Contents

1. Geological Survey NSW – what we do
2. Business drivers – data, customers, technology
3. Design Targets – standards, interoperability
4. Insights– what we learnt

What does the Geological Survey NSW do

Collects and manages geological, geophysical, geochemical and geospatial data

to inform the government, resource industry and the community about the state's geology, and mineral, coal, petroleum and renewable energy resources

to facilitate the safe and sustainable development and management of NSW mineral and energy resources for the benefit of all NSW citizens
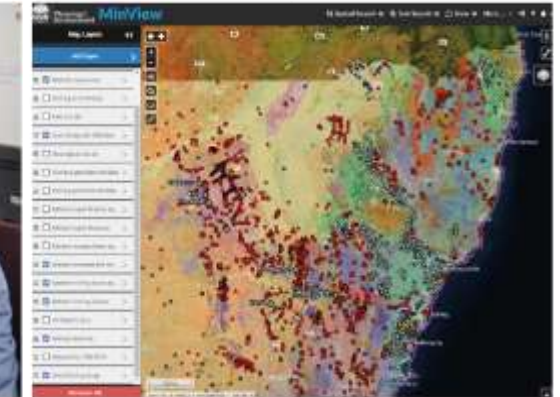
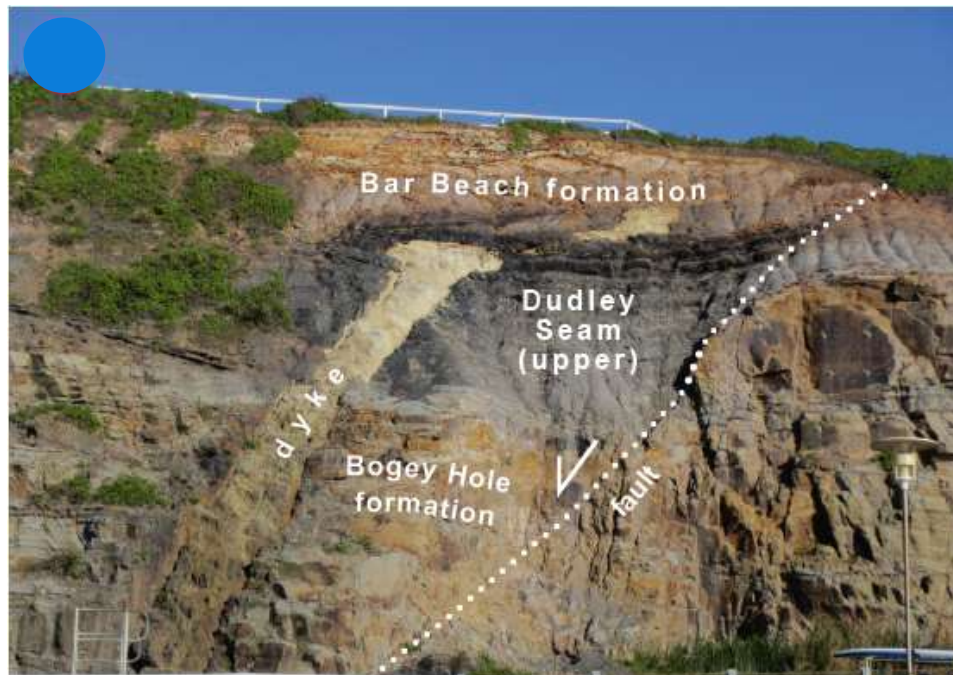| Geological mapping	Mineral systems studies	Landuse assessment	Information management

