Understanding the impact and value of publicly available precompetitive geoscience data for mineral exploration

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Agricola, De Re Metallica, 1556

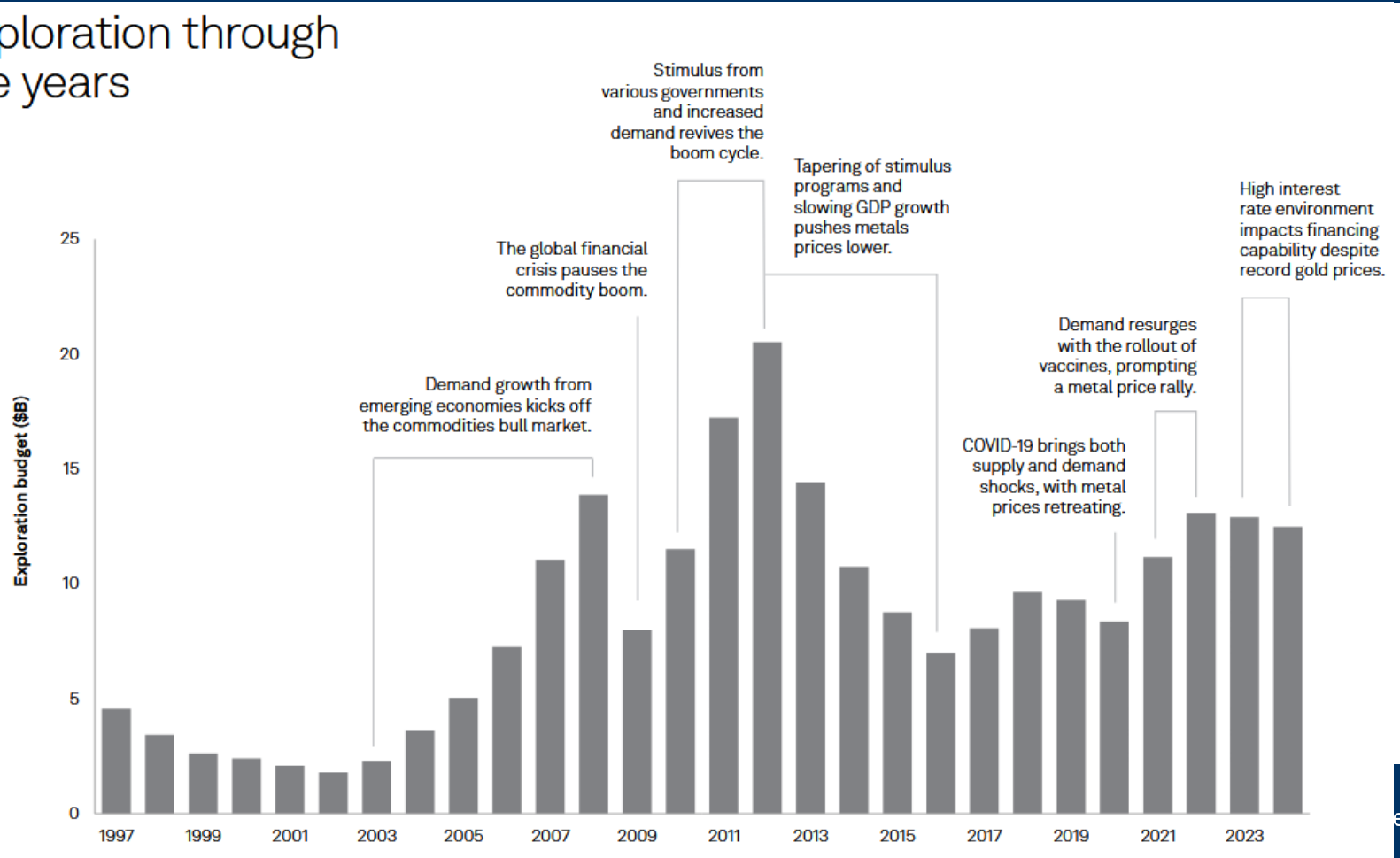
"*Nay, if I understand anything, greater wealth now lies hidden beneath the ground in the mountainous parts of your territory than is visible and apparent above ground*."

This still applies even after significant time spent exploring… but the question is, how do we know where to look?

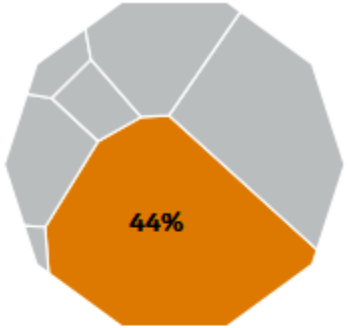
But first, some exploration context

A—Twig. B—Trench.

Global and US exploration trends



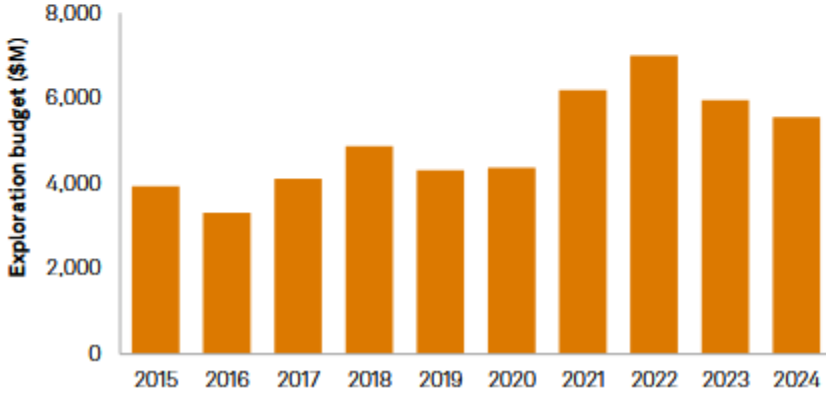
Global and US exploration trends



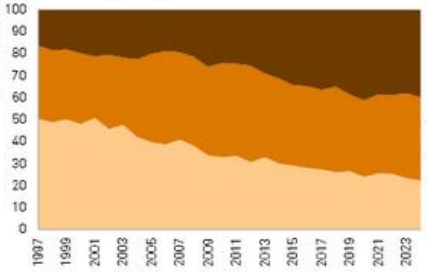
Gold

$ 5.55 B

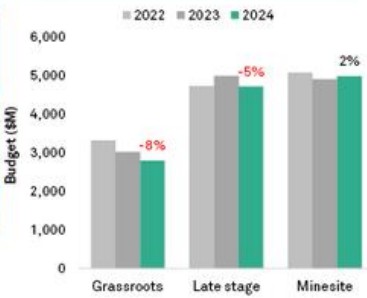
↓ 7% YOY



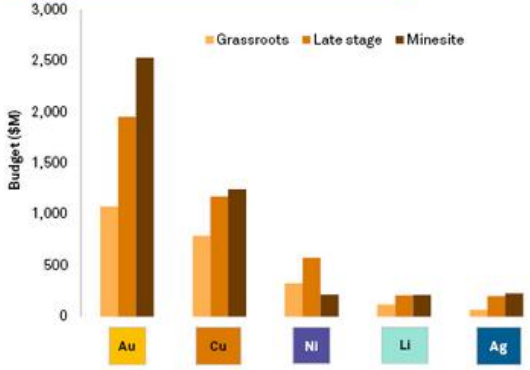
Exploration budget trend by stage, 1997–24 (% share)



