



THE UNIVERSITY OF
MELBOURNE

Cadastral Futures

building a new vision for the nature and role of
cadastres


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Introduction

- In the final decades of the 20th century cadastral systems were revolutionized
- To remain relevant cadastral science must continue to look to the future
- This paper aims to begin a dialogue on the nature and role of future cadastres



Multipurpose Cadastre


FIG Statement on the Cadastre

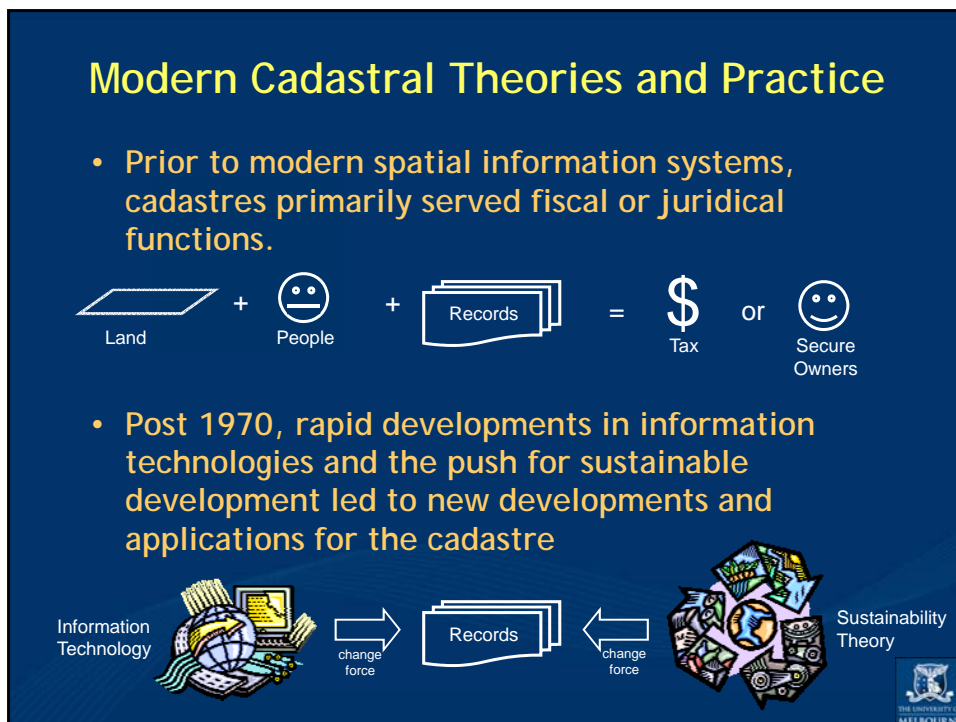
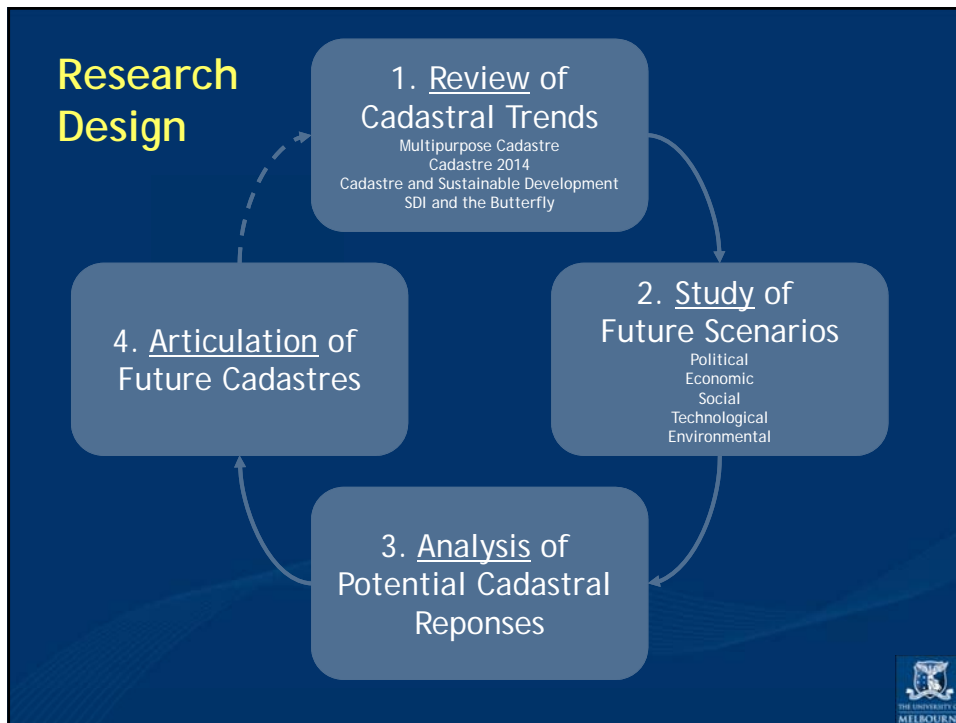
Bogor & Bathurst Declarations

