



A PhD Workshop on
Sharing SDI Research Approaches

FACILITATING SUSTAINABLE CATCHMENT MANAGEMENT THROUGH SPATIAL DATA INFRASTRUCTURE DESIGN AND DEVELOPMENT

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Outline of Presentation



- Background
- Research Hypothesis and Aim
- Research Objectives
- Research Design
- Study Area and Data Analysis
- Outcomes
- Key Message

Background

Catchment management issues are characterised by multiple stakeholders and multiple goals



- Spatial data can assist for many catchment decisions
- The access and use of spatial information for NRM sector is problematic
- NRM groups are also collecting a significant amount of spatial information

Photo Source: A/Prof. Kevin McDougall and Internet

Research Hypothesis and Aim



■ Research Hypothesis

- “An appropriately designed SDI model will improve the spatial information access, sharing and use between government agencies and NRM groups/CMAs and hence promote sustainable catchment management outcomes”.

■ Research Aim

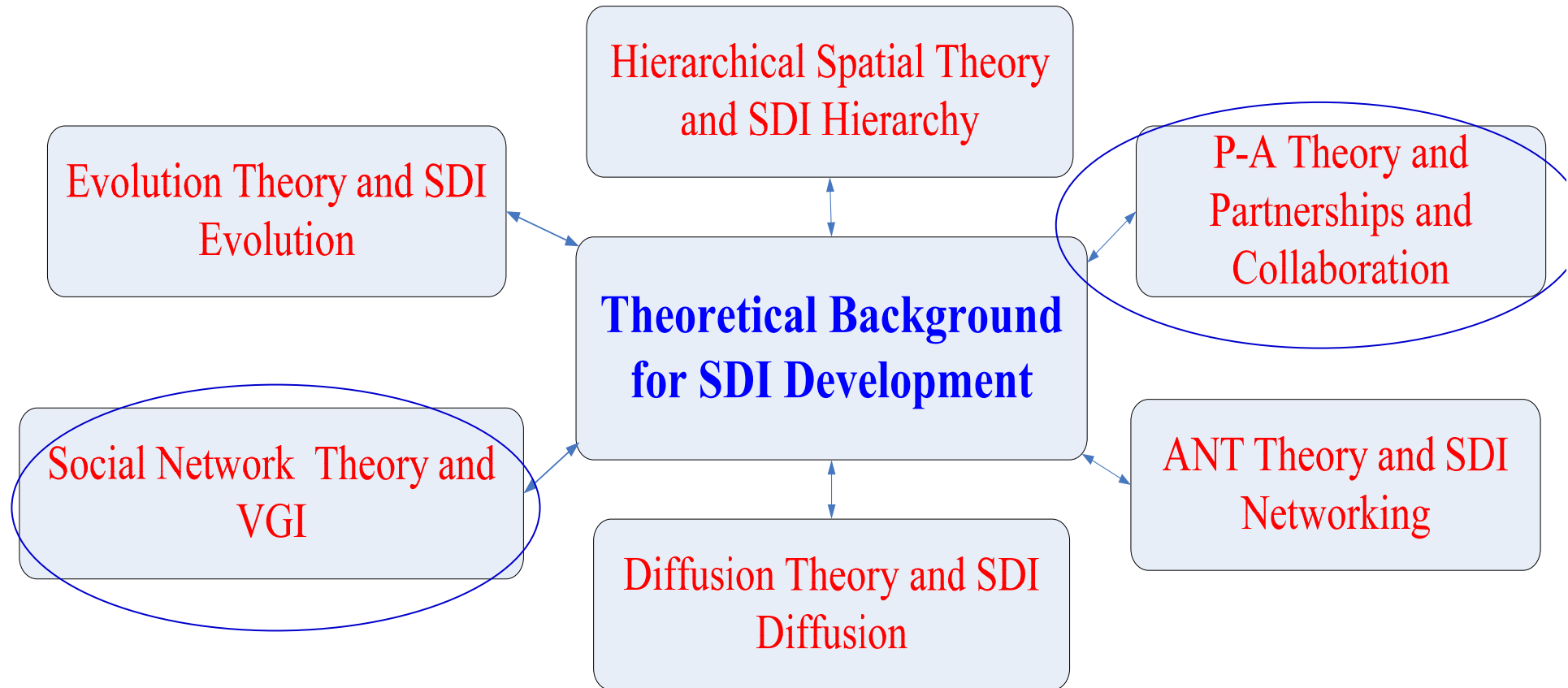
- To explore a SDI model/framework which more effectively supports the access, sharing and use of spatial information between different government agencies and NRM groups/CMAs and hence contribute to multi-level SDI development.

