



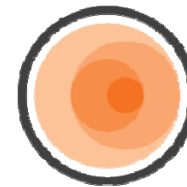
# A roadmap to accomplish 3D cadastres



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4th International 3D Cadastres Workshop  
November, 2014, Dubai

Mohsen Kalantari, Abbas Rajabifard



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DATA INFRASTRUCTURES  
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# Today's presentation

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- Why should we care about 3D Cadastres?
- What is happening with 3D?
- Where to from here?



Land and Property  
Information in 3D



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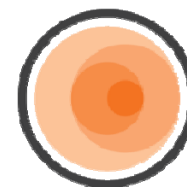
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# Why should we care about 3D Cadastrals ?



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# Complex urban structures

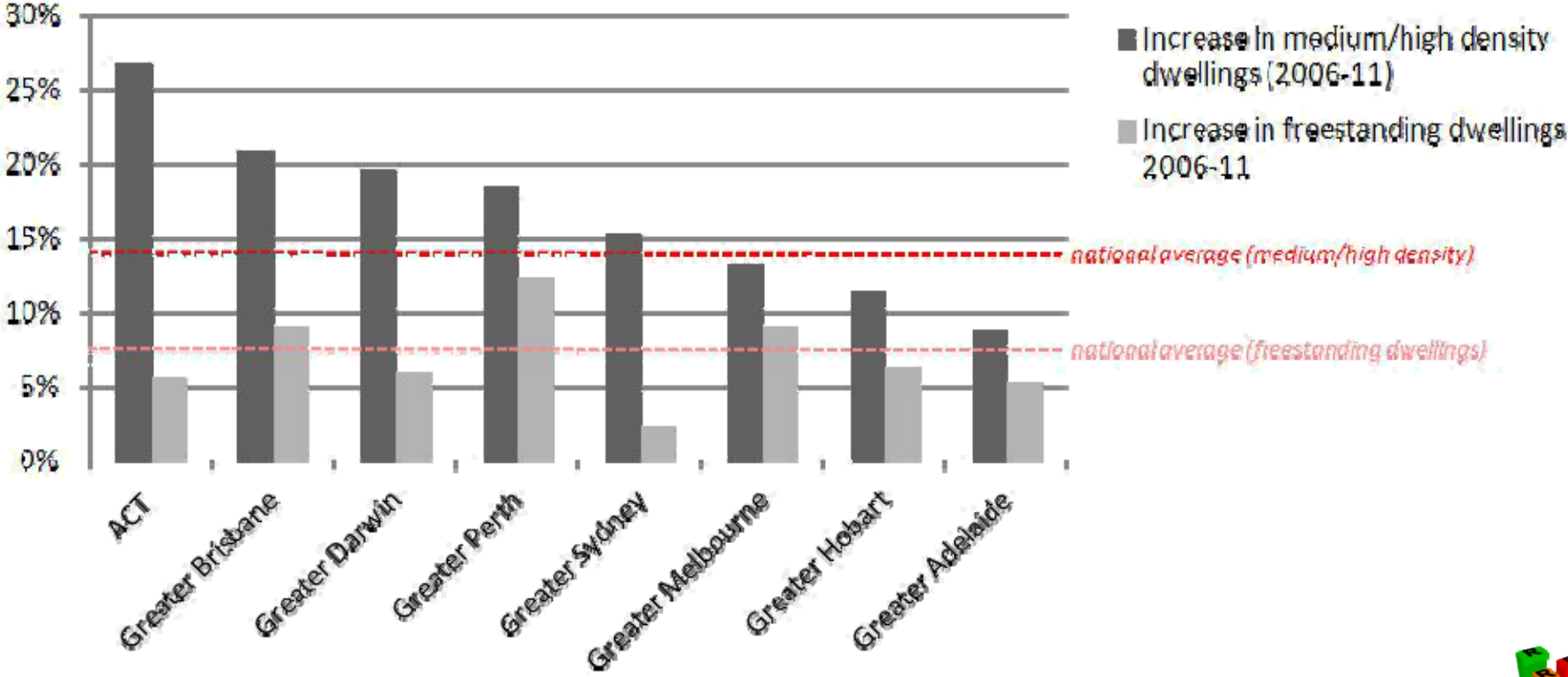
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# Trends in high-density living