Cadastre 2014

Land Management paradigm

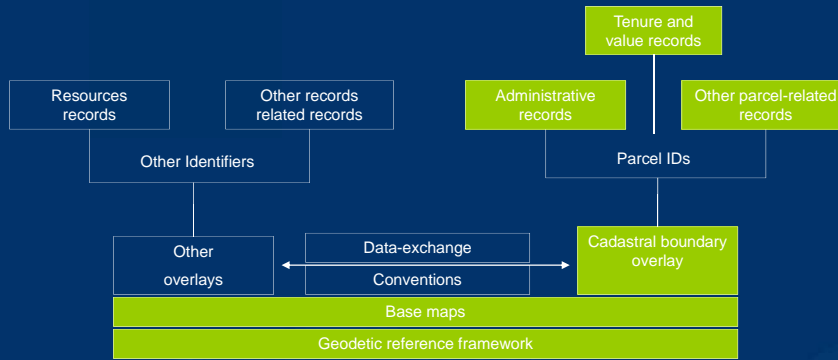
Land Administration Domain Model





Modern Cadastral Theories and Practice

- The Multipurpose Cadastre



Source: National Research Council 1980



Modern Cadastral Theories and Practice

- Land Administration and Sustainable Development



Modern Cadastral Theories and Practice

• Cadastre 2014

Statement 1 on Cadastre 2014
 Cadastre 2014 will show the complete legal situation of land, including public rights and restrictions.
 Comment: The possibility of the work is growing. This is supported by a growing number of countries that are already applying restricted to some extent. To provide clarity of the system, it will be used and will be implemented by the cadastral system in the future.
 Consequences: A decision to build a cadastre cannot be taken without a clear decision on the system.

Statement 2 on Cadastre 2014
 The relationship between legal and cadastral will be addressed.
 Comment: The role of the cadastral system is to provide a clear and consistent view of the legal situation of land.

Statement 3 on Cadastre 2014
 The Cadastral mapping will be based on long term modelling.
 Comment: Most have been done, but the cadastral system is not yet fully operational. To ensure a long term future, it is necessary to develop a long term model. This model will be based on the long term needs of the cadastral system.

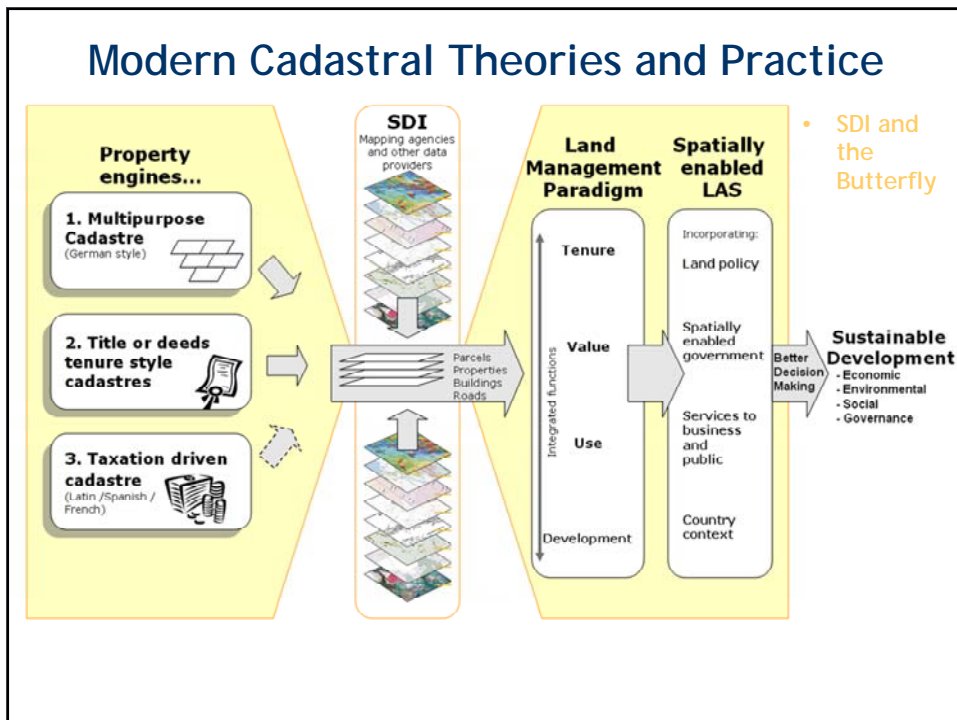
Statement 4 on Cadastre 2014
 Paper and pencil - cadastre will have gone!
 Comment: The use of paper and pencil is a thing of the past. The use of digital technology is the future. The use of digital technology will be the key to the success of the cadastral system.

