

Soil Data in WA:

narratives to modelling through
Strategic partnerships

Ted Griffin

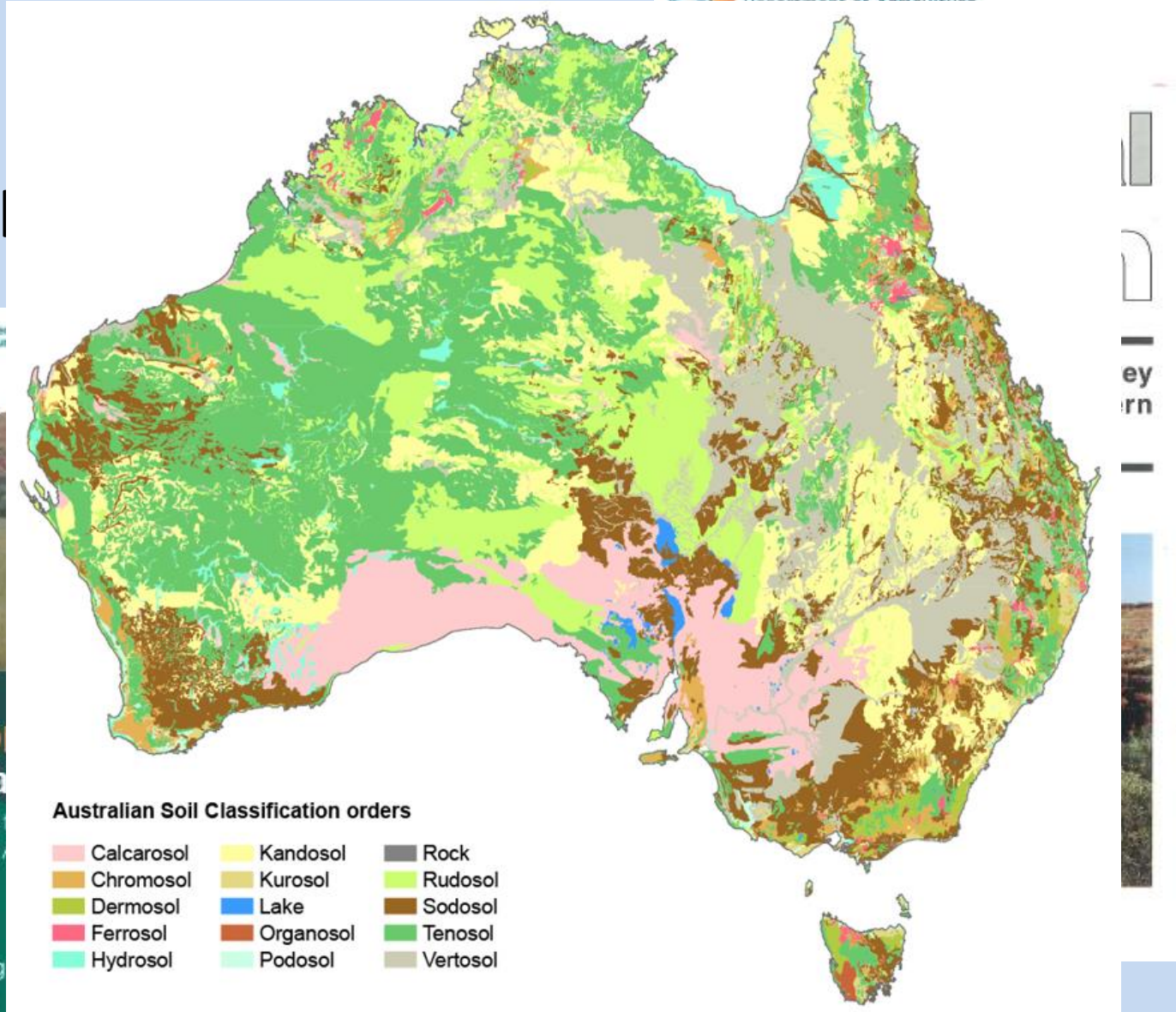
Soil Scientist

Department of Primary Industries
and Regional Development

A Narrative?