Provision of data & information

Multiscale data that is **Accessible** and **Useful** for decision making

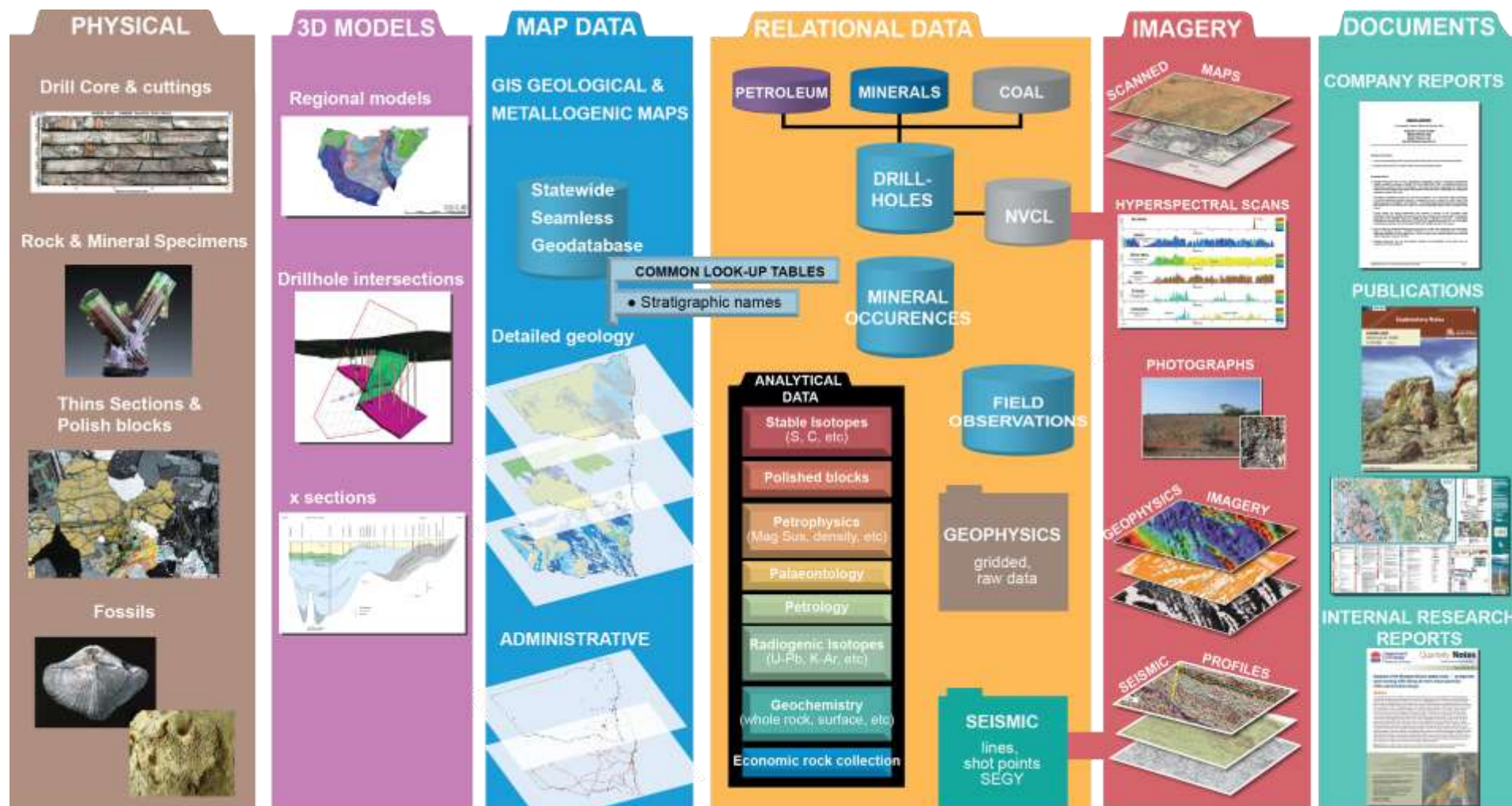Geological structures and processes

Land use

Geoscience data custodians for NSW

Value = $$$

"Data on Australia's landscape and climate has been collected for more than 100 years

and this information can be used to

inform national decisions about natural disasters, water, food, and resource management."

PHYSICAL
- Drill Core & cuttings
- Rock & Mineral Specimens
- Thins Sections & Polish blocks
- Fossils

3D MODELS
- Regional models
- Drillhole intersections
- x sections

MAP DATA
- GIS GEOLOGICAL & METALLOGENIC MAPS
- Statewide Seamless Geodatabase
- COMMON LOOK-UP TABLES
  - Stratigraphic names
- Detailed geology
- ADMINISTRATIVE