Share of development stages 2022–24 ($M)



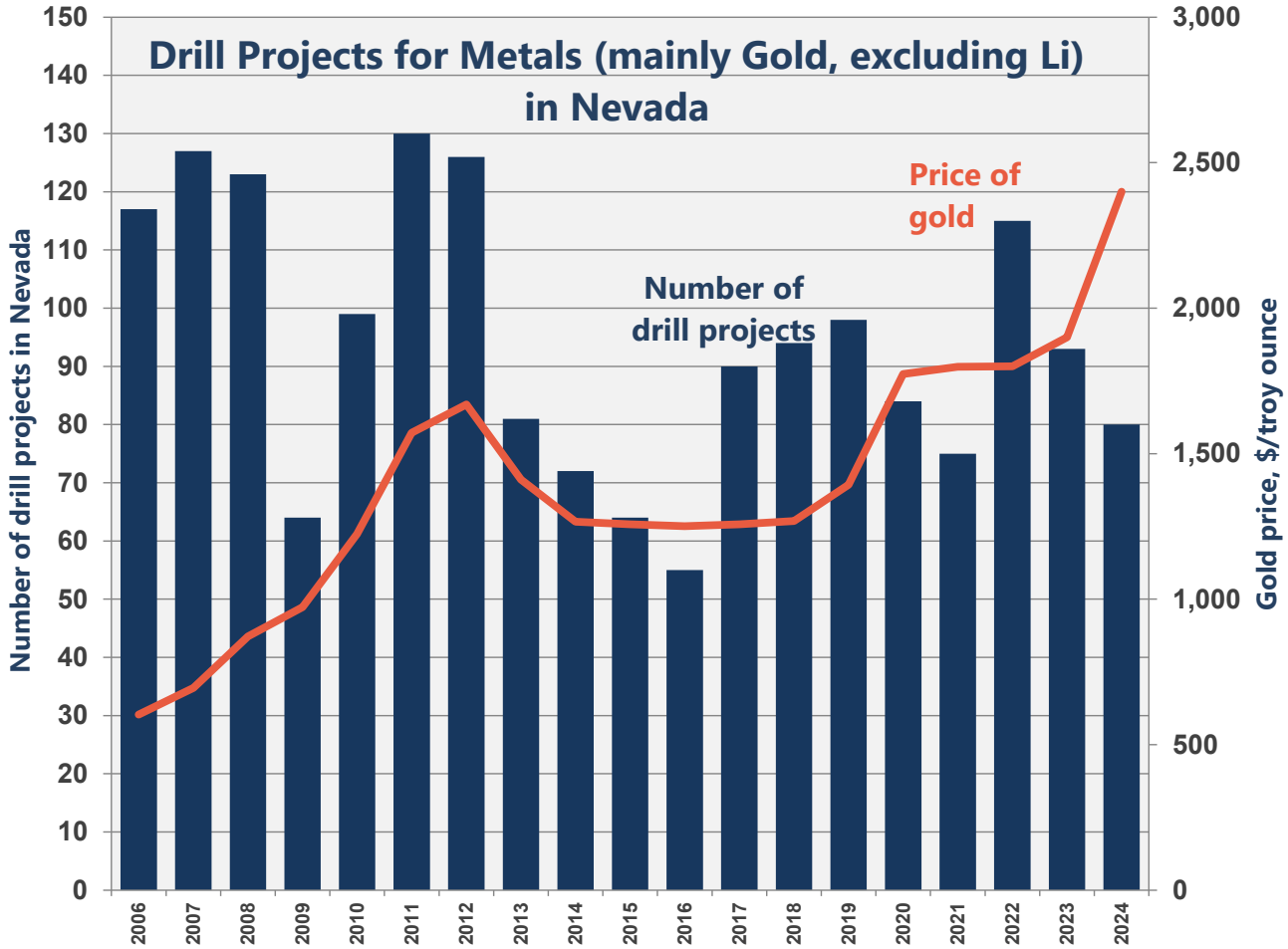
Commodity budget breakdown by stage, 2024 ($M)



Top explorers per stage

As of Oct. 31, 2024.
Source: S&P Global Market Intelligence.

Drilling for base and precious metals in Nevada is dropping



Global and US exploration trends

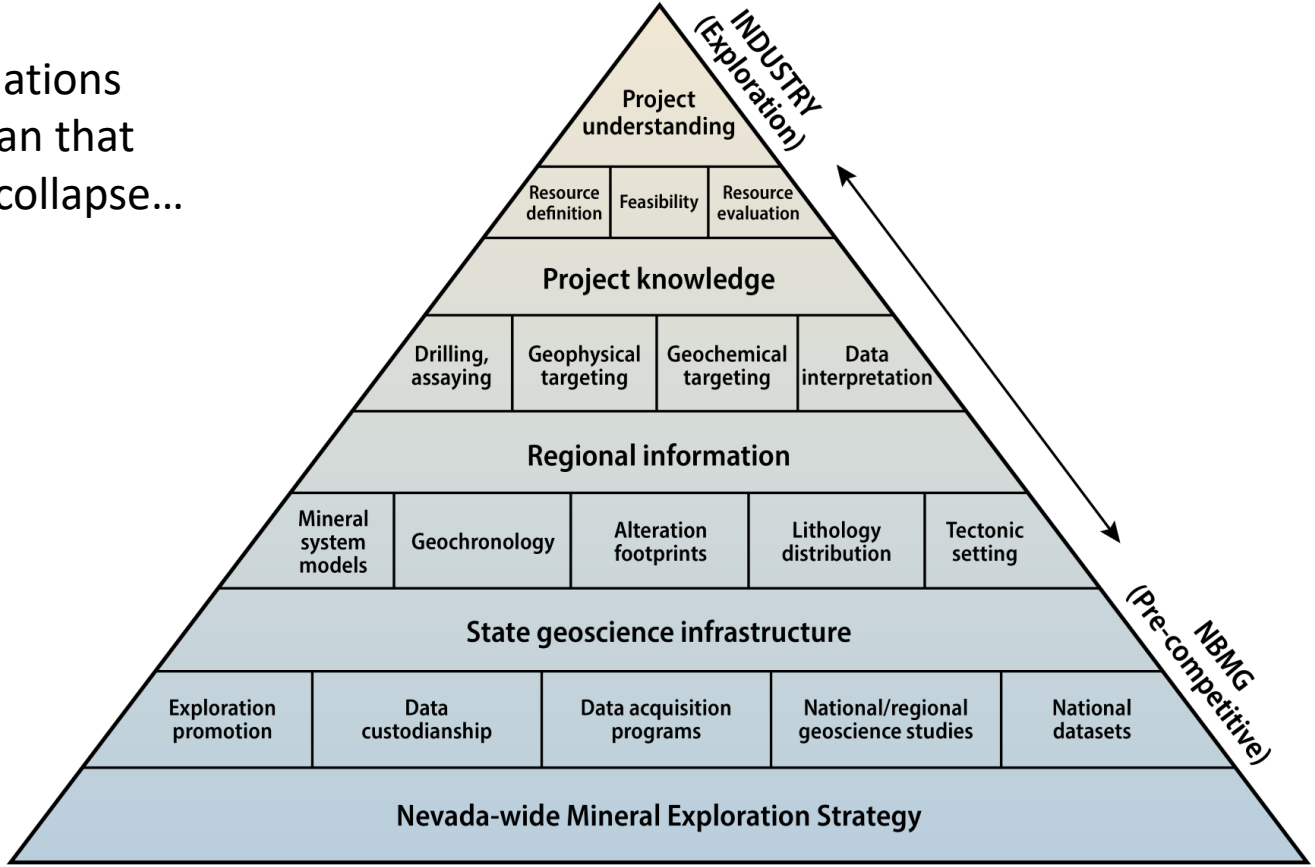
- S&P Global reports that **global nonferrous exploration budgets continue to decrease**; $12.48 billion in 2024 down from $12.9 billion in 2023 and $13 billion in 2022; reflects funding challenges in the junior and mid-tier sector
- **Gold exploration budgets fell significantly** to $5.5 billion, down 7% from $5.92 billion in 2023 and $7 billion in 2022, with junior gold explorer expenditure falling to $1.8 billion
- US exploration expenditure was $1.65 billion in 2024, up from $1.62 billion in 2023; however, **US gold exploration expenditure decreased** to $844 million from $881.6 million in 2023
- Copper saw a 2% increase in exploration spending in 2024 to $3.2 billion, with $455.6 billion spent in the US
- Lithium exploration expenditure increased by 30% in 2024, passing the $1 billion mark with $131 million of exploration expenditure in the US but drilling programs are dropping in NV; 30 in 2023, 8 in 2024
- Challenging times despite predicted and actual increases in metal demand; how do we ensure continued exploration success?