A narrative

view



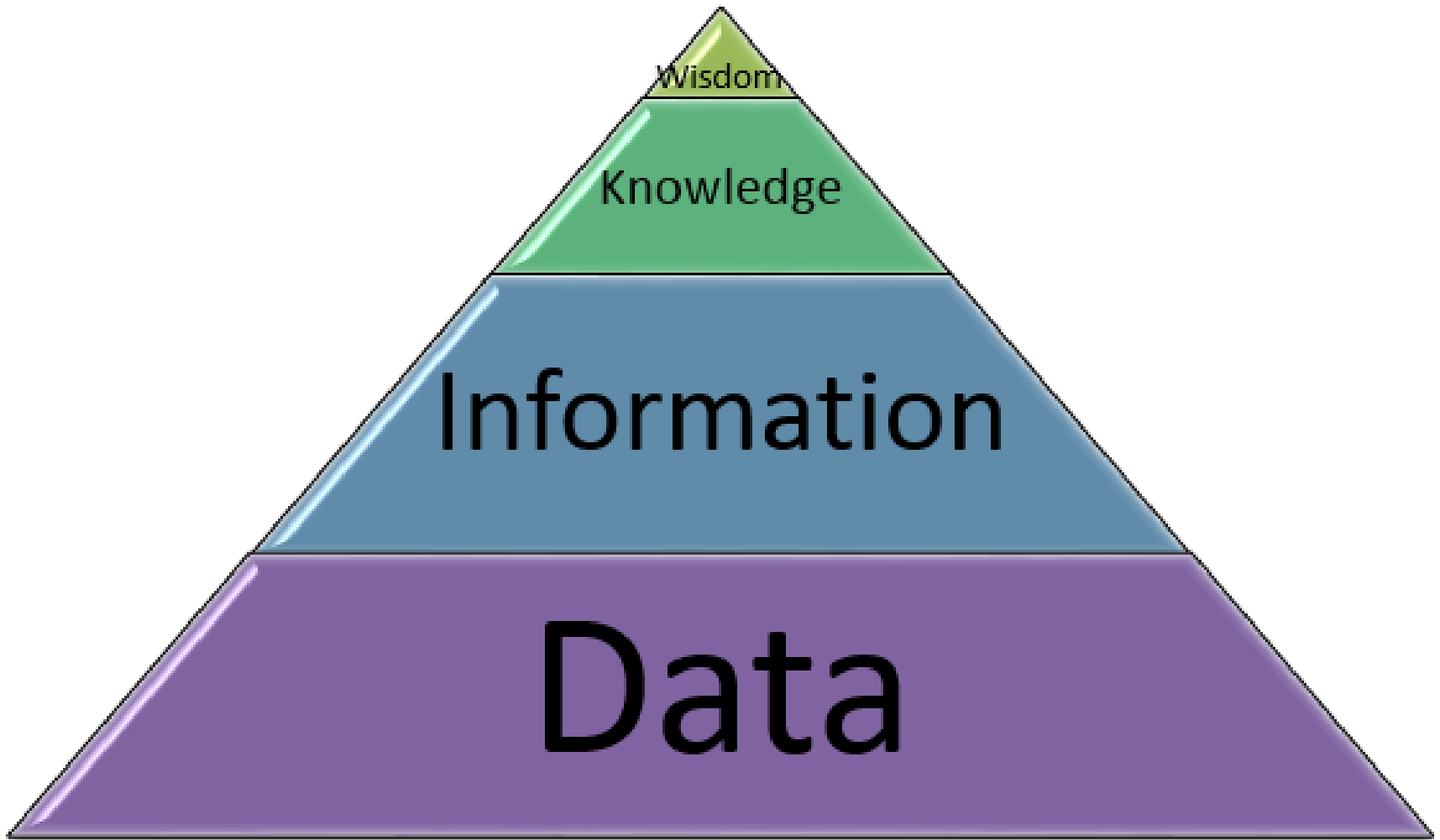
Our Task

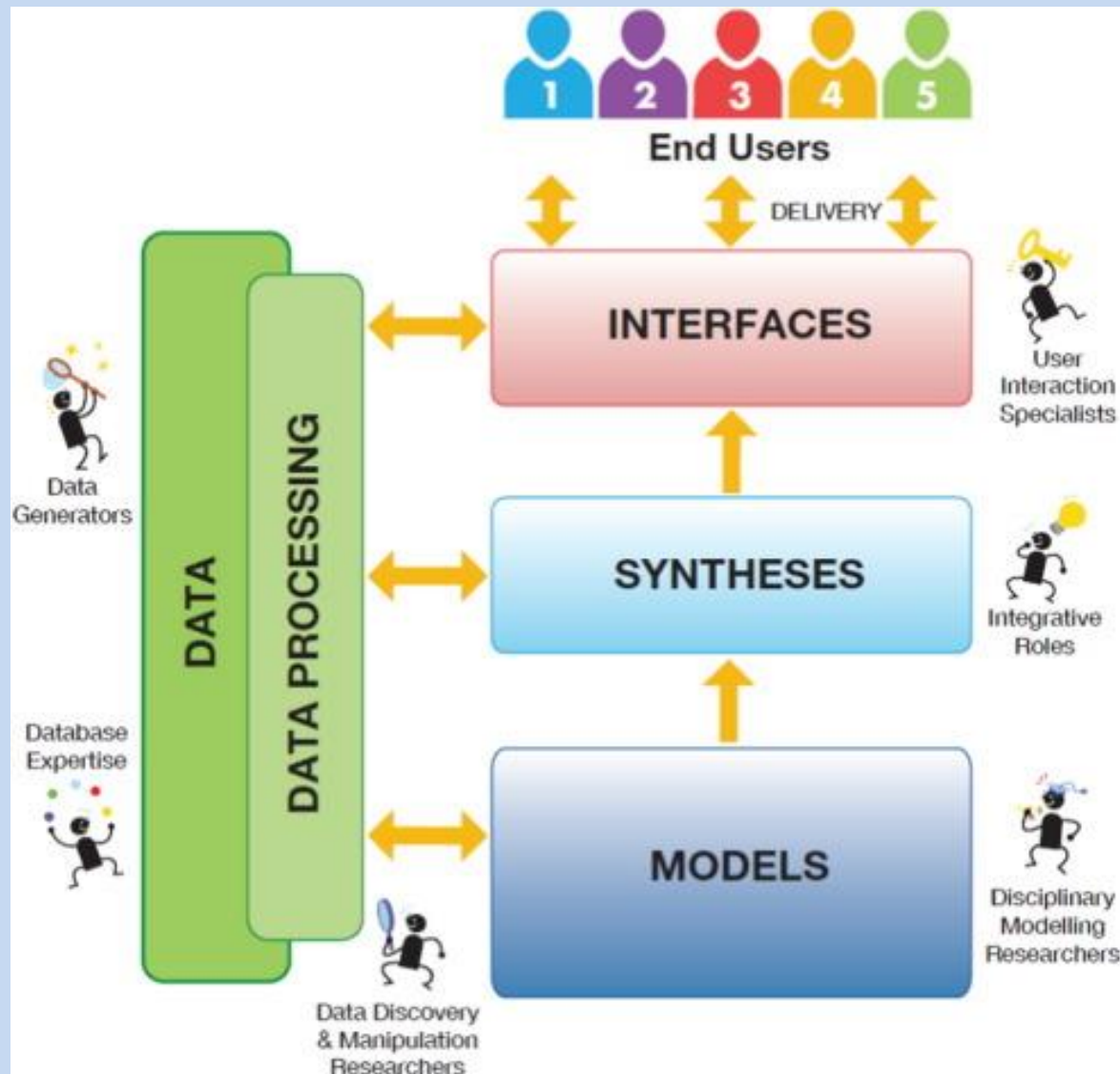
