

THE IMPLEMENTATION OF SPATIAL DATA INFRASTRUCTURE FOR NATIONAL LAND ADMINISTRATION TOWARD SPATIALLY ENABLING GOVERNMENT

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List Of Contents

Literature Review

National Land Administration, Spatial Data Infrastructure, Spatially Enabling Government

Research Problem

Land Information Delivery Services & Data Sharing

Research Objective

Research Methodology

Qualitative Method - Interpretive (in-depth case studies)

Research Contribution

Research Publication

Journal Paper and Proceeding Paper

Conclusion

This research can help to solve and give the best solution how to improve the **land information delivery service for government, private and public sector especially land administration at national level**

The SDI knowledge from conceptual to reality with nice strategic position, strategic choice and strategic into action, can help government and non-government agencies **to achieve a electronic government (e-government) & toward spatially enabled government**

TQ





Thank You For Your Attention...

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Land Administration

*"The **PROCESSES** of determining, recording and disseminating information about the tenure, value and use of land when implementing land management policies. It is **CONSIDERED TO INCLUDE** land registration, cadastral surveying and mapping, fiscal, legal and multi-purpose cadastres and land information systems. And **CLOSE TO OR FACILITATES** land use planning and valuation/land taxation systems, although it does not include the actual land use planning or land valuation processes".*

Cadastral Systems Facilitate Three Key Attributes of Land Administration toward Spatial Information

(adapted from Dale & McLaughlin (1999), Steudler & Williamson (2002) and Enemark, Williamson & Wallace (2005))

Attribute Information on land Ownership/Tenure

Social Stability
(Economic Growth, Efficient Land Market, Security of Tenure and Investments)

Land Ownership/Tenure
(Land Rights Legal Means)



Land Value
(Valuation, Taxation - Fiscal Means)

Collateral and Tax Basis
(Financial Services & Public Services)

Attribute Information on Land Value

Land Use
(Planning Control - Environmental Means)

Land Development
(Resource Management & Environmental Sustainability)

Attribute Information on Land Use

SPATIAL /LAND INFORMATION INFRASTRUCTURE

Malaysia Land Administration

Land Ownership/Tenure

Ministry of Natural Resources and Environment

Agencies:

Department of Director General of Land and Mines (JKPTG)

State and District Land and Mines Office (PTG & PTD)

Land Use

Ministry of Housing and Local Government

Agencies:

Department of Federal Town and Country Planning (JPBD)