Precompetitive data; what is it and why is it important?

- Main example of precompetitive data acquisition in the US is the USGS Earth MRI program; started 2019 with an annual budget of $11 million, enhanced Bipartisan Infrastructure Law funding of an additional $64.0 million each year from FY 2022 to FY 2026, fiscal cliff approaching
- Stated aims (as on the Earth MRI website; my emphasis added):
- “The goal of Earth MRI is to improve our knowledge of the geologic framework in the United States **and to identify areas that may have the potential to contain undiscovered critical mineral resources**. **Enhancement of our domestic mineral supply** will decrease the Nation’s reliance on foreign sources of minerals that are fundamental to our security and economy.”
- **However, need to target key areas where research is likely to be impactful**; if we want to identify resources and enhance supply, we need to focus on areas and mineral systems where this is likely to happen
- Identifying undiscovered metal resources **does not always equal potential supply and enhanced domestic production**; technical successes are good learning exercises but do not provide supply
- This is the crux of the problem; are we making the best of the opportunity?
- However before we get into that, what do we mean by precompetitive data?

Precompetitive data; the foundation of mineral supply chains

Poor foundations usually mean that structures collapse…



Precompetitive data; what is it and why is it important?

- Precompetitive data; the collection, collation and integration of basic geoscientific data by government agencies – i.e. what we at the NBMG, USGS etc. are doing
- **Strategic** regional geoscientific research that upgrades historic datasets and fills gaps by acquiring modern geoscientific data typically at geologic province scale; vital for stimulating, supporting, and derisking exploration
- Governments generate or upgrade datasets over areas considered to be **prospective but under-explored (if they think about these data)**
- Serious mineral exploration in the US for perhaps 200 years, so where is under-explored?
- ***Probably most of the country***; e.g. 50% of Nevada's surface geology consists of Quaternary alluvial deposits, with more barren cover units over prospective geology – what lies beneath? Have we systematically explored everywhere else?
- Lack of precompetitive geological, geophysical and geochemical data to "see through" barren cover means 50% of the Silver State (and the wider US) is semi-unattractive for exploration; just one example of many indicating the value of precompetitive data

Precompetitive data; what is it and why is it important?

- What types of data?
- **Geological** – mapping, structure
- **Geochemical** – surface, lithogeochemical, geochronological, isotopes
- **Geophysical** – key requirement to understand the subsurface
- Key role for **sample acquisition, storage and curation**
- Need all of these, but also **MUST** recognize that each dataset has multiple values – way beyond mineral exploration into environmental, geothermal, water resources, and much more (good for politicians and other stakeholders)
- Need to identify **best approaches** for different regions with multiple mineral systems (and other resource) outcomes
- **Strong case for expansion of US and Nevada precompetitive data programs** (especially given we are years behind already vs numerous other countries) but will this happen?
- Return on investment (ROI) of precompetitive data demonstrably high – if you want exploration success, precompetitive data is a crucial investment

Geoscience Australia, 2024 – notice lack of USA

Global discoveries underpinned by precompetitive geoscience: 2017–2021

Country	Deposit Name	Commodity	Tier	Mineral System	Depth (m)	Precompetitive			
						Geophysics	Geology/ Geochem	Genetic model	Legacy exploration
Australia	**Boda**	Au, Cu, Ag	2	Porphyry	211	✓			
Australia	**Gonneville**	PGE, Ni, Cu, Co, Au	1	Mafic intrusion	30	✓		✓	✓
Australia	**Havieron**	Au, Cu	2	Orogenic	400				✓
Australia	**Hemi**	Au	1	Sanukitoid	25		✓	✓	
Australia	**Oak Dam**	Cu, Au, U_3O_8	2	IOCG	800	✓		✓	
Australia	**Winu**	Cu, Au, Ag	2	Orogenic	40	✓	✓		✓
Brazil	Jaca	Cu, Au	2	Porphyry	0			✓	
Canada	Dixie Lake (New)	Au	1	Orogenic	10	✓			✓
Canada	Queensway	Au	2	Orogenic	5			✓	✓
China	Dahongliutan	Li, Be	2	Pegmatite	0	✓	✓		
Finland	Ikkari	Au	2	Orogenic	10	✓	✓		
Guinea	Bankan	Au	2	Orogenic	0	✓		✓	

Discoveries in Canada 1970-2010 (excludes e.g. Kidd Creek)

Exhibit 15: Examples of discoveries of deposits and significant prospects in which government geoscience played a role (since 1970)

NUNAVUT
Meliadine District (gold)
Committee Bay (gold)

NORTHWEST TERRITORIES
Ekati (diamonds)
Sue-Dianne, Nico (copper, gold)

YUKON
Kudz Ze Kayah (base metals)
Brewery Creek (gold)
Lucky Joe extension (copper, gold)

BRITISH COLUMBIA
Joss'alun (copper)
LJ (zinc-lead)
Fran (gold)

ALBERTA
Buffalo Hills (diamonds)
Zama Lake (Pb-Zn)
Marguerite River (U)

Saskatchewan
Fort à la Corne (diamonds)
Contact Lake (gold)

Manitoba
Photo Lake (base metals)
Lalor Lake (base metals)
Eden Lake (rare earths)
Little Stull Lake (gold)
Monument Bay (gold)

ONTARIO
Pickle Lake (gold)
Separation Rapids (lithium)
Cargill Township (phosphate)

QUEBEC
Canadian Malartic (gold)
Troïlus (copper-gold)
Sept-Îles (apatite)
Lac St-Jean (wollastonite)

NEW BRUNSWICK
Camel Back (base metals)
Clarence Stream (gold)
Sussex (potash)

NOVA SCOTIA
East Kempville (tin)
Murchyville (gypsum)
McLeod Quarry (marble)