## Development density trends in Australia (2006-11)



**Approximately 3.5 million Australians now live in multi-unit housing**

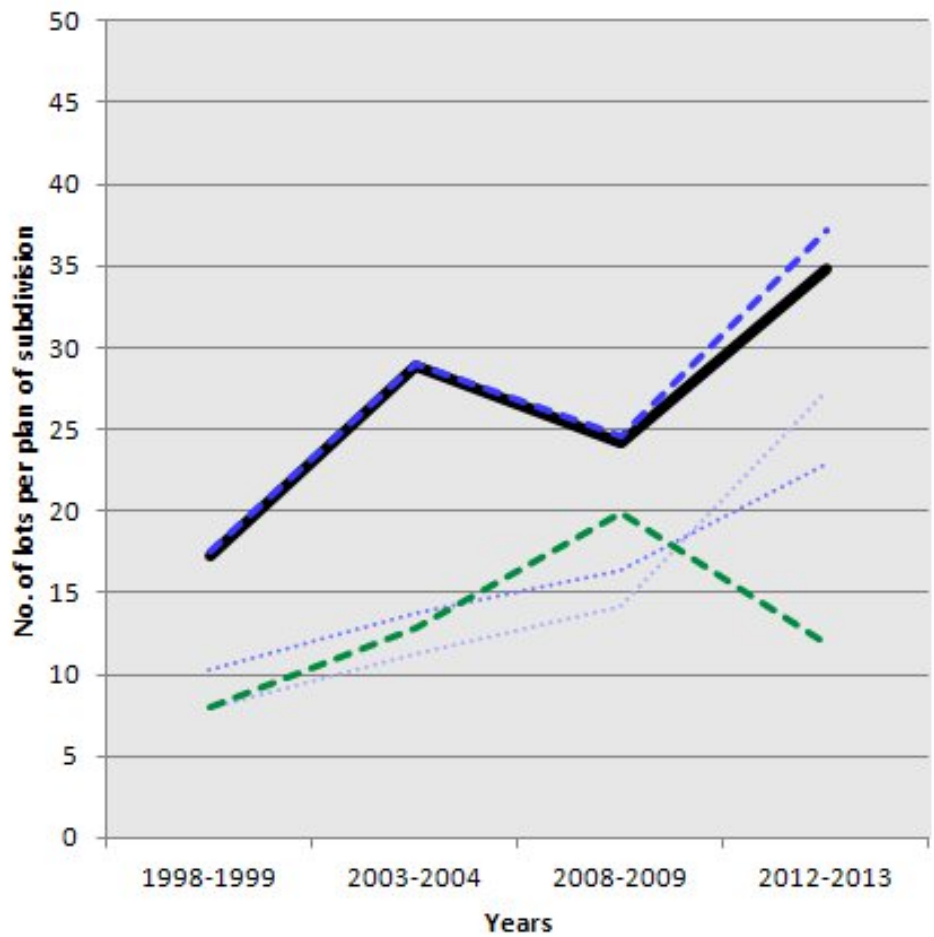


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# Vertical subdivision trends: VIC



In 2012-13, approx. 57000 lots were registered of which 15000 were multi-storey lots

- Average productivity for multi-storeyed subdivisions
- - - Average productivity for metro multi-storeyed subdivisions
- ..... Average productivity for inner metro subdivisions
- ..... Average productivity for outer metro subdivisions
- - - Average productivity for regional multi-storeyed subdivisions



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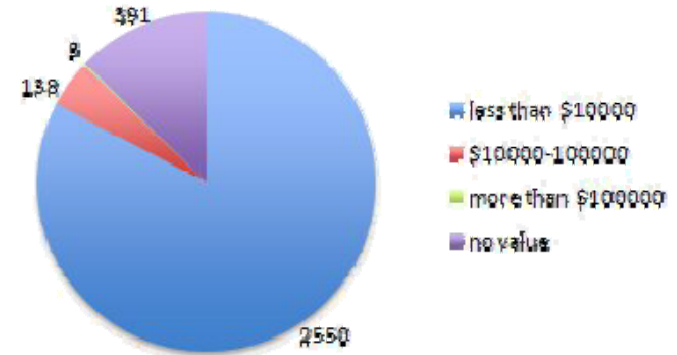
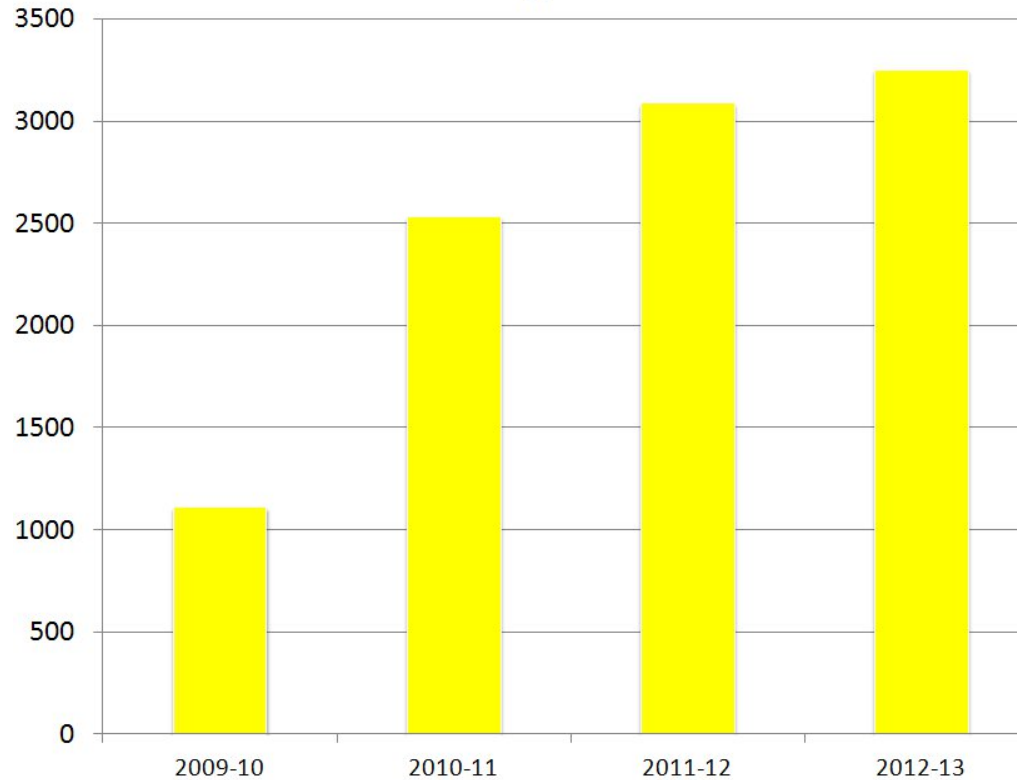
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# Increasing disputes

