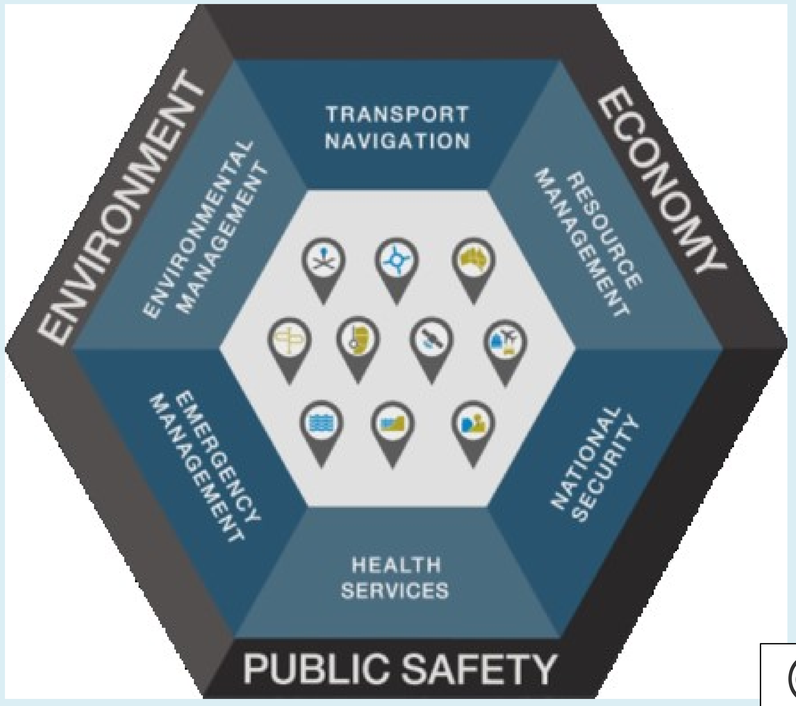
Enhancing Australian Foundation Spatial Data Framework to support Australia's future

IN23B-0778, AGU Fall Meeting, 2018, Washington, USA

Bastrakova I.V., Car N. J., Whiting A., Logan G., Newham R.

What is Foundation Spatial Data Framework (FSDF)?

- ✓ Common framework (2010 – now) for the integration & maintenance of **Australian and New Zealand foundation geo-spatial data** in order to serve the widest possible variety of users
- ✓ Supports evidence-based social-economic **decision making** across multiple levels of government agencies, industry, research and the community
- ✓ Aims to deliver **open, accessible, affordable and usable** a national coverage foundation spatial data
- ✓ Consists of **ten national** authoritative geographic **data themes**
- ✓ Underpins **service delivery** and **spatial analysis**



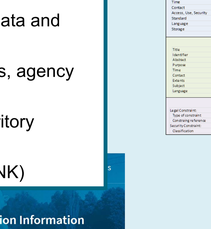
FSDF benefits

- ✓ Spatial socio-economic decision making **support tool**:
  - ➢ economic growth, public safety, legal and policy,
  - ➢ obligations & sustaining business needs
- ✓ Articulation of **national needs**
- ✓ **Sustainable resourcing** that is governed & managed through federated supply chains
- ✓ Cross-sector **partnerships**
- ✓ Greater **understanding** of the **end users** and their **requirements**
- ✓ **Seamless access** to authoritative spatial data across organisational & jurisdictional boundaries
- ✓ **Consistent application** of standards
- ✓ **Greater number** of **users & re-uses** of the data

Repeatable VS Repetitive

Key Challenges

- ➢ **Complex network** of data providers:
  - ▪ Government (federal, state and local), Private and Research
- ➢ **Lack of agreements** and conflicting priorities
- ➢ **Variations** in legal, security, licence and copyright **arrangements**
- ➢ **Inconsistent resourcing**
- ➢ **Constant changers** in supply chains
- ➢ **Access to data** ranged from web services to paper



FSDF AAA Data Management Principles vs. FAIR Principles

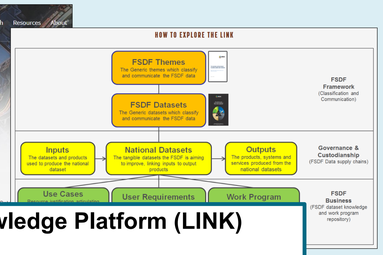
Easily translatable and applied to ensure:

- ✓ Ability to **find data through** rich and consistently implemented **metadata**
- ✓ **Access** to metadata and data **by humans and machines** while practicing federated data management within trusted data repositories
- ✓ **Interoperability of metadata and data** through adoption of common standards and application of best practices
- ✓ **Reusability of data** by capturing licencing constraints and information about its quality and provenance

AUTHORITATIVE

ACCESSIBLE

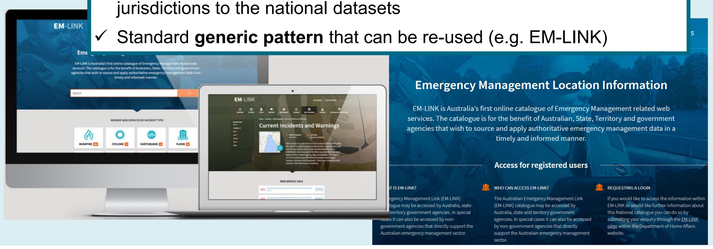
ACCURATE



Location Information Knowledge Platform (LINK)