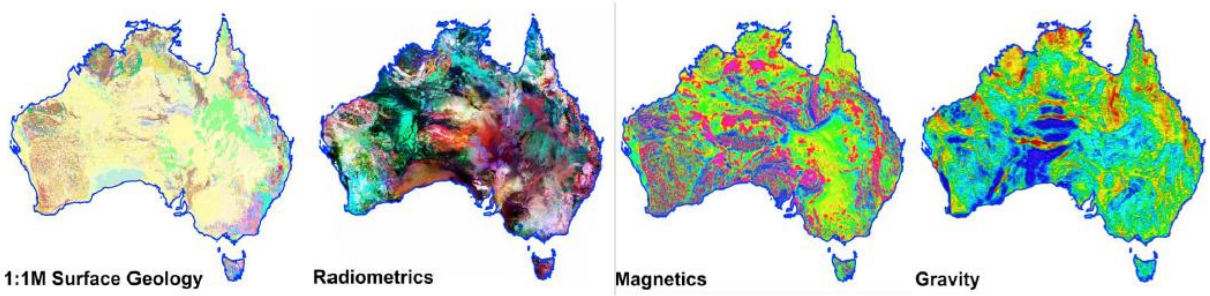
NEWFOUNDLAND AND LABRADOR
Strange Lake (rare earths)
Voisey's Bay (nickel)
Central Mineral Belt (uranium)

Geoscience Australia, 2024 – already building on an advanced baseline

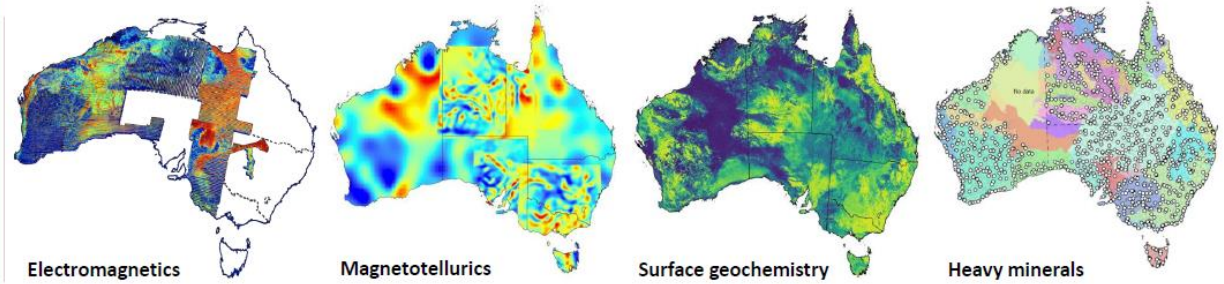
National geoscience data coverages

- Continued improvement of established but incomplete coverages
- Rapid collection of new national data coverages
- World-leading and freely available

Gold standard datasets continue to be improved and update

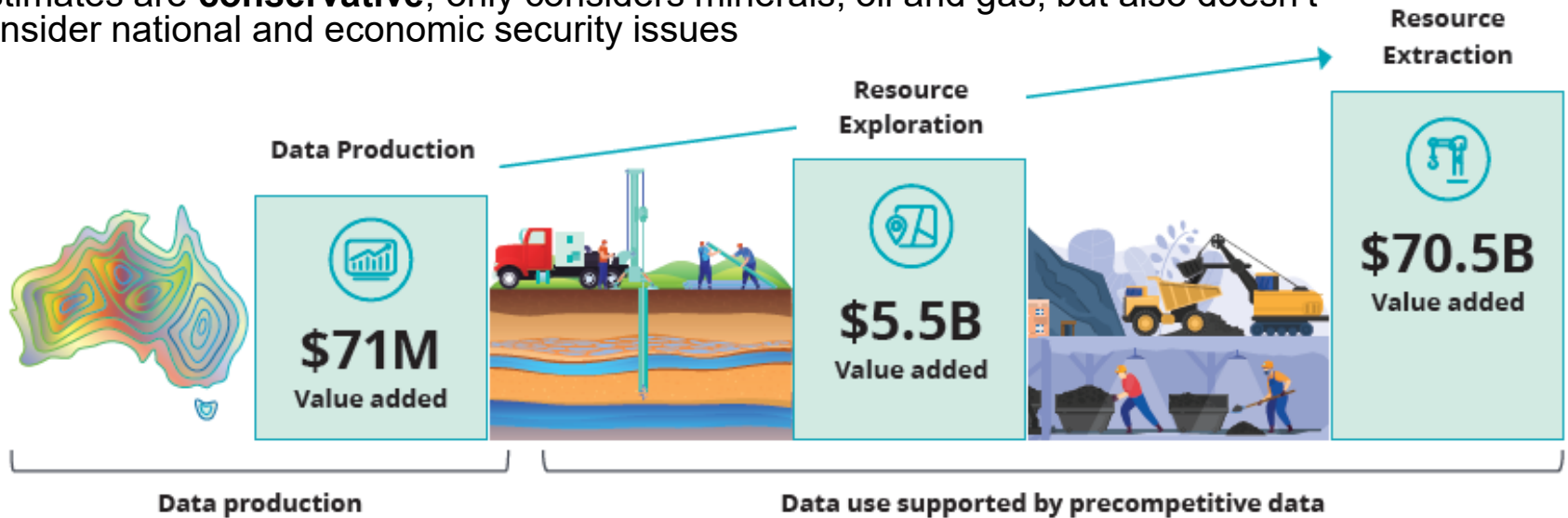


Examples of new innovative datasets are being added:



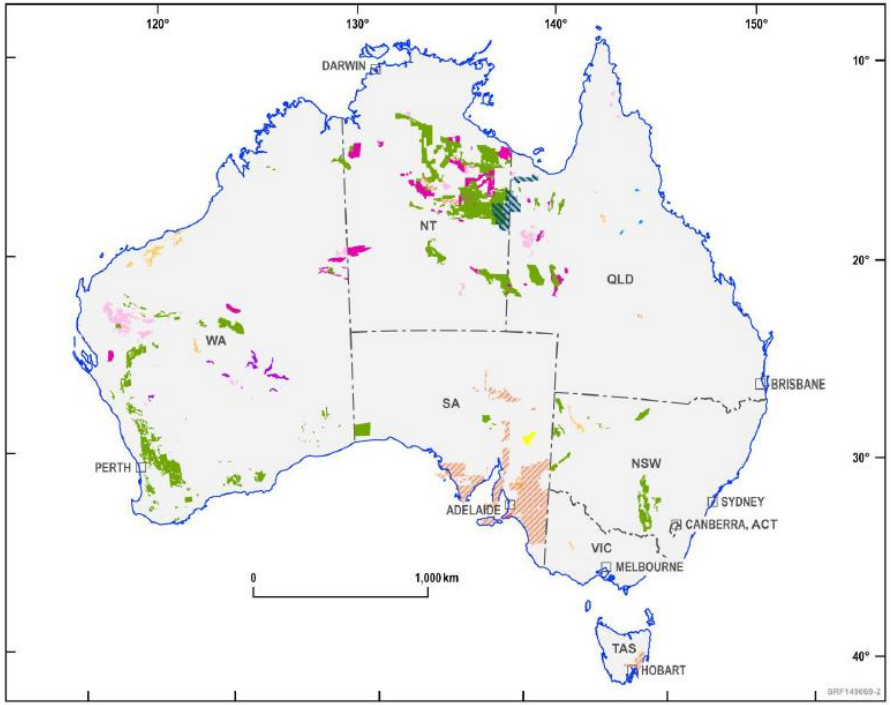
Impact of precompetitive data in Australia (Deloitte, 2023)