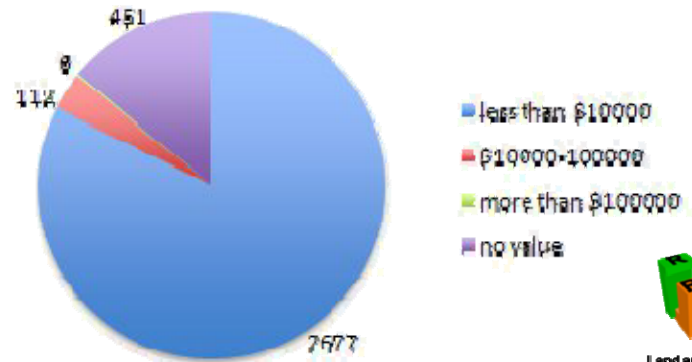


2011-12

VCAT OC Applications



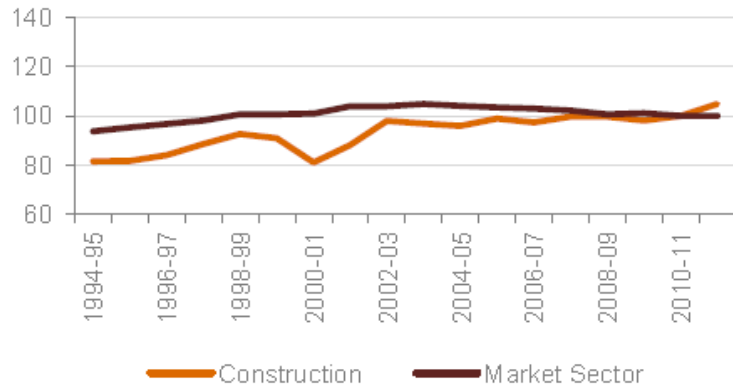
2012-13



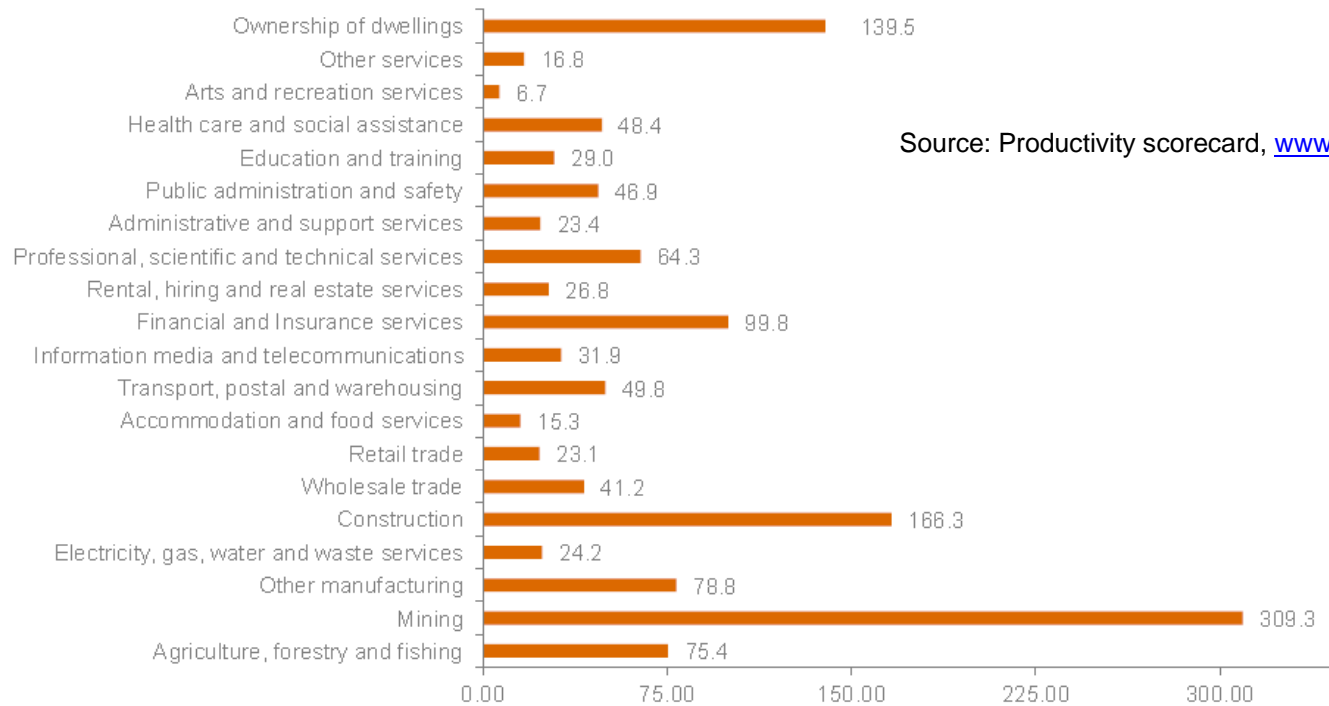
Approx. 80% per year are related to fee recovery