Simplify the complex picture

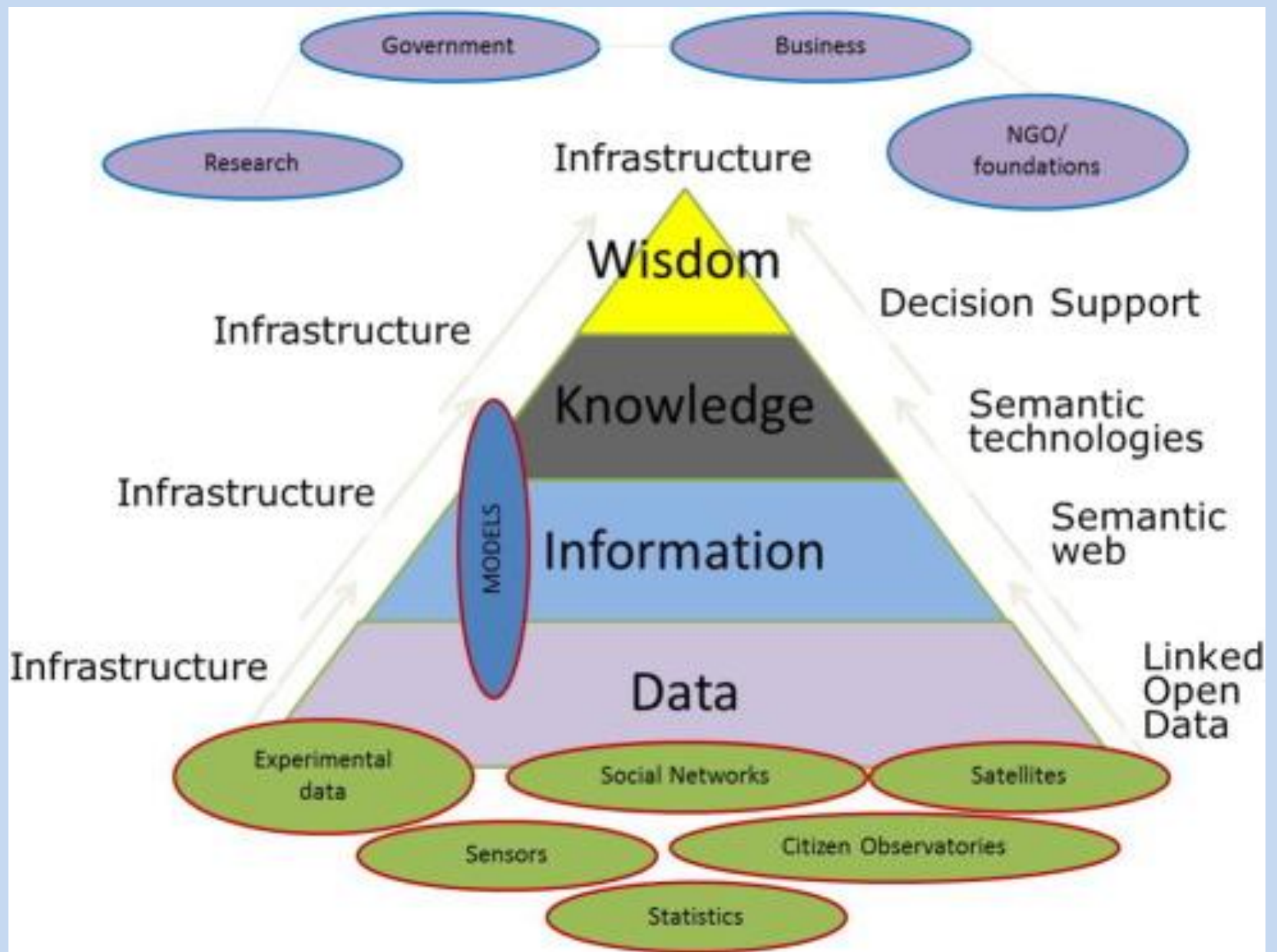
Why?