Statement 5 on Cadastre 2014
 Cadastre 2014 will be tightly integrated Public and private sector are working closely together!
 Comment: Public and private sector are working closely together. This is a key to the success of the cadastral system. The use of digital technology is the future. The use of digital technology will be the key to the success of the cadastral system.

Statement 6 on Cadastre 2014
 Cadastre 2014 will be based on the use of digital technology.
 Comment: The use of digital technology is the future. The use of digital technology will be the key to the success of the cadastral system.

Statement 7 on Cadastre 2014
 Cadastre 2014 will be based on the use of digital technology.
 Comment: The use of digital technology is the future. The use of digital technology will be the key to the success of the cadastral system.

Modern Cadastral Theories and Practice



• SDI and the Butterfly

Contemporary drivers for the cadastre

- Political and Legal Drivers

- Global Financial Crisis
- Sustainability and Climate Change



Contemporary drivers for the cadastre

- Environmental Drivers

- Extreme weather events
- Sea-level rises



Contemporary drivers for the cadastre

- Technological Drivers
 - Integration of CAD and GIS
 - 3D Visualization
 - Wireless Sensor Networks
 - GNSS
 - Volunteered Data



Contemporary drivers for the cadastre

- Socio-economic Drivers
 - Urbanization of the population
 - Globalization



Future Cadastres

- Survey-Accurate Cadastres



Future Cadastres

- Object-Oriented Cadastres



Future Cadastres

- 3D/4D Cadastres



Future Cadastres

- Real-Time Cadastres



Update takes weeks / months

Update is instantaneous



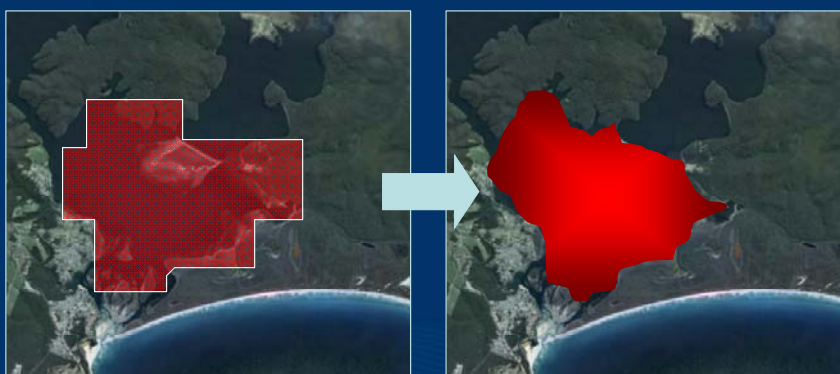
Future Cadastres

- Global or Regional Cadastres



Future Cadastres

- Organic Cadastres



Conclusions

- The drivers for change are clear
 - Urbanization, globalization, climate-change, good governance, environmental management, disaster management, technology
- FIG Commission 7 provides an ideal vehicle for building and testing a new cadastral vision
 - History of achievement, capacity in place
- The aim was to begin analysis and provide insights
 - Survey-Accuracy, Object-Oriented Cadastres, 3D/4D Cadastres, Real-Time Cadastres, Global Cadastres, and Organic Cadastres
- This is just a starting point...



Acknowledgements

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