# Productivity



## Residential



Source: Productivity scorecard, [www.pwc.com.au](http://www.pwc.com.au), Oct 2013



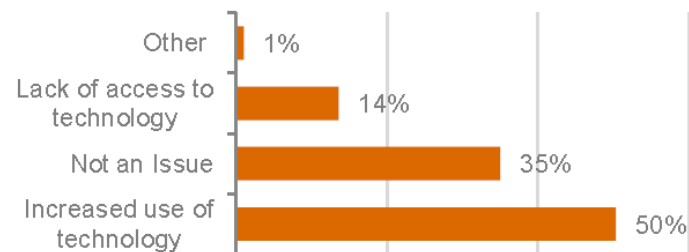
# What are the problems?



1. Lack of integration along the supply chain linking parties, and between the project phases
2. Lowest bid selection strategy rather than value for money
3. Poor understanding of optimised and properly documented designs
4. Inadequate/ineffective use of technology in design; and
5. Lack of appreciation of the benefits of open communication

Engineers Australia 2005, Getting it Right The First Time: A Plan to Reverse the Declining Standards in Project Design Documentation within the Building and Construction Industry

## Technology concerns



Source: Productivity scorecard, [www.pwc.com.au](http://www.pwc.com.au), Oct 2013

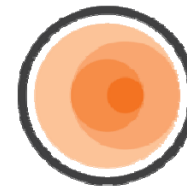




# What is happening with 3D information?



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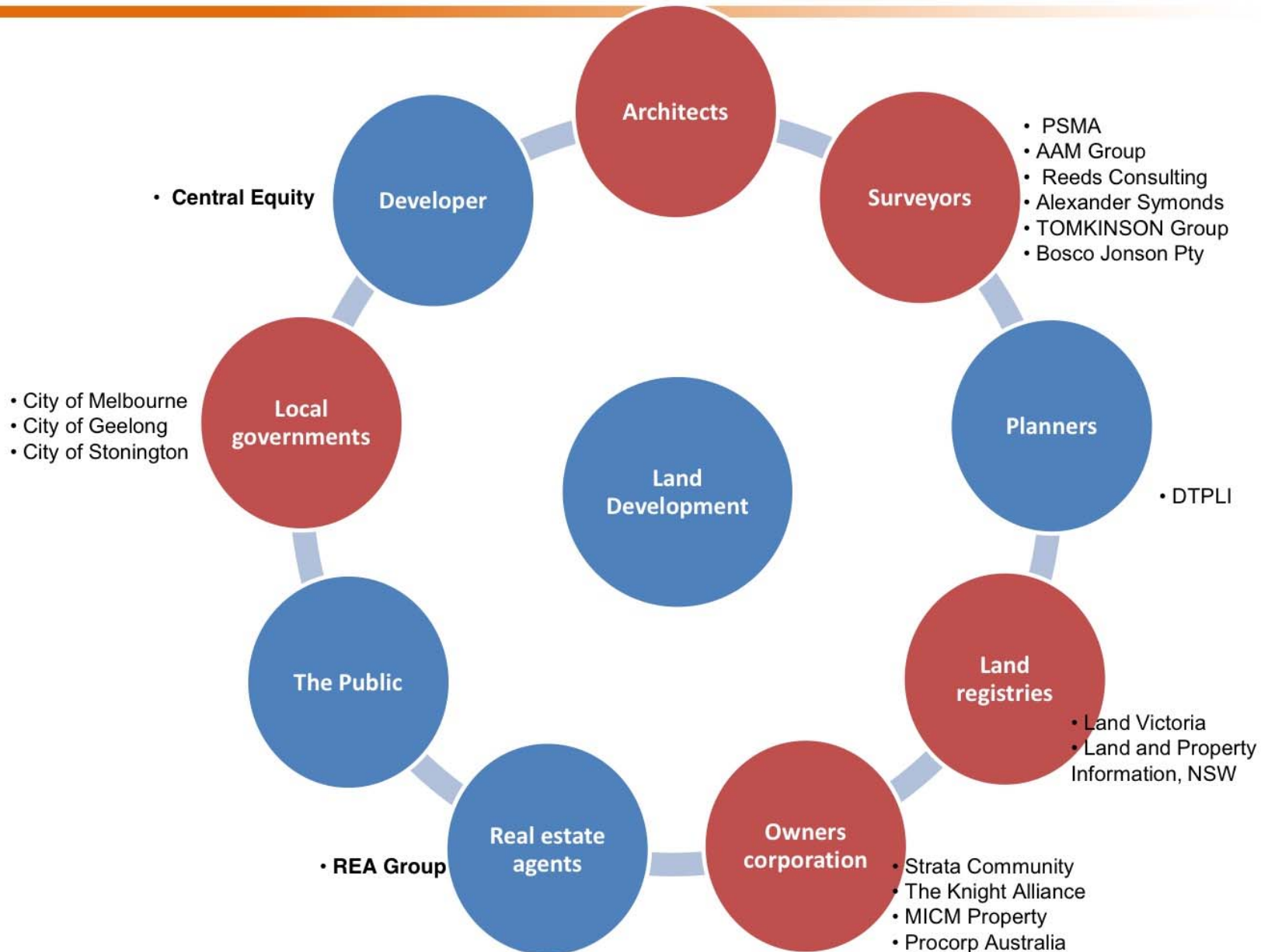


