**  
**What is the downside of government intervention?**

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**Policy** is dependent on  
**culture** and **institutions**.

Social groups and society at large  
are kept together through **culture**  
and **institutions**.

  
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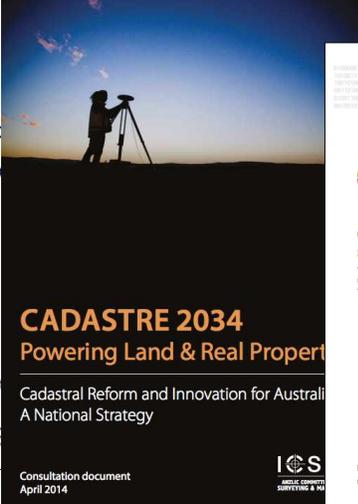
**Policy**

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Victorian Spatial Information Strategy

Victorian Spatial Information Strategy

The Victorian Spatial Council supports the achievement of Victoria's social, economic and environmental goals through the provision and application of spatial information. It does this by providing a coordinated approach to spatial information policy, development and management, and by providing opportunities for greater partnership building, collaboration, cooperation and education.



**CADASTRE 2034**  
Powering Land & Real Property

Cadastral Reform and Innovation for Australia  
A National Strategy

Consultation document  
April 2014

 ICS  
INTEGRATED CADASTRAL  
SURVEYING & MAPPING



 ANZLIC  
ANZ Spatial Information Council

**ONE ANZ FOUNDATION  
SPATIAL DATA FRAMEWORK**

MAKING COMMON FOUNDATION SPATIAL DATA USABLE  
ACROSS AUSTRALIA AND NEW ZEALAND

(FOR CONSULTATION)  
NOVEMBER 2012

  
MELBOURNE

## Regulative Pressure

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# PLANMELBOURNE

METROPOLITAN PLANNING STRATEGY

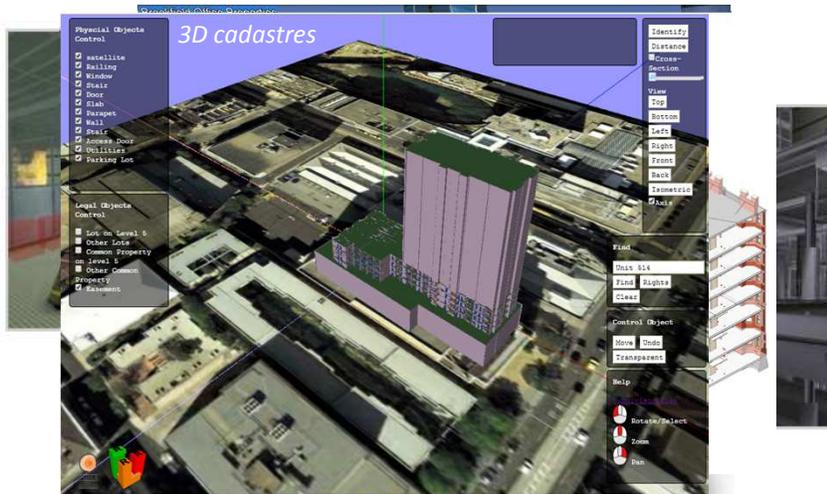
“Over the next 30-40 years, it is estimated that Melbourne may require about one million more homes to meet the housing needs from population increase and from fewer people living in each home.”



## Normative Pressures

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### 3D as a new reality



<http://www.mds-bos.com/services/building-information-modeling/>

you can get it from here!

it's offering more properties



## Key SDI Policy Issues

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### Legal aspects

- Liability (eg. for incomplete or incorrect spatial data and information)
- Accessibility
- Privacy
- Protection of Investments (eg. copyright)
- Transparency of Administration
- Discrimination to buyers
- Pricing
- Selling to third parties (Forbidden by contracts/Royalties)
- Commercialisation of public information



## Legal Questions to be considered...

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- What are the legislative conditions related to a data set
- What are related legal instruments?
- Is data affected by private rights (contract or property)?
- Does legal nature of data change when publication or a mix of sets occurs?
- Who bears risk of error, mismanagement, security breach?
- Can risks be eliminated? By what techniques?
- What are -
  - ✓ Appropriate financial instruments, corporate structures,
  - ✓ public, private, PPP?
  - ✓ appropriate information restrictions (privacy, contract, commercial in confidence etc)?
  - ✓ Secrecy and access clearances?



# SDI Governance

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## An interaction of

**Institutional dimension**  
**DECISIONS (Who?)**

**POLICIES AND AGREEMENTS (What?)**

**Operational (technical) dimension**  
**PROCESSES (How?)**

**What** decisions must be made for effective management?  
**Who** will make those decision?  
**How** will decisions will be agreed, implemented, documented & managed?

Adapted from [Oracle SOA Governance White paper]

# THANK YOU

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