Perhaps:

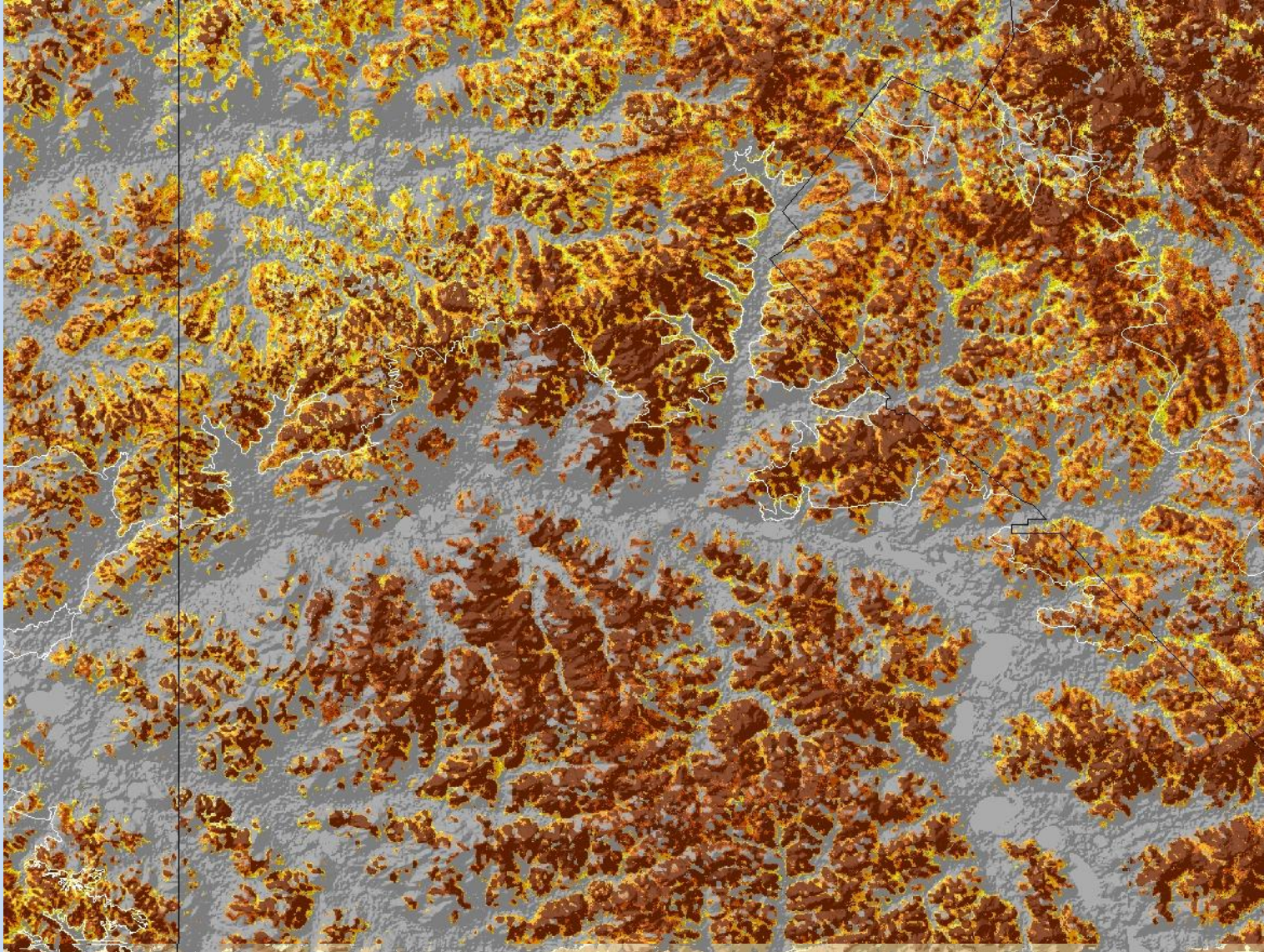
Better decision making.