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# Land development

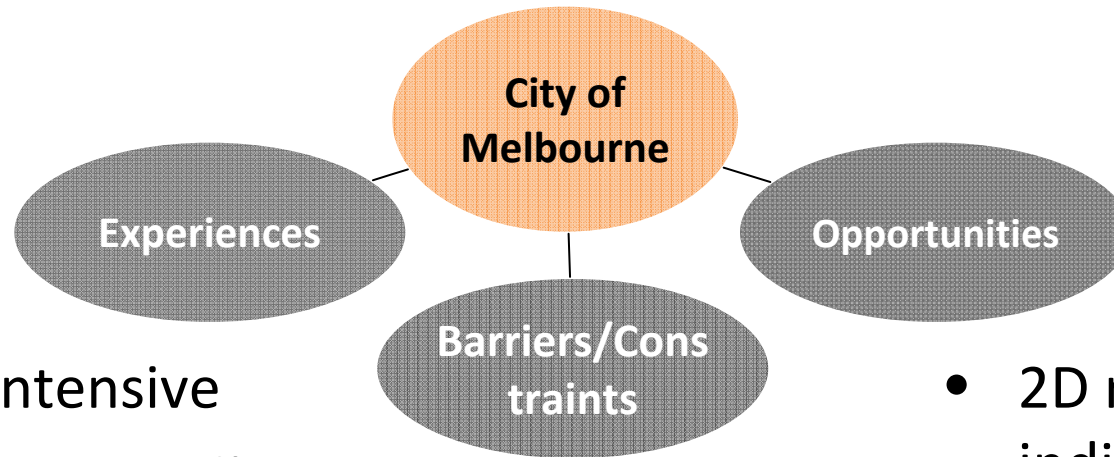


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# Institutional issues



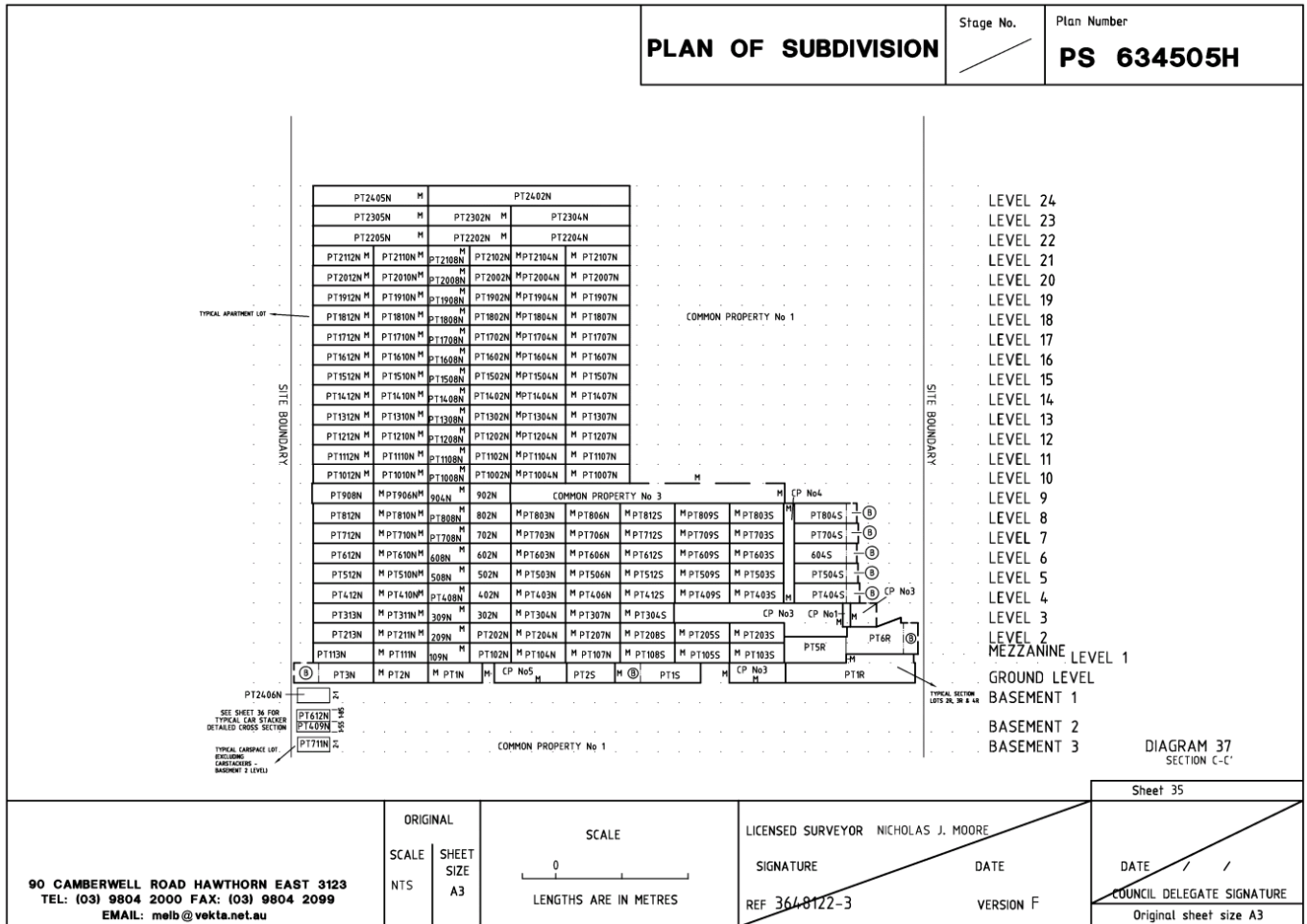
- Resource-intensive
  - Relies on individual's skill and ability
  - Frustrating
  - Complex
  - Doesn't quite meet community's needs
- Directed by legislation
  - Industry demographics
  - The process **mostly** works...
  - Strategic actor?
- 2D relies heavily on individual skill and abilities