Land Value

Ministry of Finance

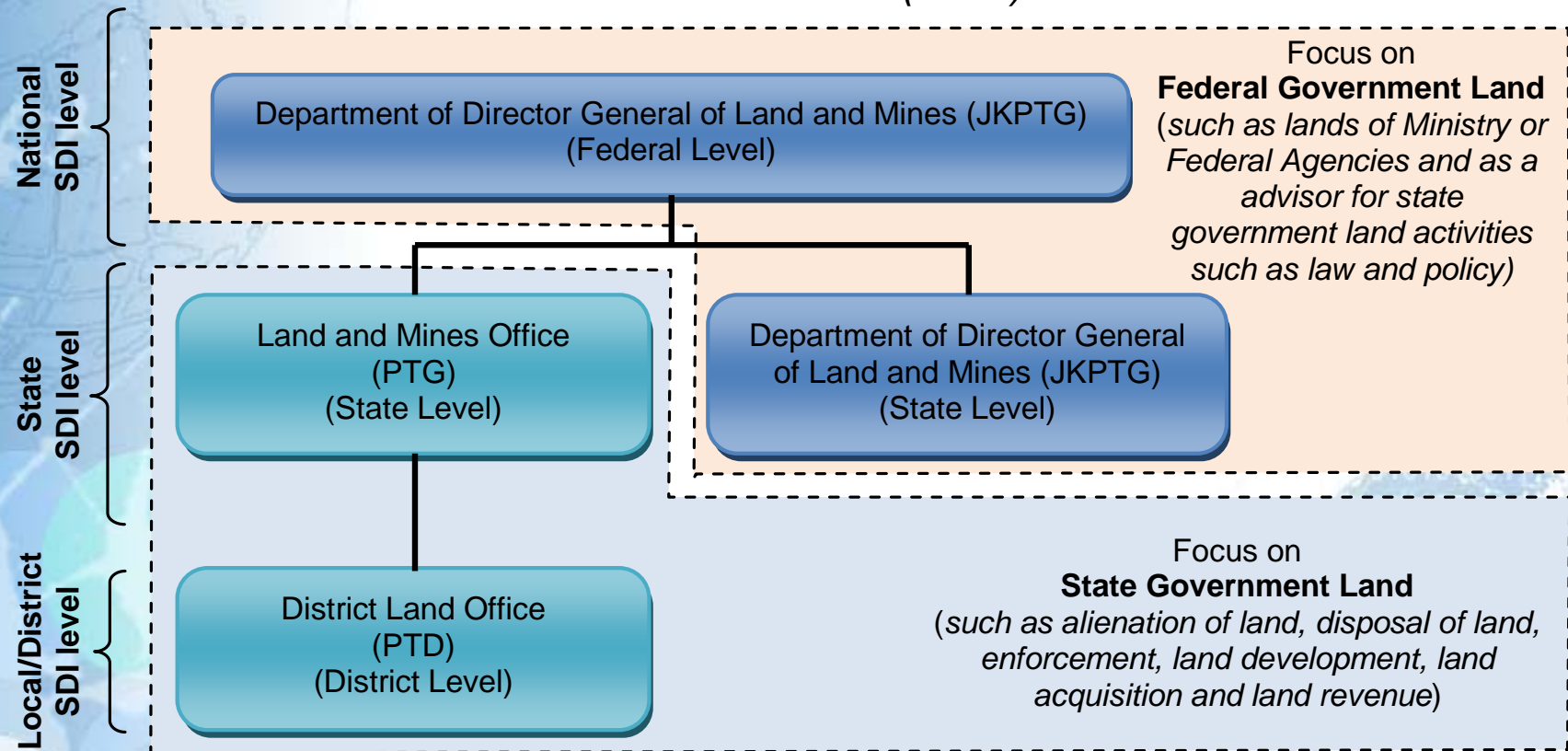
Agencies:

Department of Valuation and Property Services (JPPH)