Research Objectives

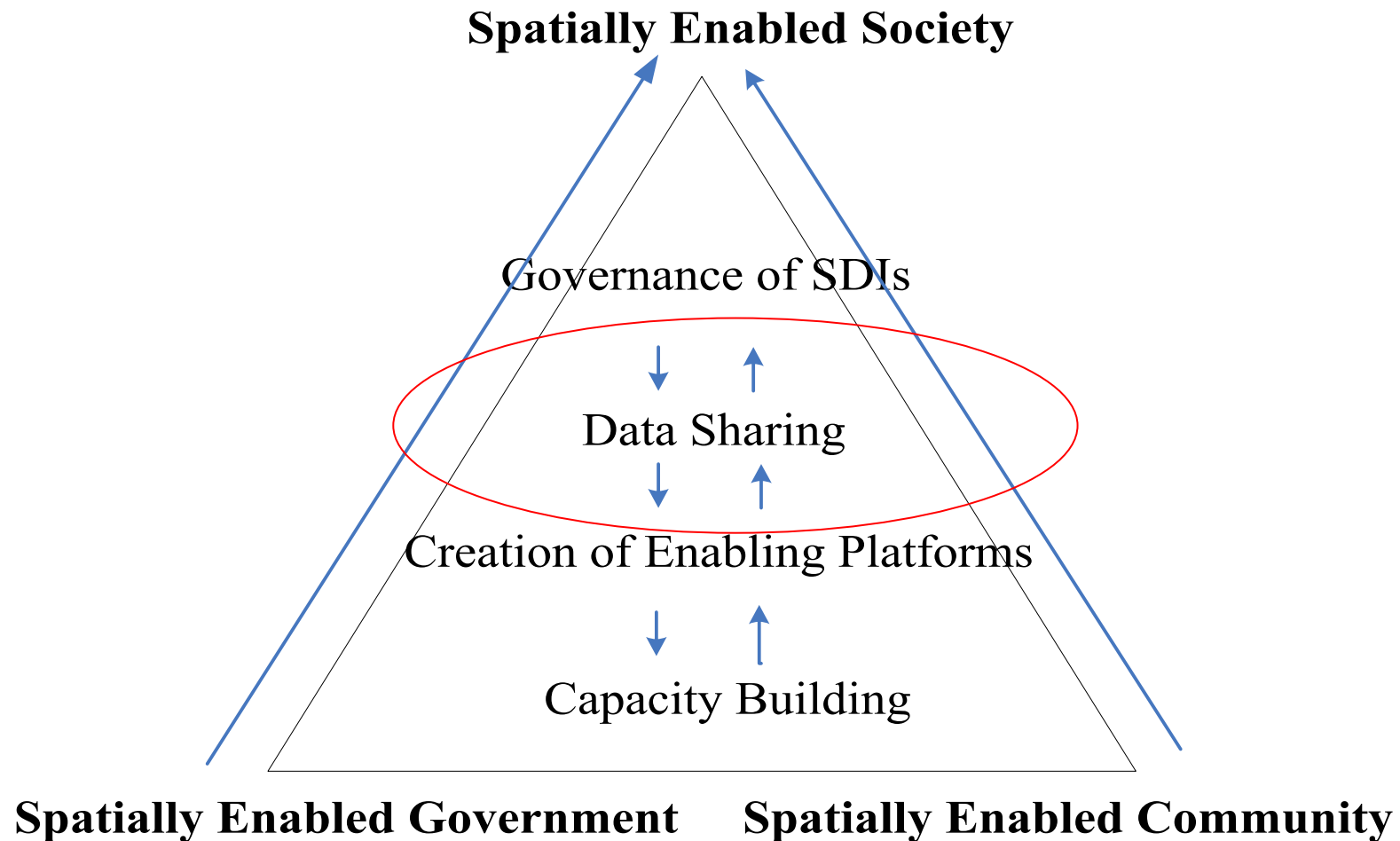


- To review the SDI theoretical foundation
 - develop conceptual framework
- To identify key issues that facilitate/constraint SDI development at catchment scale
- To develop and evaluate the SDI model/framework