# Where are we at?



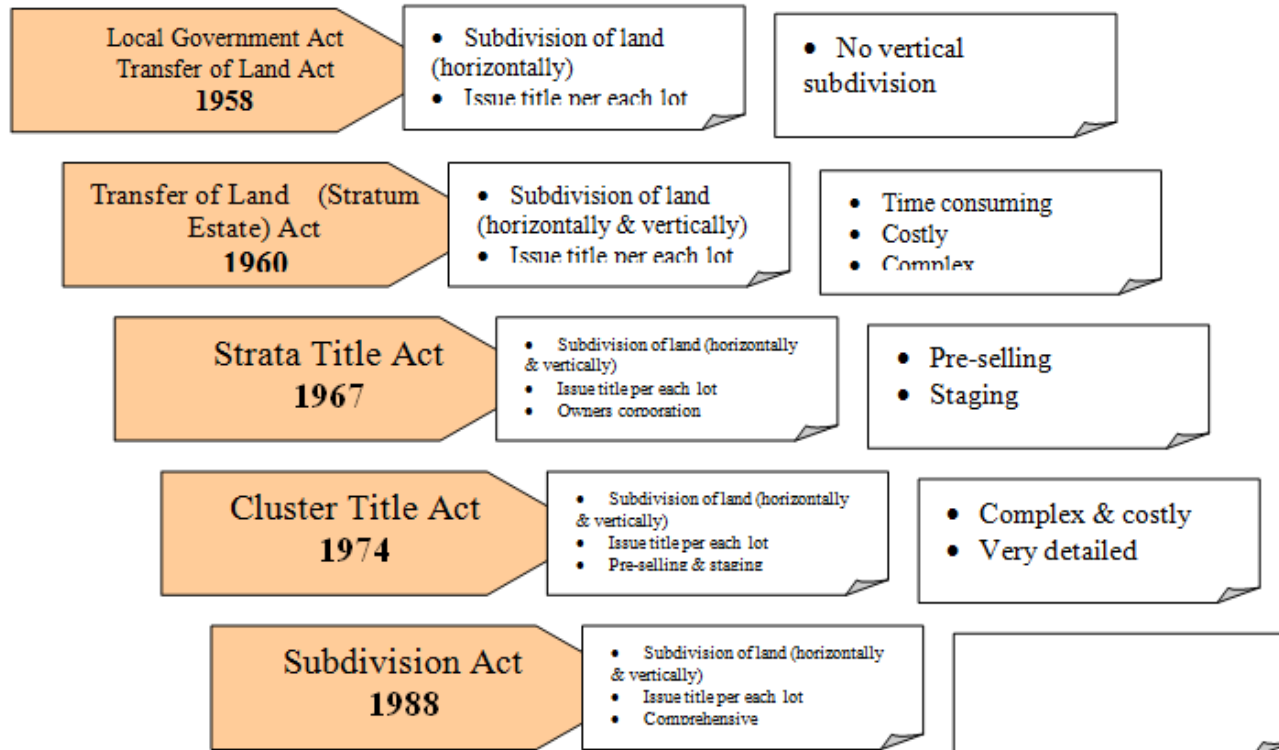
- An analogue 3D-Cadastre



# Where are we at?



- Legislative support for above and underground tenure arrangements and digital data