RELATIONAL DATA
- PETROLEUM
- MINERALS
- COAL
- DRILL-HOLES
- NVCL
- MINERAL OCCURRENCES
- ANALYTICAL DATA
  - Stable Isotopes (S, C, etc)
  - Polished blocks
  - Petrophysics (Mag Sus, density, etc)
  - Palaeontology
  - Petrology
  - Radiogenic Isotopes (U-Pb, K-Ar, etc)
  - Geochemistry (whole rock, surface, etc)
  - Economic rock collection
- FIELD OBSERVATIONS
- GEOPHYSICS gridded, raw data
- SEISMIC lines, shot points SEGY

IMAGERY
- SCANNED MAPS
- HYPERSPECTRAL SCANS
- PHOTOGRAPHS
- GEOPHYSICS IMAGERY
- SEISMIC PROFILES

DOCUMENTS
- COMPANY REPORTS
- PUBLICATIONS
- INTERNAL RESEARCH REPORTS

NSW GOVERNMENT

Researchers | Teachers | Explorers

Building Infrastructure | Route planning | Energy production

Water resources | Food resources | Mineral resources

Customers

Anyone who needs authoritative geoscientific information for commercial, government, research or private purposes

The datasets, surveys, reports and maps have applications to

- Identify minerals, energy sources, construction materials & water resources

- Engineering projects for building infrastructure or

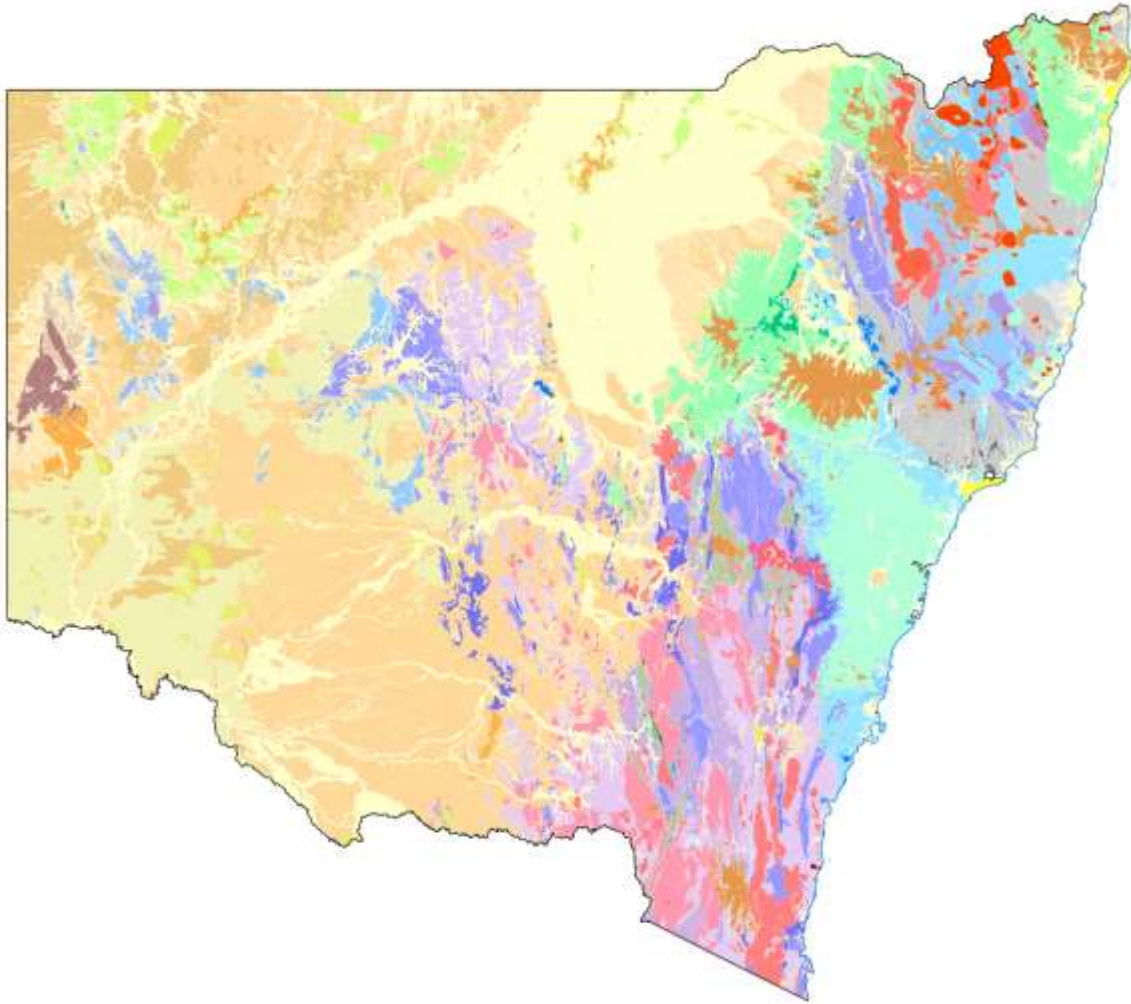- Planning and assessing land use and environmental management