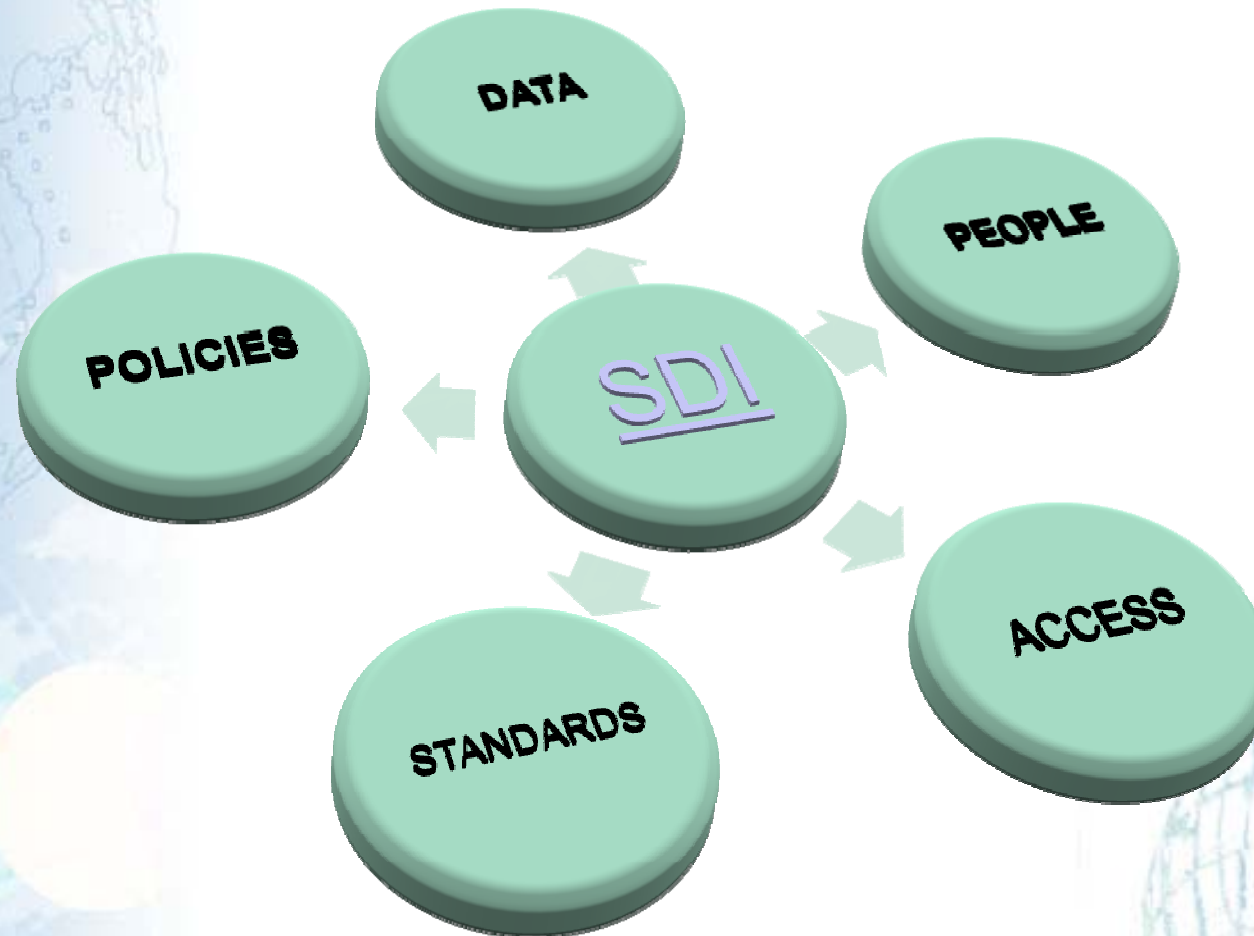
Malaysia Land Administration

Land Ownership Activities and Structure
for Malaysia Land Administration with SDI

Source: JKPTG (2007)



Spatial Data Infrastructure (SDI)



*ANZLIC (1996), FGDC (1997), Rajabifard, Feeney, & Williamson (2003),
GSDI (2004), McDougall (2006), Mohammadi (2008)*

Spatial Data Infrastructure (SDI)

SDI as a **facilitates the conveyance of virtually unlimited packages of GI** and necessary to acquire and effective collection, management process, store, distribute or delivery services and improve the utilization of geospatial dataset in community. SDI more:

- i. Holistic representation** (involve technical and user environment);
- ii. Dynamic entity** (identity and functionality change and become more complex over time);
- iii. Integrated** and;
- iv. Multi-levelled in nature** (involve hierarchy of inter-connected SDIs)

Malaysia Land Administration with SDI



SDI COMPONENTS	SDI HIERARCHY		
	NATIONAL SDI	STATE SDI	LOCAL SDI
INSTITUTIONAL FRAMEWORK	Include several activities such as administration, financial, facilities, human resources, coordination, custodianship, data access, sponsorship, leadership, education & training, policy and legislation (needs successful partnerships & communication between agencies and jurisdictions)		
JKPTG / PTG / PTD	Supported by federal government		Supported by state and local government
JPBD			
JPPH			
FUNDAMENTAL DATASETS	Include several activities such as geodetic control, topographic features, cadastre map, administrative boundaries, geographic names and localities, street address and position of national & state projects (not definitive and dependent on the priorities of the responsible agency within each jurisdiction)		
	National Geodetic Control Networks, Land use & Land covers	National & State Control Networks	National & Local Control Networks
JKPTG / PTG / PTD	Following:		
JPBD	i. Custodianship Data Circular (PKPA 2001)		
JPPH	ii. Pricing and Delivery Geospatial Data Circular (PKPA 2005)		
	iii. Security Order for Geospatial Document Categories Circular (PKPA 2007)		
TECHNICAL STANDARDS	Consistent standards and policy such as National Standards or International (ISO/TC211) are required to enable the sharing, integration and distribution of spatial data; hence standards for data models, metadata, transfer and interoperability of storage and analysis software. Policy particularly needs to be consistent for the pricing and access to spatial data within and between jurisdictions.		
JKPTG / PTG / PTD	Following:		
JPBD	i. MS1759 (Feature and Attribute Codes)		
JPPH	ii. Malaysian Metadata Standard (International Standard Metadata ISO/TC211 19115 : Geographic Information)		
	iii. Geography Name Database and Gazette		
	iv. Land Administration Boundaries and Code Structure (UPI)		
ACCESS NETWORK	Involves the acquisition, storage, integration, maintenance and enhancement of spatial data. Consists of the access and distribution networks and clearinghouse for getting spatial information/datasets to users		
	National Directory System	State Directory System	Local Directory System
JKPTG / PTG / PTD	Limited for federal government organisation only		Limited for state or local government organisation only
JPBD			
JPPH			
PEOPLE	Include users, providers, administrators, custodians of spatial data, value-added re-sellers and the users can be governments agencies, academia, small or large business or individuals and non-profit sectors		
JKPTG / PTG / PTD	Limited for federal government organisation only		Limited for state or local government organisation only
JPBD			
JPPH			