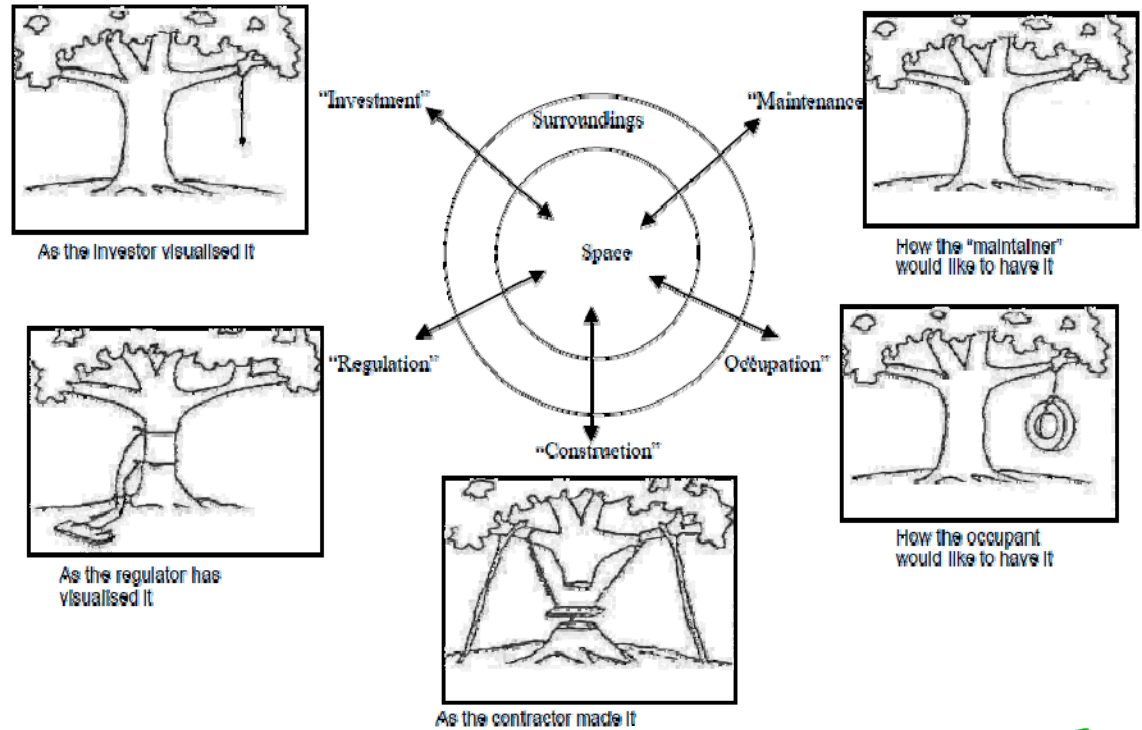
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# Where are we at?

- Resistance to institutional changes
- Community expectation are not fully understood
- Benefits of cross disciplinary interaction not realised nor acknowledged



Pinch and Bijker, 1984; BSRIA 1994 in Bluysen 2009; Wajcman, 2000

# Where are we at?

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- Facilitating technologies
  - Electronic survey/subdivision plans (ePlan)
  - Building Information Model
  - 3D data collection methods
  - Online visualisation



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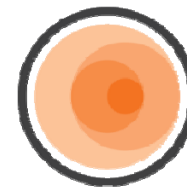




# Where to from here?



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# Enablers

- Limit the scope to complex urban and multi-storey built environments



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# Enablers



- Institutional changes
  - Leadership
  - Extending the role of surveying industry in the architecture, engineering and construction
  - Investing on in-depth understanding of the community expectation
    - e.g. owners corporation
  - Capacity building
    - Extending current higher education curriculum
    - Extending current ePlan training programs
    - Raising awareness about BIM