- Economic contribution of precompetitive geoscience data and analysis in Australia in 2021–22; supported **$76 billion of value add** to the Australian economy, equivalent to 3.5 per cent of GDP, including:
- **Precompetitive geoscience data and analysis production (i.e. government spend)**: $71 million in value added and 432 FTE jobs supported
- Precompetitive geoscience data and analysis for **resource *exploration***: **$5.5 billion in value added and 24,361 FTE jobs supported**
- Precompetitive geoscience data and analysis for **resource *extraction*** (including non-ferrous metal ores and oil and gas extraction): **$70.5 billion value added and 55,549 FTE jobs supported**
- Estimates are **conservative**, only considers minerals, oil and gas, but also doesn't consider national and economic security issues



The impact of precompetitive data; 2016-2023 in Australia

The impact of government geoscience on exploration in Australia since 2016



Tenements taken up or reinvigorated by precompetitive geoscience since 2016 (current for January 2024)

- *Australian Critical Minerals List (ACML)*
- *Rare Earth Elements (REE)*
- *Hydrogen*
- *Mineral*
- *Petroleum*
- *Gold*
- *Potash*
- *Carbon Capture, Utilisation and Storage (CCUS)*
- *Uranium*
- *Capital city*

- 168 companies
- 1,283 tenements
- Area of 532,000 km^2 (larger than California)

Precompetitive geoscience provides the foundation for economic activity in downstream mineral exploration and extraction industries worth over 1,000 times initial expenditure.

Source: Deloitte Access Economics: https://dx.doi.org/10.26186/148640

AUSTRALIA MINERALS | GEOSCIENCE AUSTRALIA

Not just new data but legacy data and samples

- Economic study and modelling by ACIL Allen into just South Australian precompetitive geoscience data in 2024
- South Australian Geological Survey has public data with a **replacement value of more than $7.5 billion**
- Repository of information is not just data but physical samples and other tangible assets
- Survey data integral to some of the most significant discoveries in South Australia's mining history, with discoveries at Oak Dam, Carrapateena and Olympic Dam all supported by these data
- Need to consider long-term benefits; ROI may not appear for ~10 years, but how often do we use legacy data generated decades ago – long term investment, long term returns (Earth MRI, STATEMAP, NGGDPP)
- Australia, Canada, Finland, and many other countries reaping the rewards of decades of investment, and we are 20 years behind the best

Why Australian and other government investment?

- Simply put, they know they will get a good return!
- Common knowledge, not just in Australia; see case studies from Canada, Chile, Spain, north of Ireland and many more
- Not just a case of throwing money at a problem; needs **strategic, collaborative, multidisciplinary thinking**
- Strategic thinking; prospective areas, key datasets, what do we need to know?
- Does the US have a strategy? Do we have one in NV?

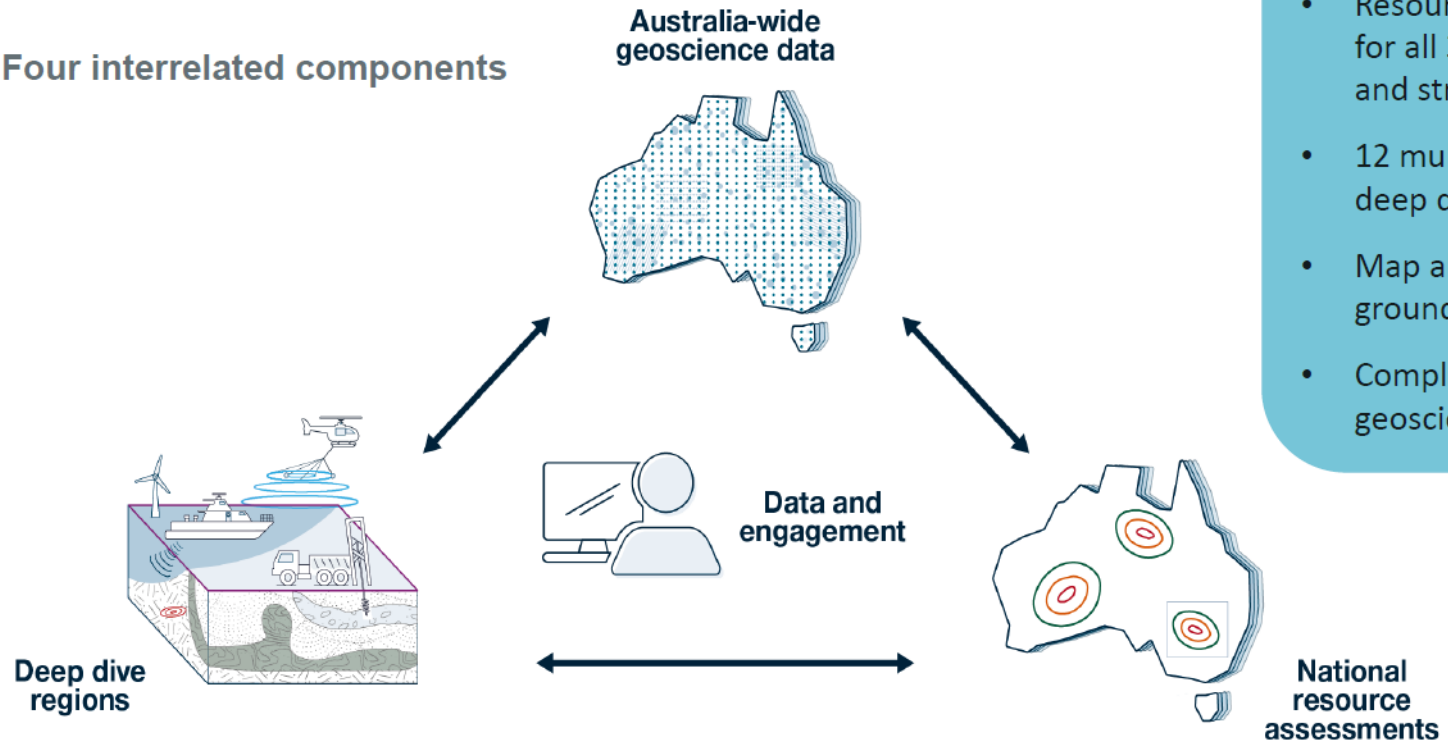
Precompetitive data; things to think about

- What key knowledge and data gaps we have on a state, regional and national basis, what should we be targeting?
- Piecemeal, non-strategic approaches with uncertain outcomes in terms of understanding critical and other resource potential in an area is not the most effective approach – but this is what the US is doing
- Better communication in this regard is needed; between federal government/USGS and states and between individual states
- Focus may need to remain on critical metals and minerals for strategic reasons (to sell to the Feds…), but we also need to consider that most mineral systems will contain one critical mineral or another
- Need to listen to and engage with industry better – outline opportunities
- Less opacity and siloing on decision making and ranking, more collaboration; rising tide floats all boats

We need something like this perhaps…

Resourcing Australia's Prosperity

Four interrelated components



Key RAP deliverables by 2060:

- Resource potential maps for all 36 critical minerals and strategic materials
- 12 multi-commodity deep dive studies
- Map all of Australia's groundwater systems
- Complete Australia-wide geoscience datasets

The value proposition of US precompetitive data?