Malaysia Land Administration with SDI



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JPPH			

Spatially Enabling Government

- *SEG mean using spatial in policy development and services delivery (land information)*
- *Can create more **efficiency, effectiveness and competitiveness** of land administration for government agency*
- ***Reengineering government processes***
- ***Achieve cross jurisdictional among intra & inter land administration stakeholders or agency for effective government and management***

Key Performance Indicator

<p align="center">To Implementation SDI For National Land Administration</p>	<p align="center">To Create SEG</p>
<p align="center">Institutional Framework</p> <p align="center">Partnership</p> <p align="center">Capacity Building</p> <p align="center">Data Sharing</p> <p align="center">Access Network</p>	<p align="center">Organizations Factor & Legal and Policy Factor</p>
<p align="center">Fundamental Datasets</p> <p align="center">Data and Metadata</p> <p align="center">Technical Standards</p>	<p align="center">Technology Infrastructure Factor</p>
<p align="center">People</p>	<p align="center">People Factor</p>

Key Performance Indicator

TO IMPLEMENTATION SDI FOR NATIONAL LAND ADMINISTRATION	TO CREATE SEG
<p>Institutional Framework (Include several activities such as administration, financial, facilities, human resources, coordination, custodianship, data access, sponsorship, leadership, education & training, policy and legislation)</p>	<p>Organizations Factor & Legal and Policy Factor (involve government departments and agencies)</p>
<p>Partnership (Needs successful communication and interaction between inter- or intra-jurisdictional among stakeholders. Building an effective SDI will require a well-coordinated partnership among federal, state, local government, and academic institutions)</p>	
<p>Capacity Building (Capacity building dependent on limited of staff with the necessary GI management skills)</p>	
<p>Data Sharing (Defined as transactions among which individuals, organisations or parts of organisations obtain access to spatial data)</p>	
<p>Access Network (Involves the acquisition, storage, integration, maintenance and enhancement of spatial data. Consists of the access and distribution networks and clearinghouse for getting spatial information/datasets to users or stakeholders)</p>	

Key Performance Indicator

TO IMPLEMENTATION SDI FOR NATIONAL LAND ADMINISTRATION	TO CREATE SEG
<p>Fundamental Datasets (Include several activities such as geodetic control, cadastre map, administrative boundaries and position of national & state projects (not definitive and dependent on the priorities of the responsible agency within each jurisdiction))</p>	<p>Technology Infrastructure Factor (involve technical systems and particular SDI)</p>
<p>Data and Metadata (Include data themes as are electronic records and coordinates for a topic or subject, such as elevation or vegetation and provide the core framework data with specifically geodetic control, elevation or cadastral and governmental units. Data and/or geospatial services such as content, source, spatial scale, accuracy, method of collection, and other descriptions. Metadata is critical to document, preserve and protect agencies' spatial data assets)</p>	
<p>Technical Standards (Consistent standards and policy are repeated rules, conditions, guidelines or characteristics for data, related processes, technology and organisation are required to enable the sharing, integration and distribution of spatial data; hence standards for data models, metadata, transfer, storage interoperability and analysis software. Policy particularly needs to be consistent for the pricing and access to spatial data within and between jurisdictions)</p>	

Key Performance Indicator

TO IMPLEMENTATION SDI FOR NATIONAL LAND ADMINISTRATION	TO CREATE SEG
<p>People (Include users or stakeholders, providers, administrators, custodians of spatial data, value-added re-sellers. People can be governments agencies, corporate, public, private sectors, academia, small or large business or individuals and non-profit sectors)</p>	<p>People Factor (involve citizens, communities, business and academic)</p>

Summary...