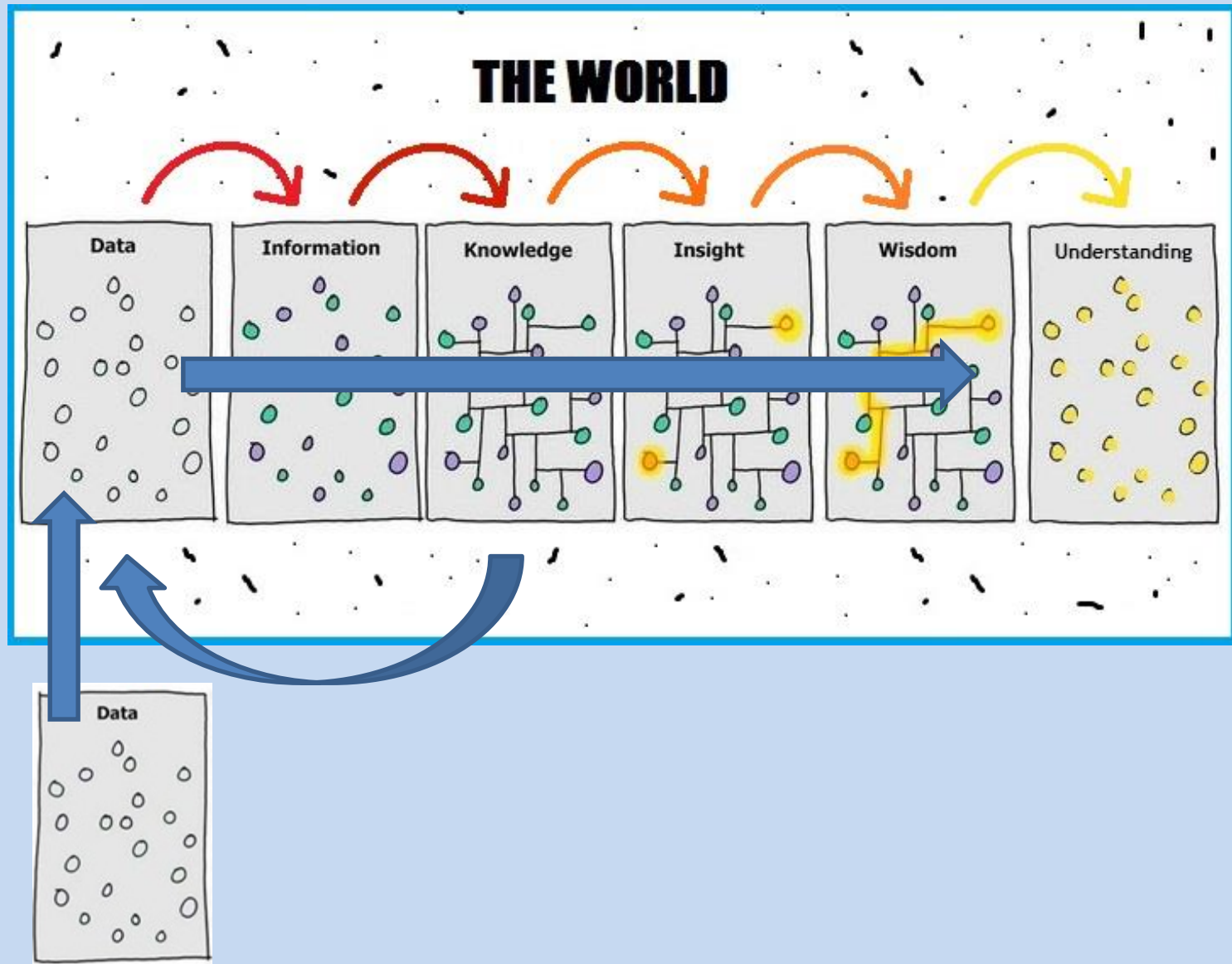




But never just one Iteration



It should be systems improvement



Ingredients for systems improvement

Standard methods & data vocabularies

Databases and GIS maps

→ capture

→ QA and continuous improvement

→ integration of site data and mapping

Inter-agency learning and data sharing

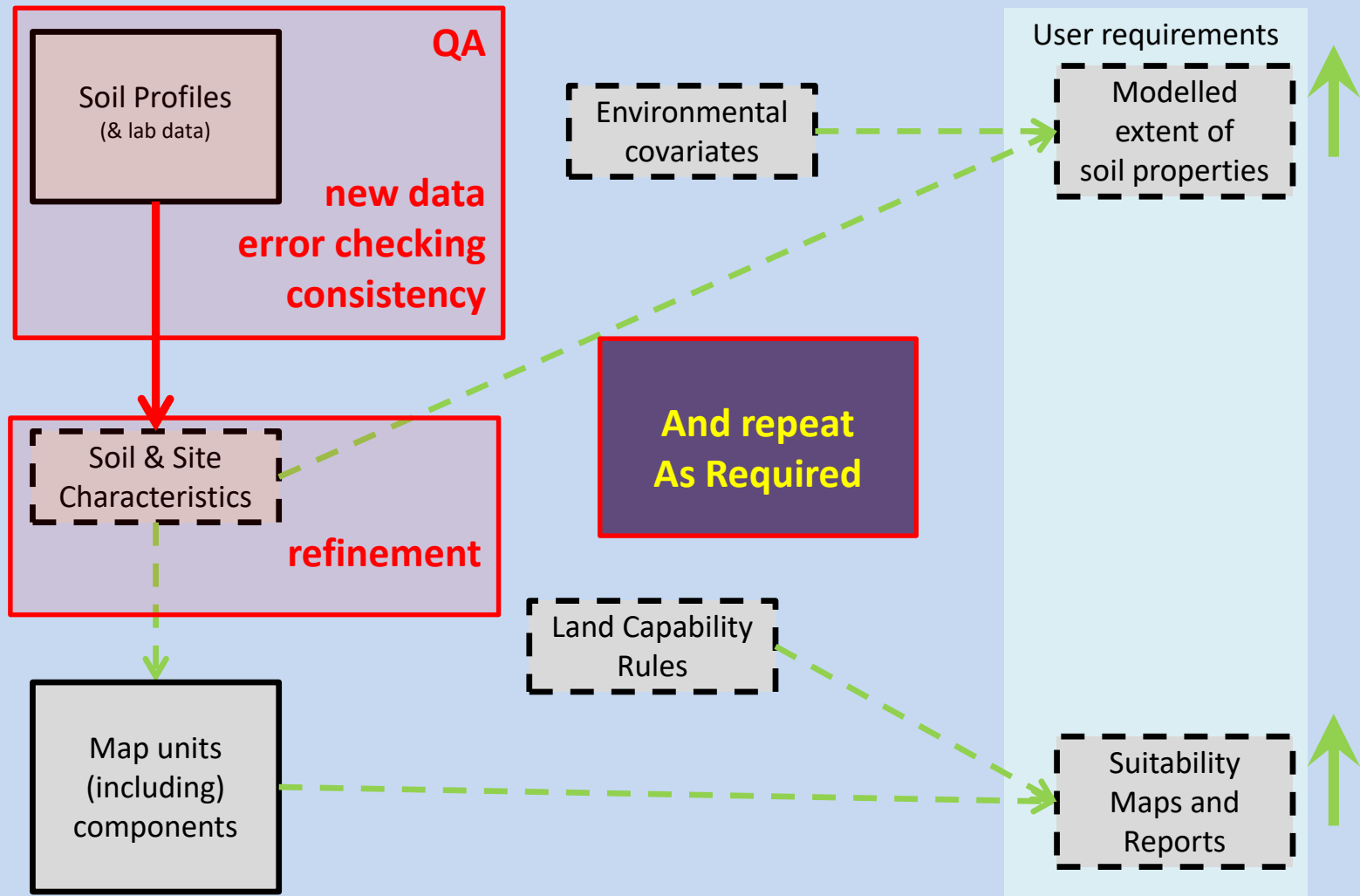
→ Modelling and digital mapping

→ User focused products

Soil vs Botanical

	Soil Survey/observation	Botanical Survey / observation
	Soil nutrient sampling	Herbarium specimen
	Site	Quadrat/releve
Brief observation	Soil type	Veg type
Detailed obs	Profile description	Species list
Inference	Soil classification	Plant community
Spatial extent	Map unit	Map unit
	rank	rank
	description	description
	soil types by %	(rarely done)
	Land capability maps	Maps of “rare” veg types
	Soil property maps and models	(not so easy to produce)

An integrated approach



Legacy Survey

Too valuable to ignore

Building on a Legacy

FILL-IN SITE DESCRIPTION SHEET

MAP REFERENCE										MAP SHEETS										AIR PHOTO REFERENCE										GENERAL INFORMATION										LOCAL INFORMATION										PRINCIPAL INFORMATION										SURVEY										SITE																																																																					
Sheet No. 100										Sheet No. 100										Sheet No. 100										Sheet No. 100										Sheet No. 100										Sheet No. 100										Sheet No. 100										Sheet No. 100										Sheet No. 100										Sheet No. 100																																																	
L2437--15136--56																														41015										NXP DR2+12																				B34																																																																															
DESCRIBED BY										DATE										LANDFORM ELEMENT										STREAM CHANNELS										LANDFORM SETBACK										STANDING WATER										ASPECT										SURVEY										SITE																																																											
HVBG										1056 MOU										46 MORL																																																																																																																							