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NSW Statewide Geology Map
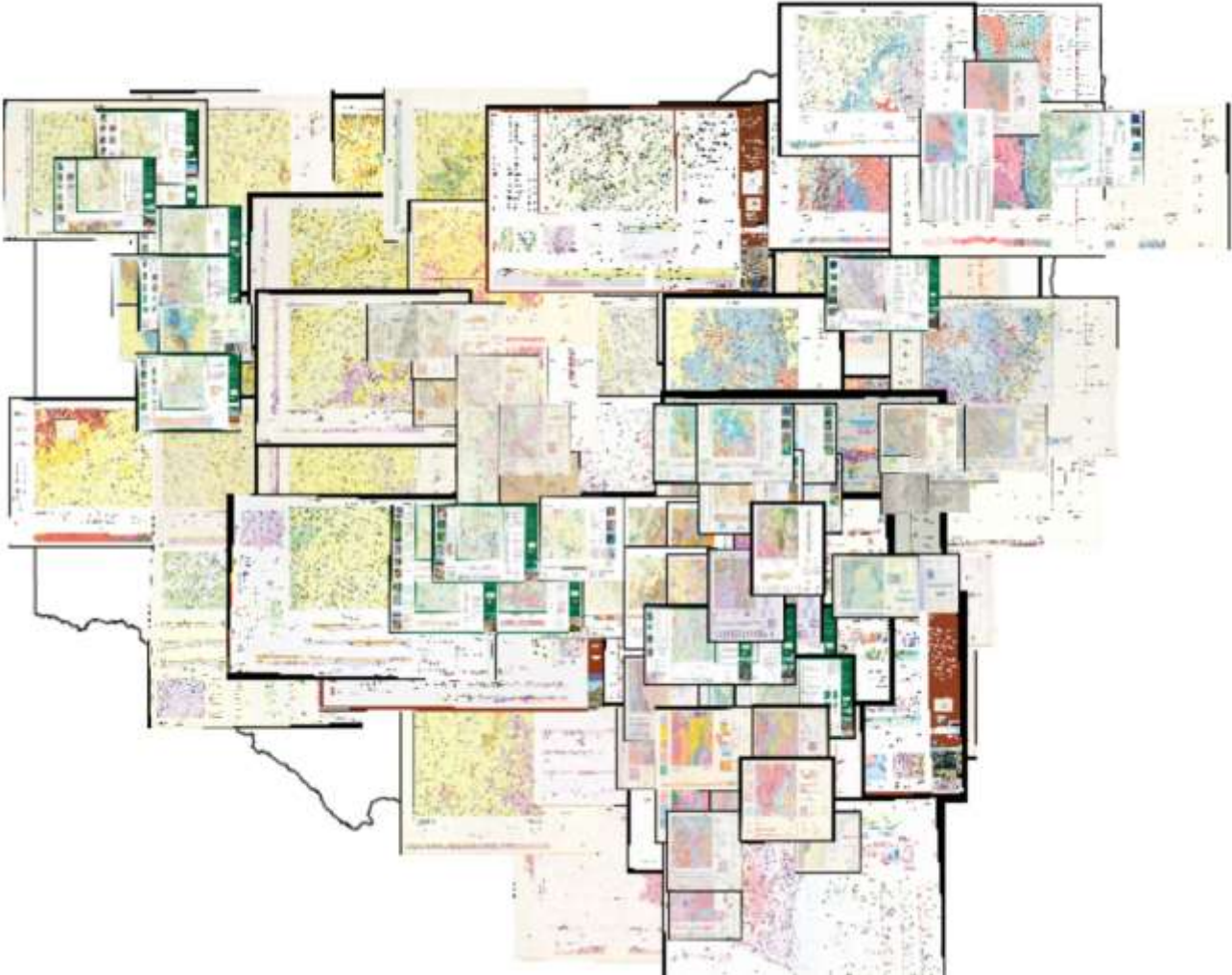
Changed formats