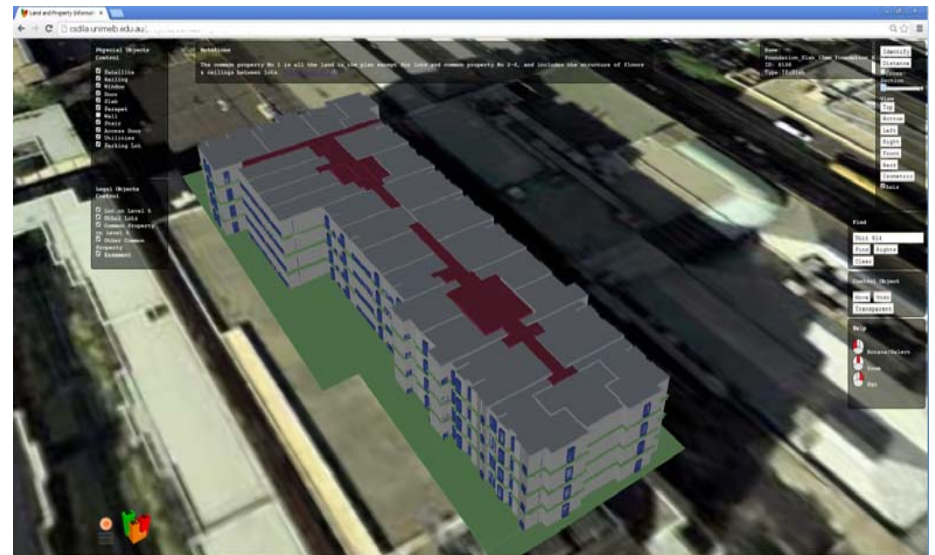


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# Enablers

- Facilitating technologies
  - Extending ePlan capabilities
  - Engagement in the international initiatives e.g. InfraGML, BIM
  - Extending/further R&D on the technical infrastructures e.g. data models, visualisation services, databases, delivery mechanism, data validation

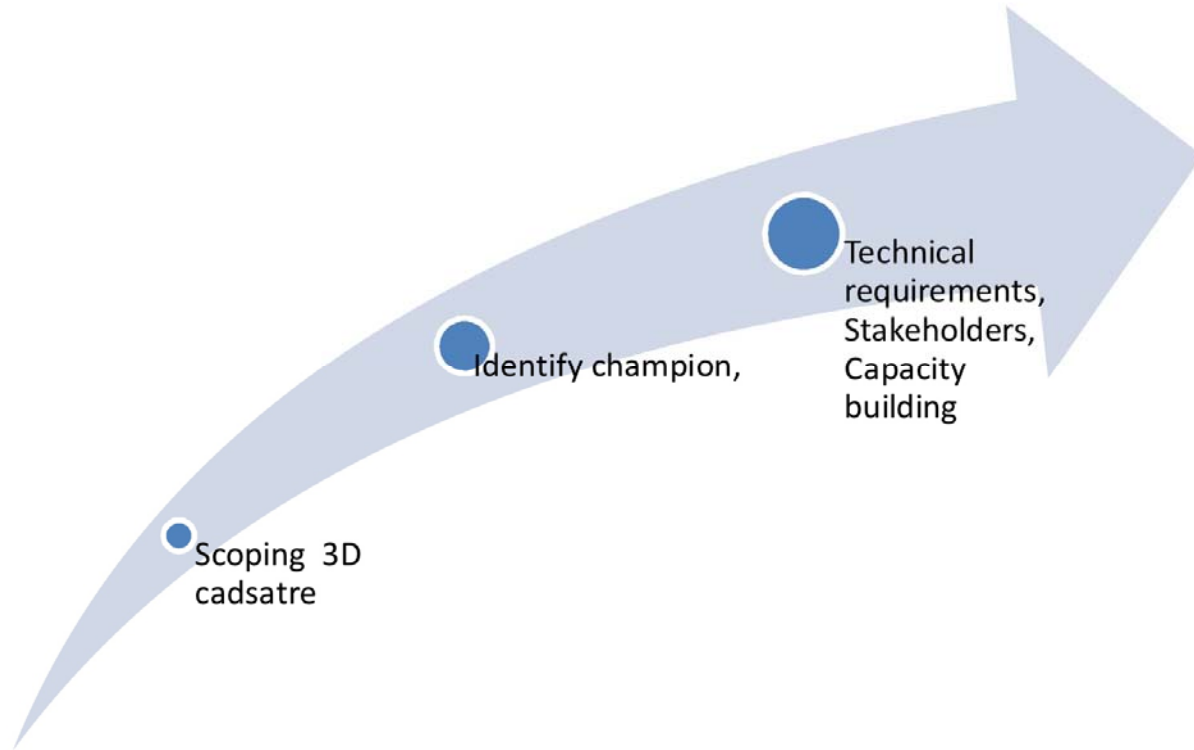


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# Roadmap



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# Acknowledgements

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**Australian Government**  
**Australian Research Council**



**Department of  
Transport, Planning and  
Local Infrastructure**



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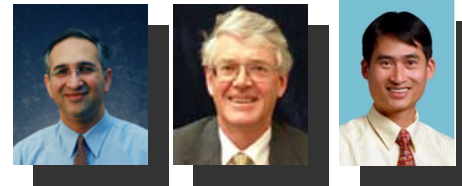


# Acknowledgements



- Chief Investigators

- Prof. Abbas Rajabifard (Project Leader)
- Prof. Ian Williamson
- Dr Tuan Ngo



- Researchers

- Dr Mohsen Kalantari (Lead Researcher and Coordinator)
- Prof. Ian Bishop
- Dr Ida Jazayeri (RF)
- Mr. Brian Marwick (SRA)
- Dr. Malcom Park



- Postgraduate Scholars

- Mr. Ali Aien
- Mr. Davood Shojaei
- Ms. Serene Ho
- Mr. Sam Amirebrahimi
- Mr. Behnam Atazadeh
- Dr Zhixuan Yang
- Ms Mary Lin



... and other members of CSDILA and the Department of Infrastructure Engineering