EMERGENT										TALLEST STRATUM										MID STRATUM OR SUBORDINATE SCLODOPHYLLS										LOWEST STRATUM										RADIOPHYTE ATTRIBUTES										SURVEY										SITE																																																																															
Y										EUCREUMCEUTER																				HECONT HSP																																																																																																													
SLOPE										ELEVATION										MICRORELIEF										SUBSTRATE MATERIAL										SURVEY										SITE																																																																																									
20-0										1071																																																																																																																																	
NOTES AND DIAGRAM																																																																																																																																											
HORIZON										DEPTH										COLOUR										TEXTURE										FIELD TEXTURE										COARSE FRAGMENT										STRUCTURE										CUTAN										COMPOST										ROCK										FIELD pH										TOTAL SOLID										SURVEY										SITE									
A11										0.1510										YR42D										L										24R										55AB1										D3										6.0										583																																																											
A12										0.1518										205YR46D										CL										12										55AB										D4																				22D																																																											
B21T										0.1843										205YR46D										NC										12R										56PR2										D4										7.0										3522D																																																											
B22T										0.4369										205YR45D										NC										08AB2										D4										7.0										6012																																																																					
B3										0.6999										205YR35M										YLC										56AB2										R M3										RU										7.0										85																																																											
BC										0.991014										705YR57M										CL										-14R GD										M5AB										3 M2										7.0										1065																																																											

Figure 17. Example of site description on fill-in sheet.