- Detailed geology

- Sheets to seamless

- Multi scaled

- Currency

- Consistent data model

- Interactive enriched attribution

- Harmonising stratagraphic names

- Statewide symbolisation

- Dynamic time slices

NSW Statewide Geology Map

Change in delivery

- Detailed geology

- Sheets to seamless

- Multi scaled

- Currency

- Consistent data model

- Interactive enriched attribution

- Harmonising stratagraphic names

- Statewide symbolisation

- Dynamic time slices

Technology upgrade

Enterprise approach delivery platform

- Reduce risk aging technology

- Rationalise infrastructure

- Reduce multiple interfaces

- Interoperability (DIGS)

- Mobile ready

- User account management

- Improve user experience

Project Aims

"**Easy public access to all validated non-confidential geoscientific and supportive reference data stored by the GSNSW from a single interface**"

Key functions

1. Visualise data
   Discover and understand context

2. Interrogate data
   Simple queries

3. Delivery data
   Rapid delivery and self service

www.minview.geoscience.nsw.gov.au
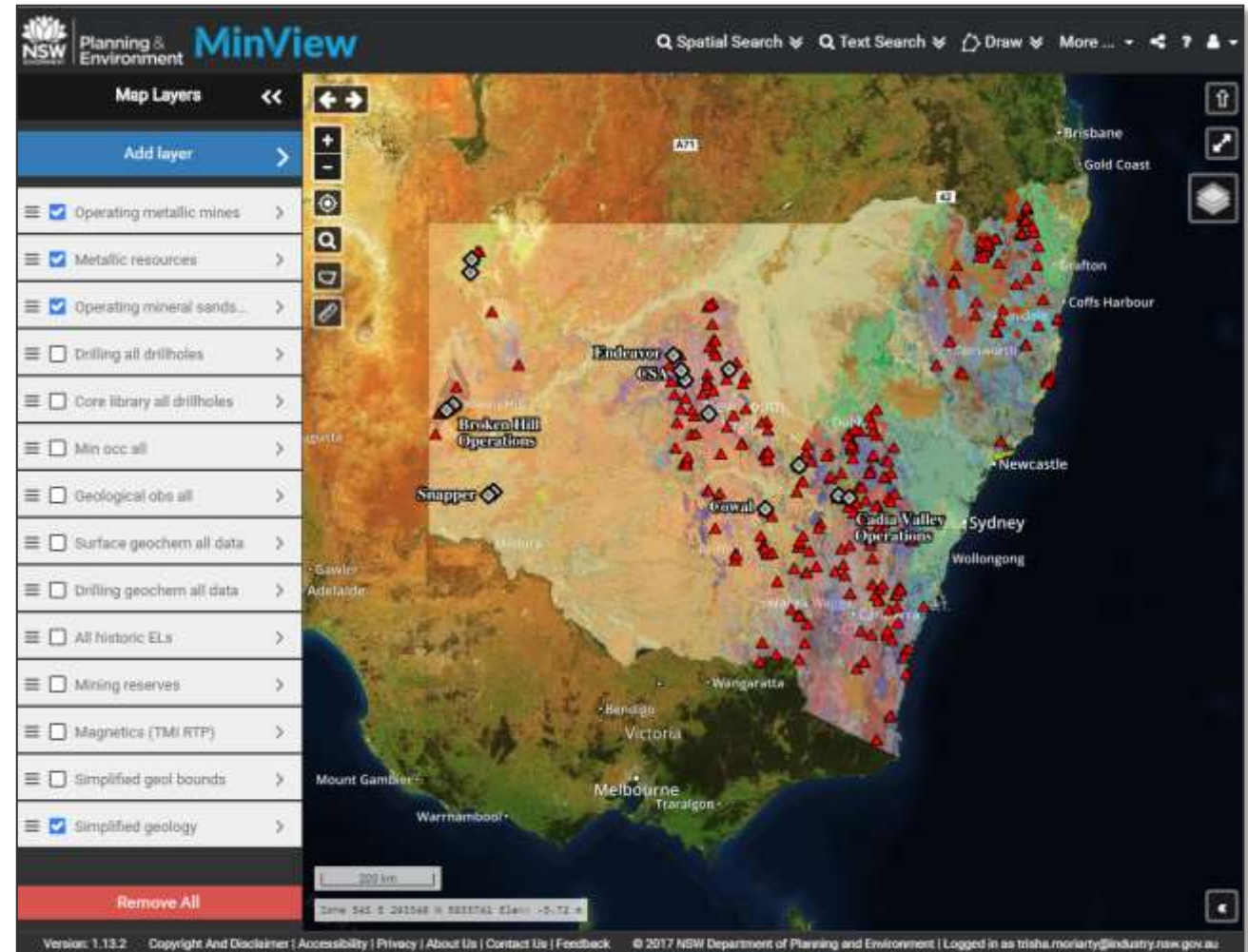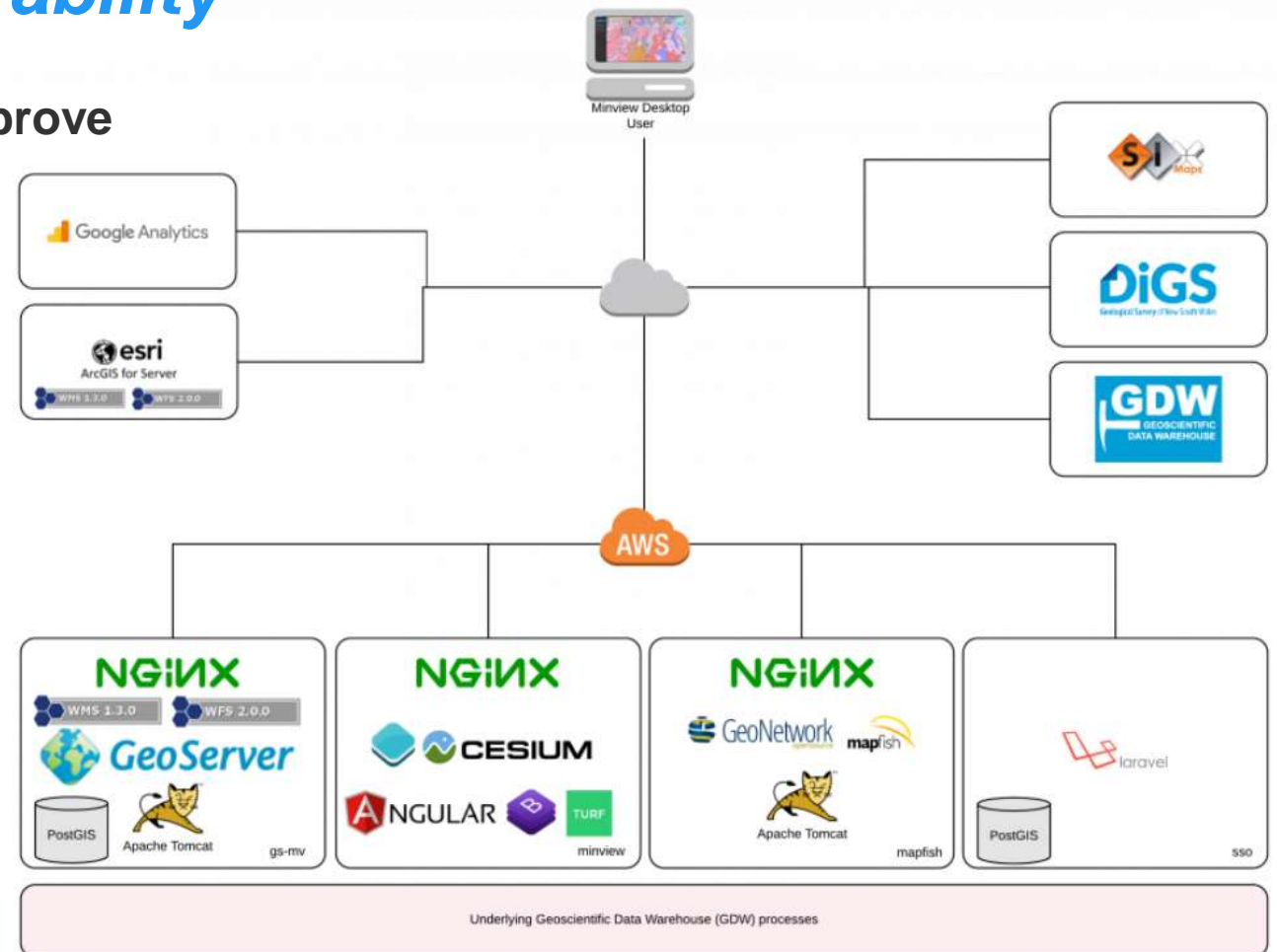
Design Target – interoperability