Until today, the integration among land administration stakeholders for country multi-government difficult to solve

- ◆ Awareness of mindset from top management/decision maker related to:
 - SDI 1st Generation toward 2nd Generation
 - Information System mechanism & implementation
 - Data sharing among land administration stakeholders
- ◆ Different jurisdiction implementation among land administration stakeholders
- ◆ No specific Act or legal for geospatial activities
- ◆ No ideas about SEG

[go to main page](#)

Research Problem

Mechanism to aid the data sharing between multi-authorities among land administration stakeholders in contact land information delivery services at national level especially for a country has multi-government (federal, state and local government)

This research focus on non-technical issues only (involve on policy and strategy in current land information delivery circular). Generally the current circular created by federal government however the state or local government can implement or may not follow it because limited legalisation and authorities factor

Research Objective

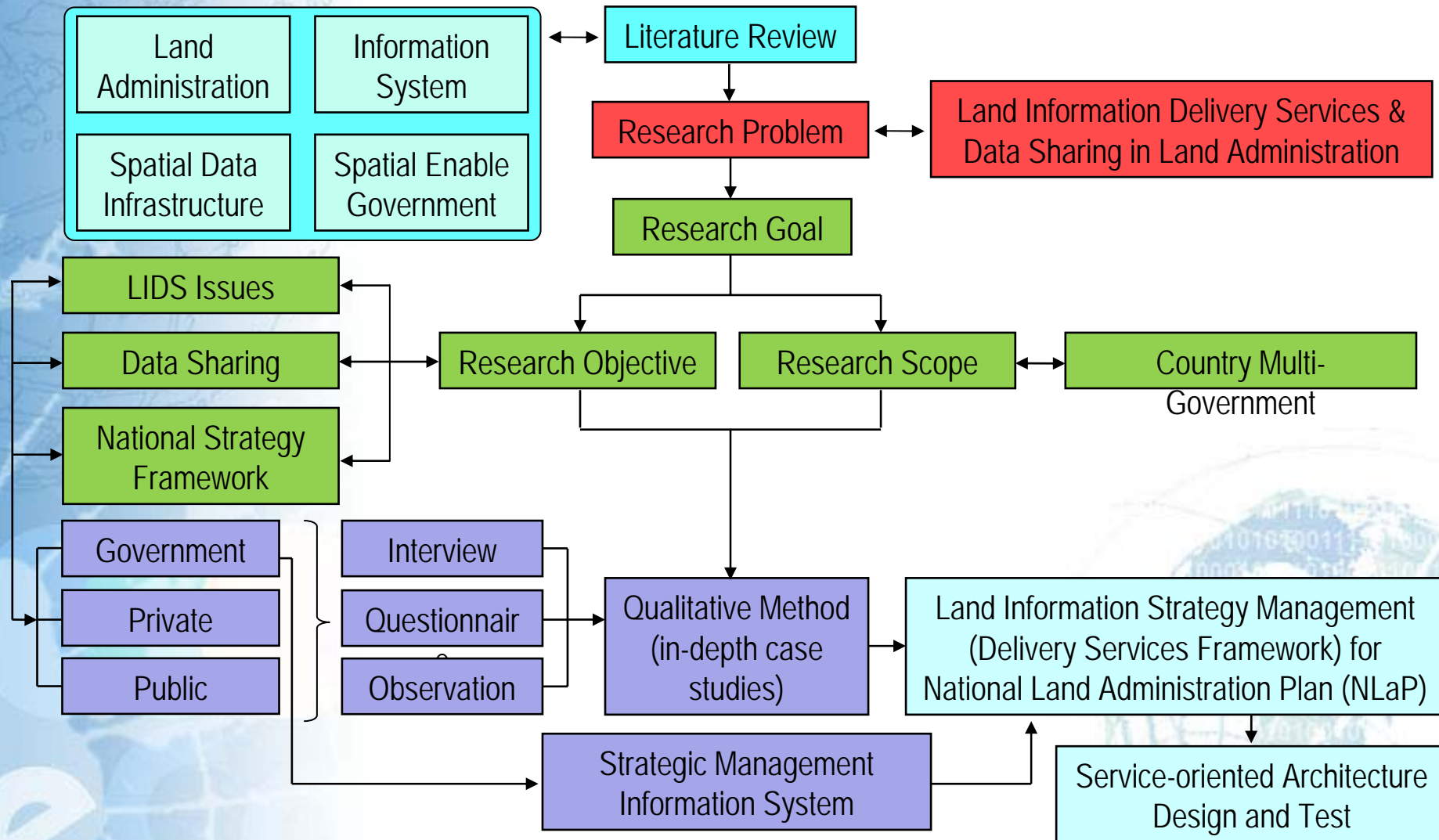
- a. Determine critical issues related on Land Information Delivery Service that impact efficient in national land administration
- b. Determine efficiency of data sharing among stakeholders in national land administration
- c. Design the national strategy management framework to improve the land information delivery services for land administration with spatial data infrastructure toward spatiality enabled government