A new era; 1980 -->

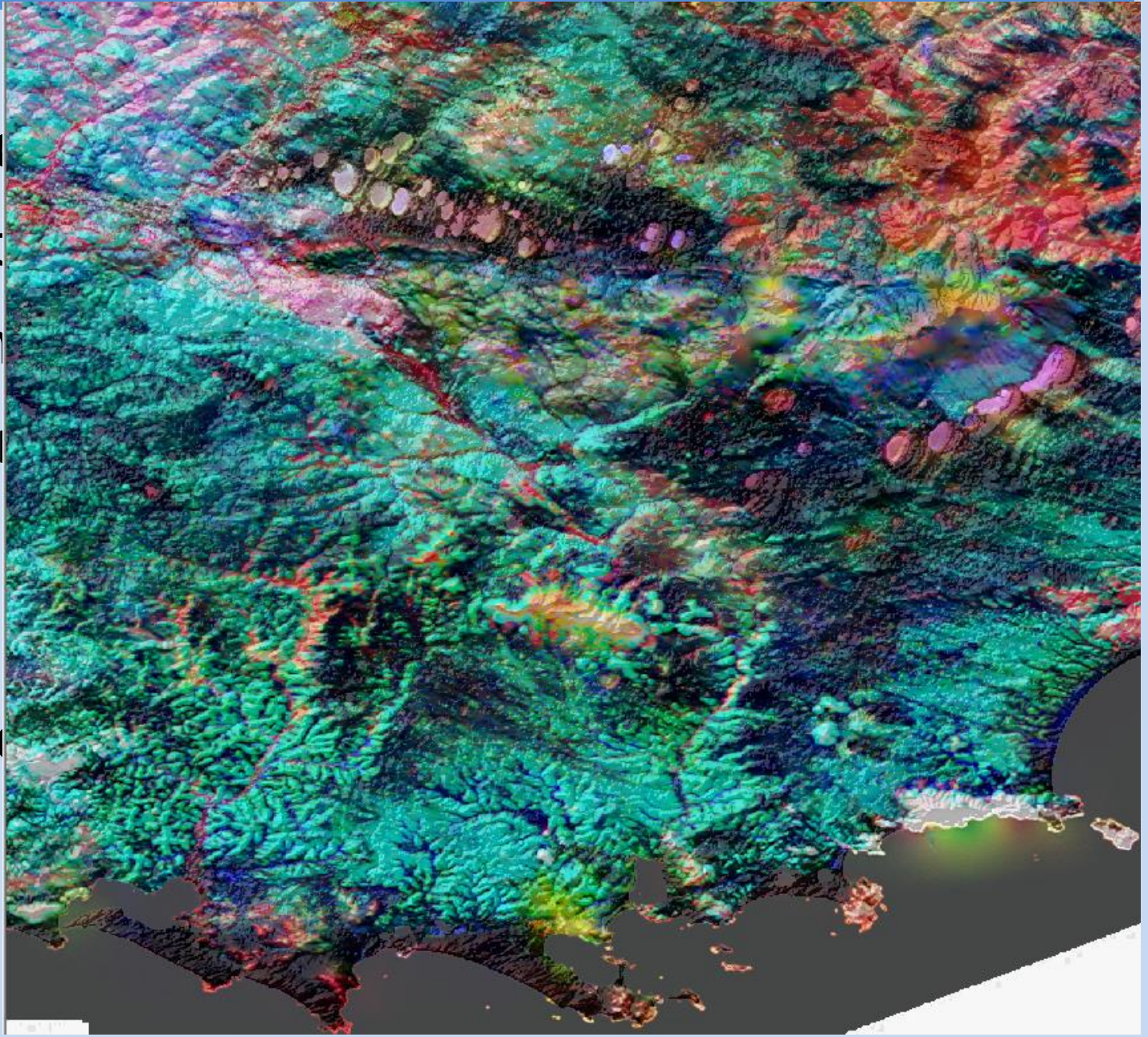
New evidence

- Satellite
- Terrain
- Airborne

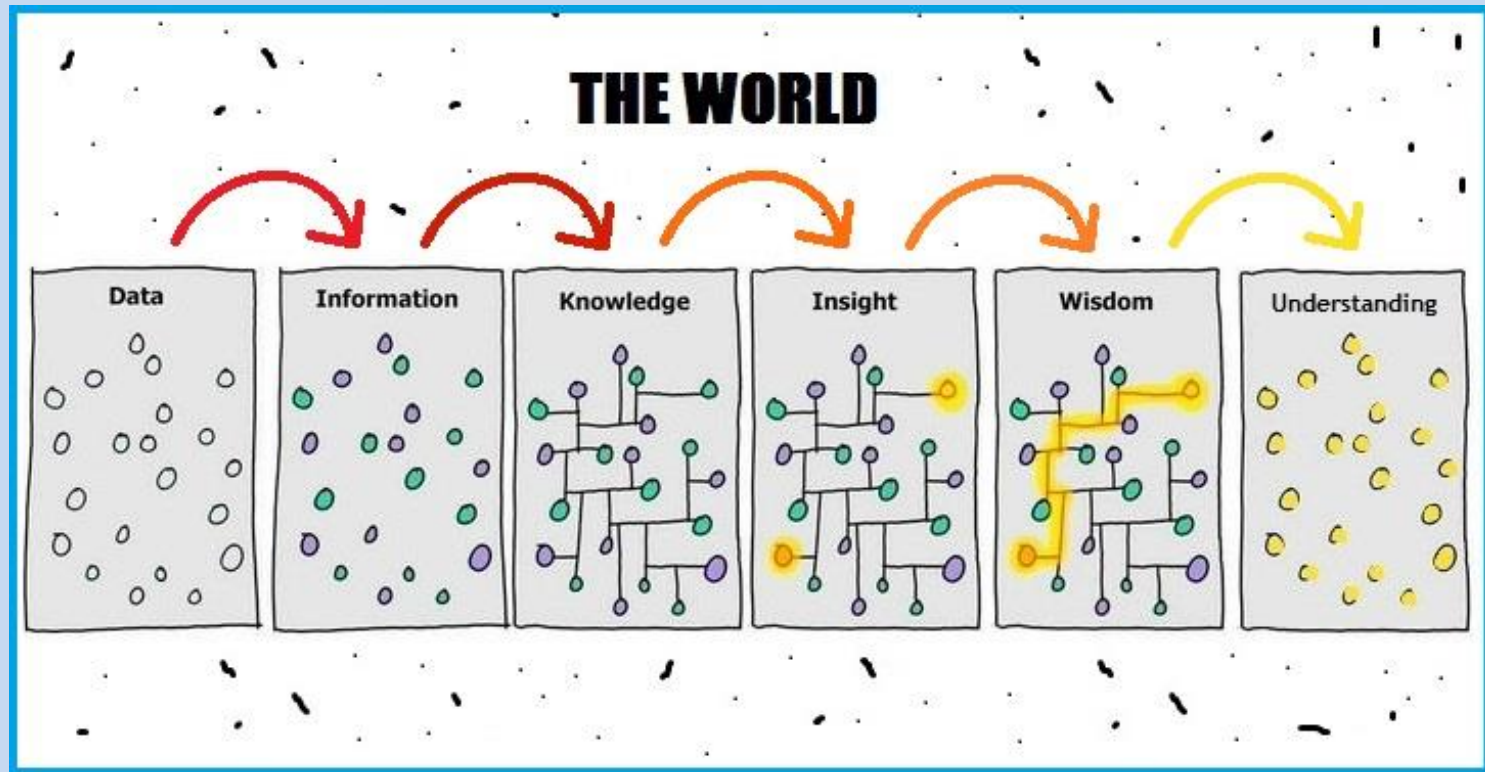
New data

- Eg Ora
- MS Acc

New GIS



We can do this better



Collaboration

stakeholders and key clients

skills, knowledge, capacity

State

Diff

policies & programs



Collaboration

Mentoring and

Database devel



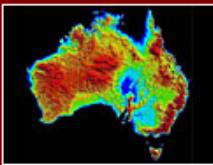
Survey method




Collaborative d

ASRIS

Australian Soil Resource Information System

- About
- Maps
- Methods
- Themes
- Help
- Collaborators
- Contacts







Australian Government
Department of Agriculture,
Fisheries and Forestry

Welcome to the Australian Soil Resource Information System

ASRIS provides online access to the best publicly available information on soil and land resources in a consistent format across Australia. It provides information at seven different scales ([view animation](#)).

- The upper-three scales provide general descriptions of soil types, landforms and regolith across the continent.
- The lower scales provide more detailed information in regions where mapping is complete. Information relates to soil depth, water storage, permeability, fertility, carbon and erodibility. Most soil information is recorded at five depths.
- The lowest scale consists of a soil profile database with fully characterised sites that are known to be representative of significant areas and environments.