Modular: Flexibility to upgrade and improve

MinView uses

- Open Layers 3
- Cesium
- OL3 connector
- Geoserver/postgis
- Geonetwork
- MapfishPrint
- ArcServer*

Downloads

- FME Server*

Connect to

- DIGS document mgnt system
- GDW Geoscientifc Data Warehouse

Design Target – standards based

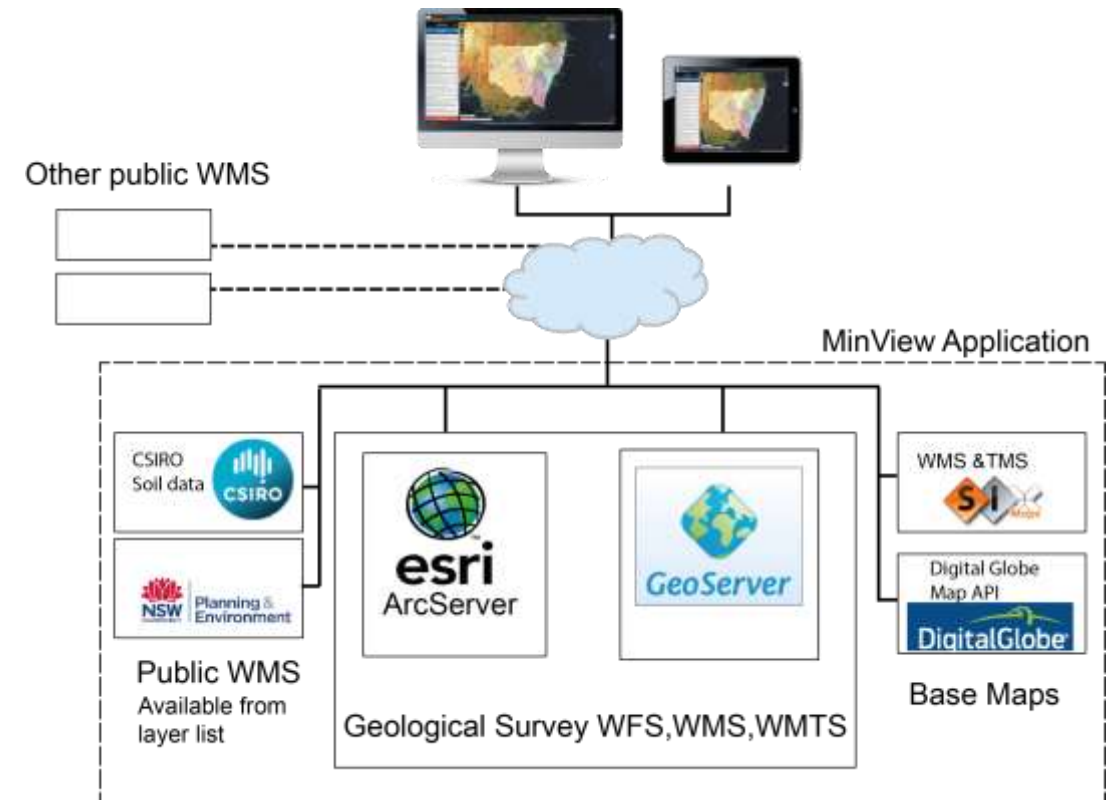**Solution designed to use data services**
(WMS,WFS, WMTS)

S.P.O.T .from custodian, consume not manage

MinView preconfigured to deliver

- GSNSW services
- Spatial Services (Lands Dept)
- DPE services
- CSIRO
- Digital Globe imagery