Research Methodology

SDI and Land Administration involve information system mechanism; policy; strategy management; and organization; this research use Qualitative Research especially:

- toward to Capability Information System (Ward & Peppard, 2002)
- Interpretive research for IS (Klein & Myers, 2001) with ethnographic approach (Denzin & Lincoln, 2000) because this research wants to uncover the 'story behind the statistics' about case study and more related about lived experiences, behaviours, emotions, organizational functioning and interactions or relations between nations/multilevel of governments

Research Methodology



[go to main page](#)

Research Contribution

Design new **National Land Administration Plan (NLaP)** framework with several elements such as:

- Function
- Goal and Objective
- Main Principle
- Plan Context (including national, state and local level) and Development Strategies
- Policies
- Implementation Mechanism (including activity, responsibility, enabling law and enabling instruments/institutions)

Journal Paper

- 1st journal paper submit to International Journal Spatial Data Infrastructure Research (IJS DIR) under title '*Spatial Data Infrastructure for Malaysia Land Administration*' - **already submit (Peer Review)**
- Writing draft 2rd journal paper under title '*NLaP Framework for National Land Administration with Spatial Data Infrastructure toward Spatial Enable Government*'

Proceeding Paper

- Abd.Halim, H., & Shariff, A. R. M. (2008, 13th - 15th October). *The Implementation of Spatial Data Infrastructure toward Spatially Enabling Government for Malaysia Land Administration System*. Paper presented at the 7th International Symposium and Exhibition on Geoinformation 2008 (ISG2008), Kuala Lumpur.
- Abd.Halim, H., Shariff, A. R. M., Mahmud, A. R., Yusof, N. M. Z. N., & Ali, H. M. (2009, 18th - 20th August). *Strategic Management Information System Approach for Malaysia Land Administration Information System with Spatial Data Infrastructure*. Paper presented at the 8th Annual Asian Conference and Exhibition on Geospatial Information, Technology and Applications (Map Asia 2009), Singapore.

Proceeding Paper

- Abd.Halim, H., Shariff, A. R. M., Mahmud, A. R., Yusof, N. M. Z. N., & Ali, H. M. Under title '*Land Information Delivery Services At National Land Administration Information System*'. At the World Engineering Conference (WEC)(2010, 2nd - 5th August), Sarawak, Malaysia.

(next...)

- Abd.Halim, H., Shariff, A. R. M., Mahmud, A. R., Yusof, N. M. Z. N., & Ali, H. M. Under title '*Data Sharing Issues In SDI Implementation At National Land Administration For Country Multi-government*'. At the GSDI 12 World Conference and PCGIAP (2010, 18th - 22th October), Singapore.

Spatial Data Infrastructure (SDI)

- i. Data** (dataset technologies);
- ii. People** (financial, human resources, organisational remits, data sharing and partnerships);
- iii. Access mechanisms** (access network of dataset and delivery mechanisms);
- iv. Standards** (technical and standards) and;
- v. Policies** (legal and policy)

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Research Contribution