Getting started
[What's new on ASRIS](#)
[View ASRIS through Google Earth](#) 
[Access APSRU reference sites through Google Earth](#) 
[State and Territory agency collaborators](#)

Collaboration

Soil and Landscape Grid of Australia

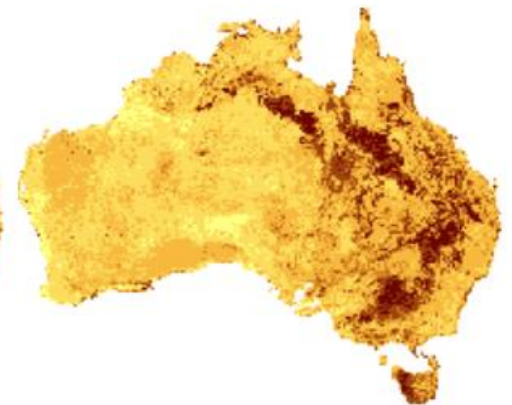
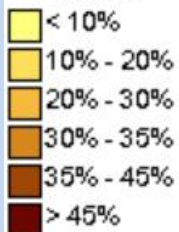
Clay

Layer 1 : 0 - 5 cm

Layer 2 : 5 - 15 cm

Layer 3 : 15 - 30 cm

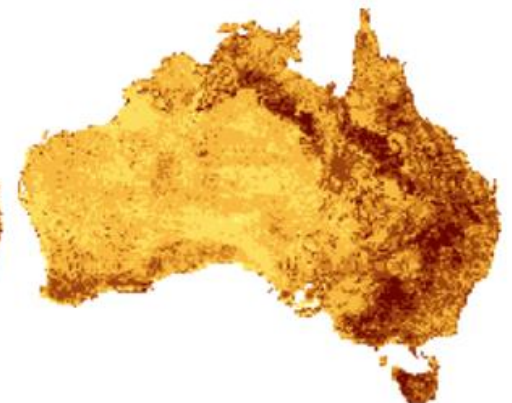
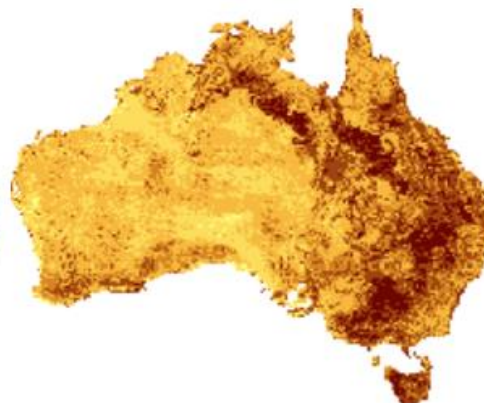
<VALUE>



Layer 4 : 30 - 60 cm

Layer 5 : 60 - 100 cm

Layer 6 : 100 - 200 cm



Collaboration

Northern Australia Land suitability assessment

GRDC Subsoil constraints and Forest Gravels

Collaboration

Northern Australia Land suitability assessment

GRDC Subsoil constraints and Forest Gravels

- **New data and QA processes**
- **Data exchange rapid**
- **Sharing modelling tools approaches and review**

Data collaboration Reminder

Standard structure and codes

Compatible data structure

- **Enterprise – Desktop - Field**

Import / export tools

QA processes including annotating change

- **collaborative approach**

Be Prepared to be surprised

Questions you never thought of can be addressed when you have compiled data.

Thanks

Soil.Data@dpird.wa.gov.au

NRInfo (www.agric.wa.gov.au/resource-assessment/nrinfo-western-australia)

ASRIS (www.asris.csiro.au)

TERN Soils

(www.clw.csiro.au/aclep/tern/index.html)