- Why should the US federal and state governments support precompetitive data acquisitions?
- Outlined multiple good reasons in this presentation, but we need to make this case more effectively at numerous levels
- Requires assessment of impact, ROI and more; speak the language that policymakers understand
- Need to have clear arguments against the typical “industry should pay for this” response – could argue the same for far greater DoE spending for example
- Without this demonstration of the impact of precompetitive data, increased funding in the future may be harder to secure
- Never any guarantees with policymakers…

Need to have a clear value proposition (Schodde, 2018)

Value proposition for Governments' supporting exploration

CASE STUDY 2: 2015 Review of West Australia's Exploration Incentive Scheme

Every $1m spent on the EIS for greenfield exploration will (in the long run) generate $23.7m in benefit to the State

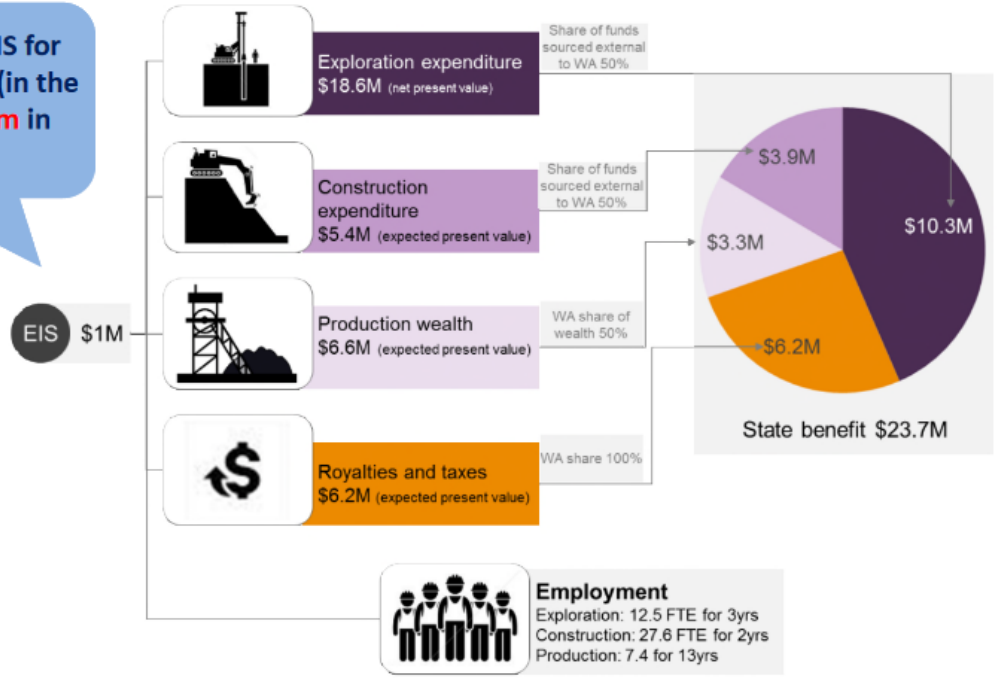
Study was based on empirical modelling of the WA's EIS scheme, which was introduced in 2009. Total spend (to June 2017) is A$130m.

EIS funding is focused on providing new pre-competitive geoscience data.

1) Geophysics & geochem surveys
2) Innovative drilling
3) 3D-geological mapping
4) Strategic R&D with Industry
5) Working relations with Indigenous Communities

Assumes "normal" commodity prices. A low / high price scenario generates $0m / $38.3m benefit

Present Value calculated using a 12% discount rate.



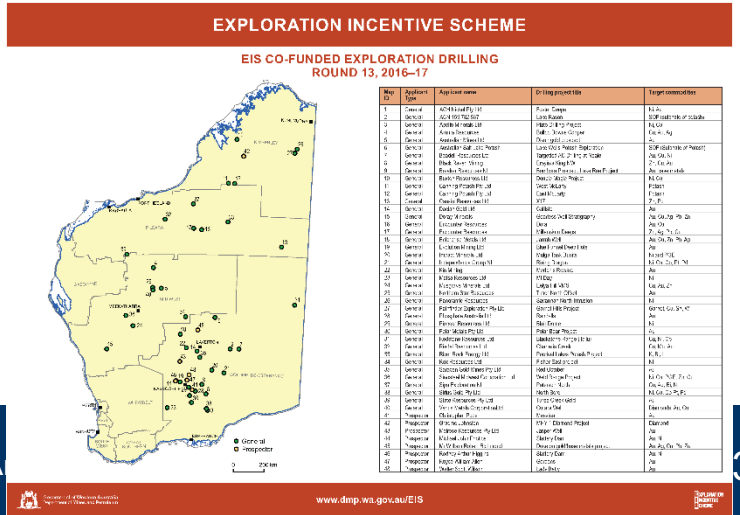
Source: Report on the Exploration Incentive Scheme for the WA Dept of Mines and Petroleum by ACIL Allen Consulting Jan 2015

Public-private partnerships?

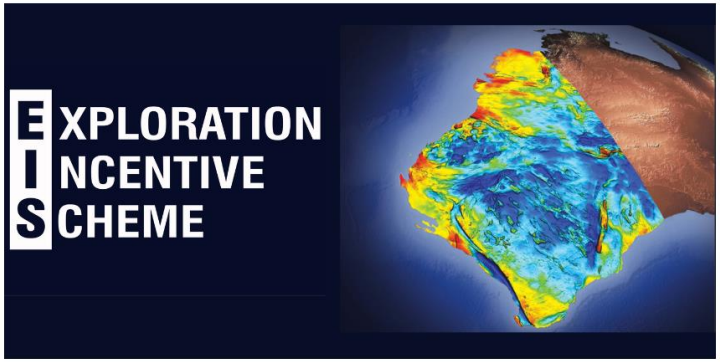
- Significant opportunities in this area in addition to typical public precompetitive data acquisition
- Already seen some work in this area but would be good to formalize approaches e.g., for USGS Earth MRI – happy to talk about opportunities
- Need to look for best practice and most impactful approaches
- Sample curation and retention key to some of these opportunities but sometimes a difficult selling point in the US
- Need to think creatively, understand the cutting edge, apply what demonstrably works elsewhere here

The US needs to support exploration success and derisking

- Extremely successful schemes in Australia like co-funded exploration drilling, geophysical acquisitions and energy analysis for geothermal and other commodities
- What schemes might be effective in the US? Is anyone even discussing this?
- Need to emphasize the value-add to policymakers and how these schemes work



The Exploration Incentive Scheme (EIS) is Western Australian State Government initiative designed to promote and accelerate exploration in greenfield regions to assist in Western Australia transition to net zero emissions by 2050. The program started in April 2009 and is managed by the Geological Survey of Western Australia (GSWA) within the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS).

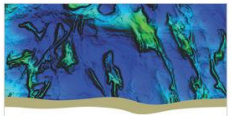


Applications open 4 August 2025 - Apply for co-funded grants programs.

EIS co-funded grant programs and pre-competitive data acquisition

Co-funded Exploration Drilling Program

A competitive program that offers co-funding to innovative exploration drilling projects in WA.