Theoretical Background for SDI Development

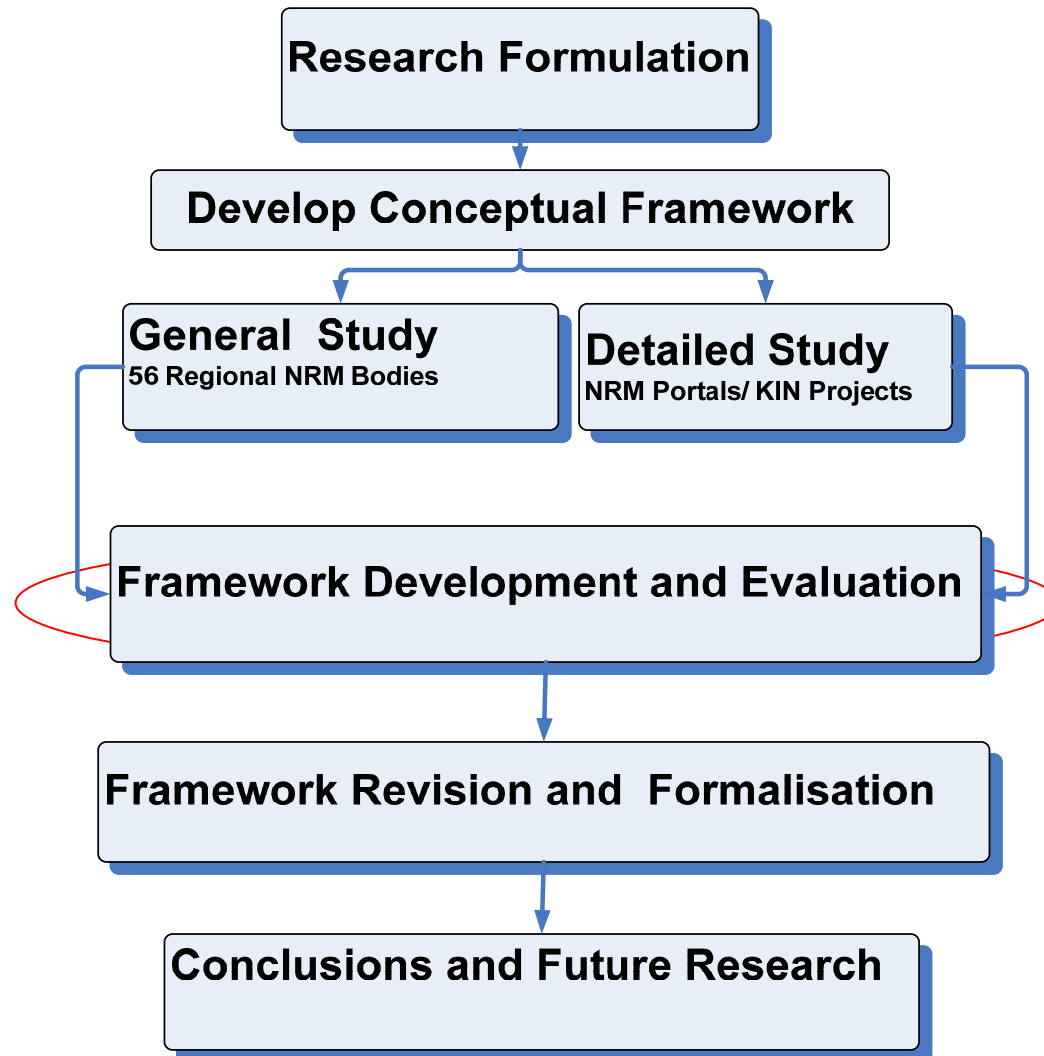


Conceptual Framework: Relation between Spatially Enabled Government, Community and Society



Strategic Challenges (Adopted from Masser et al, 2006)