User can add public services

- https not http
- No control to fix or filter

Other public WMS

MinView Application

CSIRO Soil data

NSW Planning & Environment

Public WMS Available from layer list

esri ArcServer

GeoServer

Geological Survey WFS,WMS,WMTS

WMS &TMS

Digital Globe Map API DigitalGlobe

Base Maps

Insights: Data standards for geoscience data

Geoscience Data standards

- International by consensus of participating agents (IUGS – CGI)

- Geoscience Australia representation

- GeoSciML* & EarthResourceML

- Vocabularies – less suitable when generalised

- Mapping to internal data models

*extension of Open Geospatial Consortium (OGC) and International Org. for Standardisation (ISO) – observation and measurement std
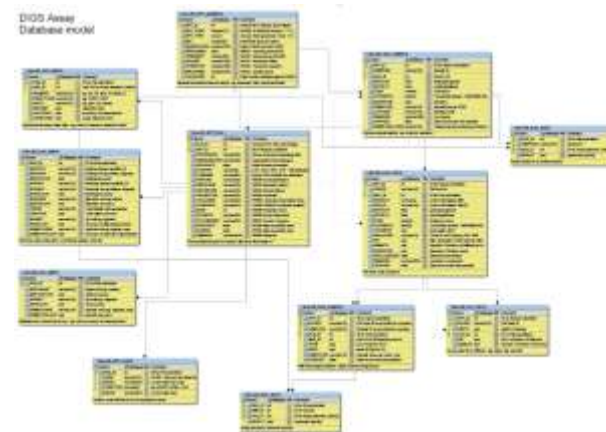
Insights: Don't under estimate data work

Data strategy in place

- Document deliverables
- Publishing processes
- Metadata
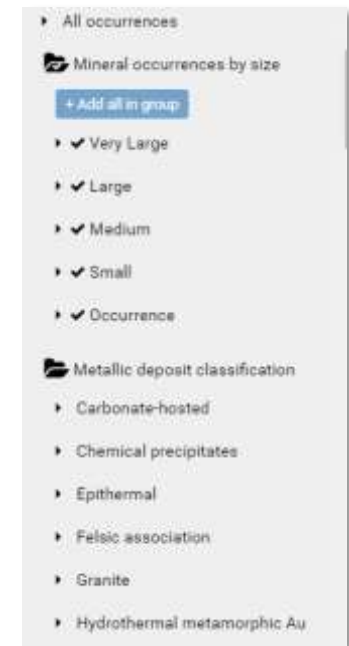- Licencing – Creative Commons

Data Structure to Information architecture

- Balance complexity with over simplification
- Data models, schemas
- Vocabularies, industry specific lexicons
- ETL processes makes accessible views

Min occ data model in warehouse

MinView layers

Insights: software stack support

Enterprise vs Ecosystem approach

- Syncing update regime

- Hybrid architecture – necessary integration – unique knowledge

Implementation

- Design specifications provided at procurement

- Hybrid Agile - rapid development

- Technical debt

Support models

- Vendor specific

- Extra resources for support

Insights: Stakeholder engagement

Know your users

- Include geoscientists on team

- Involve your users at all stages

- Cultivate advisors

- Develop real use cases

- Create realistic profile

- Employ them as testers (UAT)

Manage expectations

- Be careful of the oversell

- Educate management via exposure eg Sprint showcases

- Cultivate advocates

www.eyerys.com/articles/balancing-user-interface-create-sense-completion

Project Success

- Measured by stakeholder usage and satisfaction

- Peer recognition – Vic. Asia Pacific Spatial Award
  Spatial Vision's Technical Excellence

Google Analytics
Aug 17 – Mar 18

Downloads by Month

Users	New Users	Sessions
10,081	10,024	38,714

Number of Sessions per User	Page Views	Pages/Session
3.84	1,151,244	29.74

Avg. Session Duration	Bounce Rate
00:11:10	25.68%

"First may I thank you guys for putting a wonderful tool together namely Minview with all its many layers and links. I am using Minview to do research…"

"Great to see the new and improved upgrade to MinView"   *"Firstly, like to thank your department - for a great site"*

"The data quality is excellent, and frankly it is well designed and a great site overall. The amount of information available is staggering. Compliments to all involved. Although I do research all over the world, I find Australia the best for being able to find information, resources, maps, etc"

Trisha Moriarty

trisha.moriarty@planning.nsw.gov.au

NSW
GOVERNMENT