Co-funded Geophysics Program - Mineral

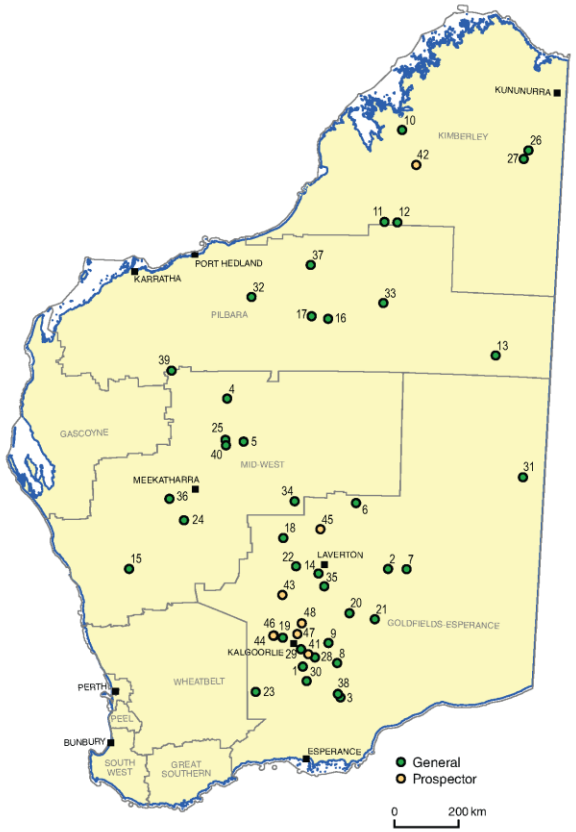
Encouraging greenfields geophysical exploration in WA's mineral resources sector.

Co-funded Energy Analysis Program

Supporting petroleum and geothermal exploration in WA by co-funding energy systems projects.

EXPLORATION INCENTIVE SCHEME

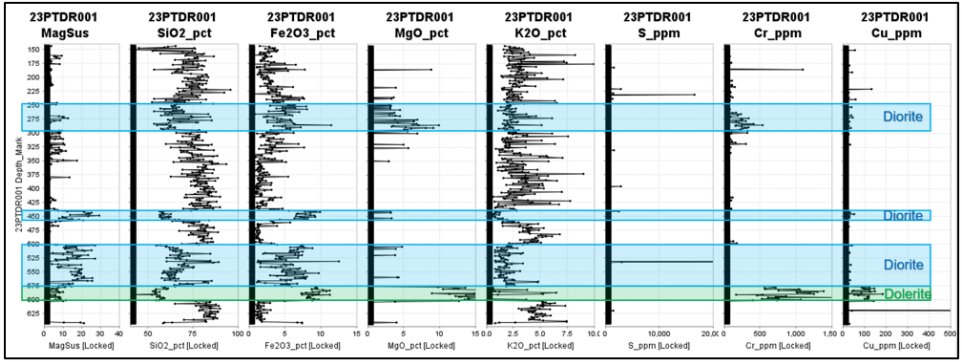
EIS CO-FUNDED EXPLORATION DRILLING
ROUND 13, 2016–17

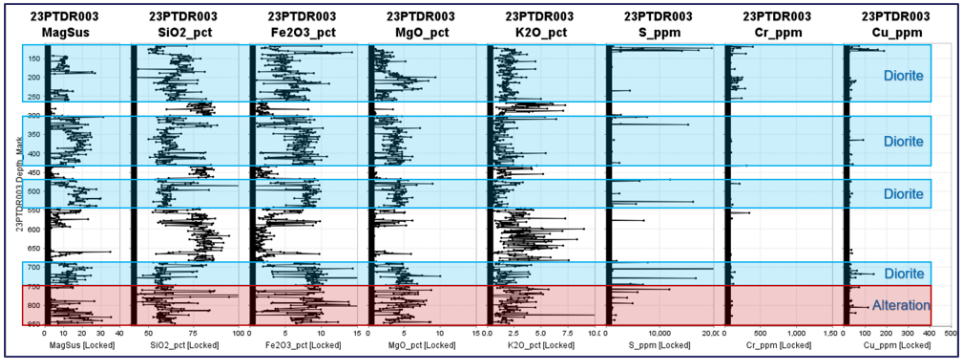


Map ID	Applicant Type	Applicant name	Drilling project title	Target commodities
1	General	ACH Nickel Pty Ltd	Foster Deeps	Ni, Au
2	General	ACN 159 782 537	Lake Rason	SOP (sulphate of potash)
3	General	Apollo Minerals Ltd	Plato Drilling Project	Ni, Cu
4	General	Aruma Resources	Bulloo Downs Copper	Cu, Au, Ag
5	General	Australian Mines Ltd	Dixon gold prospect	Au
6	General	Australian Salt Lake Potash	Lake Wells Potash Exploration	SOP (Sulphate of Potash)
7	General	Beadell Resources Ltd	Targetted AC Drilling at Neale	Au, Cu, Ni
8	General	Black Raven Mining	Erayinia King NW	Zn, Cu, Au
9	General	Breaker Resources NL	Bombora Prospect, Lake Roe Project	Au, base metals
10	General	Buxton Resources Ltd	Double Magic Project	Ni, Cu
11	General	Canning Potash Pty Ltd	West McLarty	Potash
12	General	Canning Potash Pty Ltd	East McLarty	Potash
13	General	Cassini Resources Ltd	X17	Zn, Pb
14	General	Dacian Gold Ltd	Callisto	Au
15	General	Doray Minerals	Gearless Well Stratigraphy	Au, Cu, Ag, Pb, Zn
16	General	Encounter Resources	Dora	Au, Cu
17	General	Encounter Resources	Millennium Deeps	Zn, Ag, Pb, Cu
18	General	Enterprise Metals Ltd	Jarrah Well	Au, Cu, Zn, Pb, Ag
19	General	Evolution Mining Ltd	Blue Funnel Deep Hole	Au
20	General	Impact Minerals Ltd	Mulga Tank Dunite	Ni and PGE
21	General	Independence Group NL	Rising Dragon	Ni, Cu, Co, Pt, Pd
22	General	Kin Mining	Merton's Reward	Au
23	General	Matsa Resources Ltd	Mt Day	Ni
24	General	Musgrave Minerals Ltd	Eelya Hill VMS	Cu, Au, Zn
25	General	Northern Star Resources	Timor North Offset	Au
26	General	Panoramic Resources	Savannah North Intrusion	Ni
27	General	Pathfinder Exploration Pty Ltd	Garnet Hills Project	Garnet, Cu, Sn, W
28	General	Phosphate Australia Ltd	Randalls	Au
29	General	Pioneer Resources Ltd	Blair Dome	Ni
30	General	Polar Metals Pty Ltd	Polar Bear Project	Au
31	General	Redstone Resources Ltd	Blackstone Range (Tollu)	Cu, Ni, Co
32	General	Riedel Resources Ltd	Charteris Creek	Cu, Mo, Au
33	General	River Rock Energy Ltd	Percival Lakes Potash Project	K, Br, Li
34	General	Rox Resources Ltd	Fisher East project	Ni
35	General	Saracen Gold Mines Pty Ltd	Red October	Au
36	General	Sinosteel Midwest Corporation Ltd	Weld Range Project	Ni, Cu, PGE, Zn, Cu
37	General	Sipa Exploration NL	Paterson North	Cu, Au, Bi, Ni
38	General	Sirius Gold Pty Ltd	North Bore	Ni, Cu, Co Pt, Pd
39	General	State Resources Pty Ltd	Turee Creek Gold	Au
40	General	Venus Metals CorporationLtd	Curara Well	Diamonds, Au, Cu
41	Prospector	Christopher Potts	Messina	Au
42	Prospector	Graeme Johnston	MHY 1 Diamond Project	Diamond
43	Prospector	Melrose Resources Pty Ltd	Jasper Well	Au
44	Prospector	Michael John Photios	Slattery Dam	Au, Ni
45	Prospector	Mr William Robert Richmond	Duketon gold/base metals project	Au, Ag, Cu, Pb, Zn
46	Prospector	Rodney Arthur Higgins	Slattery Dam	Au, Ni
47	Prospector	Royce William Allen	Gordons	Au
48	Prospector	Walter Scott Wilson	Lady Betty	Au