Research Design

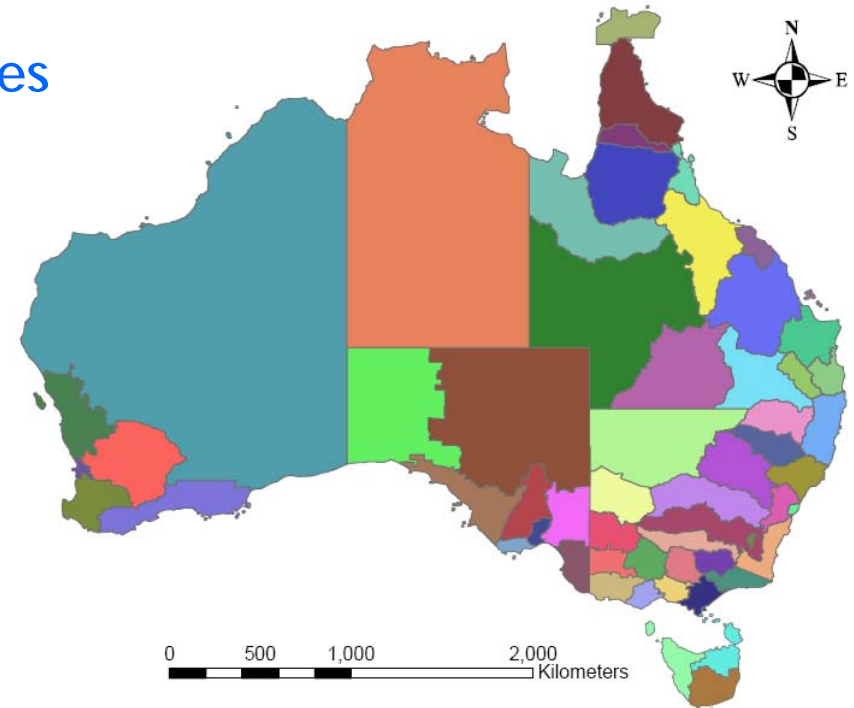


Study Description



■ Questionnaire: 56 NRM Regional Bodies

- Catchment management issues and role of spatial information
- Spatial information use data sharing role
- Volunteer activities and motivations
- Information policy and funding
- Information flow, data access and pricing
- VGI, Web 2.0, social networking and other emerging technologies/approaches
- 100% response rate



Study Description



- Case Study
- Knowledge and Information Network (KIN) Project (QLD)- Spatial Network Component
 - History and Motivations
 - Constraints (policy, technological, organisational, cultural, and economic)
 - Linking mechanism
 - KIN project and existing SDI (spatial data infrastructure) activities
 - Emerging SDI activities
- Interview, workshop visits, questionnaire, documents study, etc.

Data Analysis and Output



- Network Analysis
 - Centrality, frequency, density, equivalence, and centralisation

- Statistical Analysis
 - Descriptive Statistics
 - Principal Component Analysis (PCA)

Outcomes



- Spatial data requirements
 - Most significant
 - Vegetation
 - Cadastral data
 - Watershed/Catchment Boundary data
 - Land use/Land cover data
 - Topography/DEM/Imagery
 - Less significant
 - Administrative boundary data
 - Infrastructure and utilities
 - Geology
 - Weather data
 - Mineral resources
 - New Areas
 - Google maps, OpenStreetMap, Wikimapia, etc.
 - High Resolution Imagery, LIDAR, etc.
 - Project specific data
 - Land holder's custodianship

- Spatial Data Providers (Importance)
 - Commonwealth Government- 28.6%
 - State Government- 87.5%
 - Local Government - 12.5%
 - Private Sector/Industry - 8.9%

Outcomes



- Spatial Data Sharing Factors
 - Organisational attitude to sharing
 - The existence of a formal agreement
 - Individual attitude, ability and willingness of staff
 - Networking and contact
 - Good IT system and technical tools
 - Leadership

Outcomes



Volunteer and social network activities

- Many volunteer activities
 - Landcare
 - Waterwatch
 - Birdwatch
 - Coastcare
 -
- Dabbled in face book and twister
- Wiki: e.g. www.collections.org.au Regional Group Collectives (spatial network) in Queensland
- Youtube

Social network activities

- Extensively used open source products

How Often you use these products?

	Frequency	Percent	Valid Percent	Cumulative Percent
Daily	8	14.3	14.3	17.9
Weekly	14	25.0	25.0	42.9
Fortnightly	6	10.7	10.7	53.6
Monthly	6	10.7	10.7	64.3
A few times a year	20	35.7	35.7	100.0
Total	56	100.0	100.0	

Key Message



- Catchments cross over administrative boundaries and creates management difficulties
- Majority of Regional NRM Bodies are spatial information provider and user (both)
- State government agencies are interested to access community owned spatial information
- Many spatial portals are available however the people component plays an important role to access and share spatial information - networking
- The network-based approach gives a new way to access, use and share spatial information and knowledge which crosses administrative boundaries - Experiences from KIN Project

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Thanks for your attendance

Discussions!



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