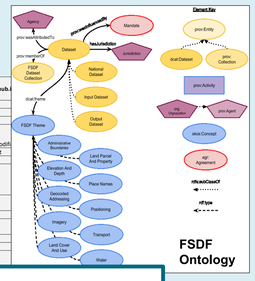
https://link.fsdf.org.au/

- ✓ Developed in 2016 online, **dynamic, cloud-based analysis and discovery tool** to enhance the discovery of FSDF datasets
- ✓ Used by **73+** Australian government **agencies** and commercial **organisations**
- ✓ Classifies over **1200 individual datasets**, to enhance discovery through browsing
- ✓ **Knowledge base** of FSDF that combines traditional metadata and business content (e.g. mandates and funding sources)
- ✓ **Supports** work **planning** and indicate the legal frameworks, agency priorities and FSDF related use cases
- ✓ Exposes **supply chains** of datasets from the state and territory jurisdictions to the national datasets
- ✓ Standard **generic pattern** that can be re-used (e.g. EM-LINK)



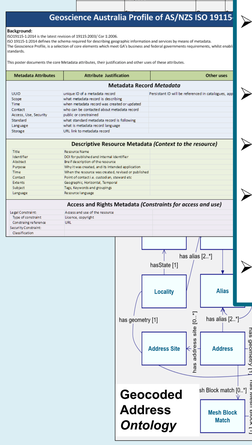
Cross-works across standards & organisational implementations

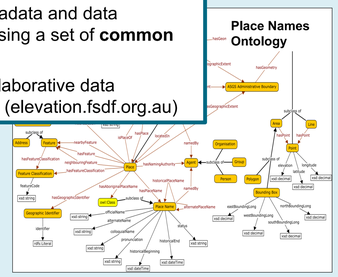
Package	ISO element	ISO (default)	ISO (default) - maximum occurrence	GA (ISO)	ABARES (ISO)	AADC (DIF - ISO)	DELWP (VicL)	AGRIMS (DC2020)	data.gov.au	ARDC (RIF-CS)	RIF-CS element	DCAT (https://w3c.github.io/dxwg/dcat/)
Metadata Record												
MD_Metadata		M	1..M	M	M	M	M			M		dcat:Catalogue
	Identifier: code	O	0..1	M	M	M	O	N/A	metadata URI*	M	Key	dct:identifier
											Collection @date Accessioned	dct:issued/dct:modified
	Date	M	1..*	M	M	M	M	N/A	publish and update date	M	Related Party	dcat:contactPoint
	Responsible party	M	1..*	M	M	M	M	N/A	contact*	O		
	Locale	C (M)	0..1	M	M	M	C	N/A	language*	N/A		dct:language
											Type and subtype (e.g. Collection/Service)	dct:subject
	Legal Constraints	O	0..*	O	M	M		N/A		O	Description 'notes'	dct:rights
	Reference for Legal	O	0..*		O	O		N/A		O	Licence	dct:license
	Security Constraints	O	0..*	M	M	O		N/A		O	Description 'notes'	
	Reference for Security	O	0..*		O	O		N/A		O	Licence	
Resource												
MD_DataIdentification		M	1..*	M	M	M				M		
	Locale	C (M)	0..*									
	Abstract	M										
	Purpose	O	0..									



Current Work

- ➢ Building **common** high-level and individual lower-level **information models** (ontologies) for the FSDF and each dataset
- ➢ Development of a new architecture for **persistent identifiers** and identifier incorporation in the datasets
- ➢ The **ISO 19115-1-based** Australian and New Zealand Metadata **profile** and **best practices** user guides
- ➢ Testing **new workflows** for metadata and data governance and integration utilising a set of **common cloud-based infrastructure**
- ➢ Development of **automated** collaborative data dissemination **infrastructures** (elevation.fsdf.org.au)





FSDF Supply Chains - from Inconsistent Ways of delivery to Common Approach

Attributes surrounding each dataset focus on general business elements:

- **What** is the dataset and who is the custodian
- **Where** does it fit within the FSDF
- **Why** does it exist (mandate) and how was it created
- Is it **resourced** and is the resourcing sustainable
- **How** is it made discoverable, accessible and usable to the user

Understanding of supply chains helps to:

- Develop a **common strategy**
- Change **jurisdictional priorities**
- Improve **resourcing**
- Implement **common approach** for licencing and costing

eCat 124219
© Commonwealth of Australia (Geoscience Australia) 2018 This material is released under the Creative Commons Attribution 4.0 International Licence. (http://creativecommons.org/licenses/by/4.0/legalcode)

GEOSCIENCE AUSTRALIA
APPLYING GEOSCIENCE TO AUSTRALIA'S MOST IMPORTANT CHALLENGES

For Further Information: Irina Bastrakova
Email: irina.bastrakova@ga.gov.au
Ph: +61 2 6249 9201 **Web:** www.ga.gov.au