One example; drilling of a conceptual target

- Co-funding of $210k for two diamond drillholes for a total depth of 1.5 km targeting a magnetic anomaly that actually reflected magmatic processes in the pluton; “no further exploration for copper, base metals or precious metals is warranted” – quick turnaround of project





IGO NEWSEARCH PTY LTD

CO-FUNDED DRILLING REPORT
PATERSON DD GRANITE CARAPACE

For the Period

1 June 2023 to 31 May 2024

Final Report for DAG2023/01017602 (R27)

Attachment 7: **Downhole plots for magnetic susceptibility and selected elements for both EIS drill holes. The element data is pXRF. Tonalite intervals are unshaded, diorite intervals are light blue, the alteration zone in 23PTDR003 is pink, and the dolerite dyke in 23PTDR001 is green. Note the correlation of magnetic susceptibility with diorite intervals.**

The US needs curate data and samples better

Nation's biggest core library to drive discovery

Perth will soon host Australia's biggest and newest drill core facility, with const
$7.

- **Expansion promotes State and national mineral and petroleum search**
- **Project will support up to 70 construction jobs**

Perth will soon host Australia's biggest and newest drill core facility, with construction now under way as part of a $7.3 million transformation of the Perth Core Library.

Launching the $5.1 million main construction stage today, Mines and Petroleum Minister Bill Marmion and Commonwealth Finance Minister Mathias Cormann said the historic library would be extended and modernised, increasing its capacity to drive the discovery of new resources.

"In the case of the core library, bigger is definitely better," Mr Marmion said.

"I thank the Commonwealth Government for its $1.2 million contribution, which will help this expansion yield not only a nation-leading facility but a world-class exploration resource.

"With the challenges facing the industry, it is crucial we do everything possible to promote new mining and petroleum developments and the jobs and innovations they will deliver."

The library contains samples dating back to the 1890s and now stores more than 500 kilometres of drill core from government drilling; mineral industry donations; industry onshore and offshore petroleum drilling; and Exploration Incentive Scheme co-funded drilling.

"The Commonwealth recognises the importance of maintaining world-class management of petroleum data and samples," Mr Cormann said.

Reference collections

The collection is continually expanding with South Australian explorers generating around one million metres of mineral and 50,000 metres of petroleum drill core and cuttings annually.

The ability for mineral and petroleum explorers to access information from past exploration efforts provides an important advantage in guiding future programs before undertaking the expensive process of new drilling.

Drill core and rock samples

The South Australia Drill Core Library is home to 7.5 million metres of drill core and cuttings and over 8,000 rock samples, making it the most comprehensive and complete archive of South Australia's geology. This archive can be studied in the drill sample inspection area at the core library.

Information about the drill core, drill cuttings and rock samples currently stored in the core library is available from:

- SA Geodata drillhole and rock sample modules via SARIG
- PEPS-SA

More information about inspecting drill core and rock samples

National Virtual Core Library

Drill core held at the South Australia Drill Core Library is being systematically scanned using HyLogger™ technology and the data uploaded to the AuScope National Virtual Core Library (NVCL).

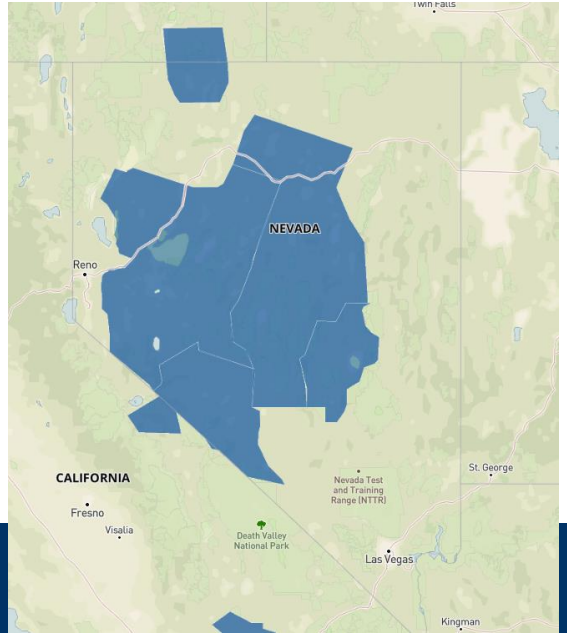
HyLogger data on SARIG and the NVCL allows researchers and explorers to view high resolution drill core imagery and associated spectral data online, as an adjunct to visiting the South Australia Drill Core Library.

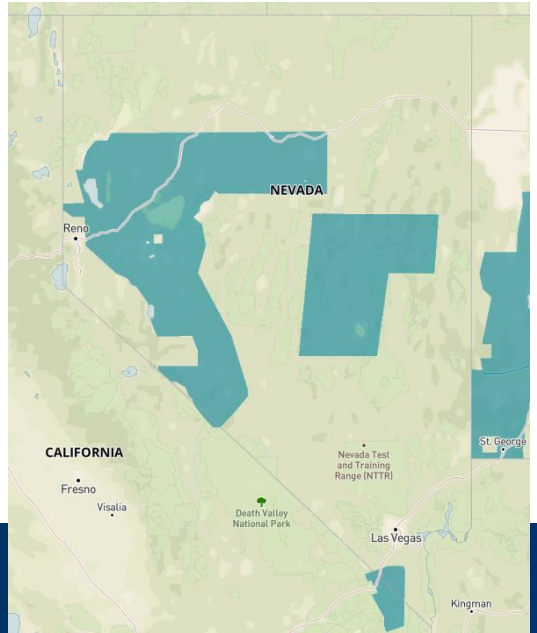
Data dissemination and knowledge of data availability

- Need to get word out there; added questions to Nevada Exploration Survey in 2024 relating to precompetitive data.
- “How aware are you of the precompetitive geological, geophysical and geochemical data coverage for Nevada from the USGS, NBMG, and other sources, with 1 being unaware and 5 being completely familiar”
- “Please rate how easy is it to access the precompetitive geological, geophysical and geochemical data coverage for Nevada from the USGS, NBMG and other sources, with 1 being challenging and 5 being very easy.”
- >50% answered 1-3 for both questions, which suggests we need to do a better job of information dissemination and education on use of data – and this is just the minerals industry

We are getting some new data…

- NBMG continuing to advocate for federal funding for precompetitive data acquisitions in Nevada; best place in the country for this investment…
- From L to R, Hyperspectral, Electromagnetic, Aeromag-aerorad; represents tens of millions of federal dollars already with more to come (will be announced very shortly)
- State already covered by high precision LiDAR; all increasing discovery potential but much more to do – will keep pushing for $$$ to come here

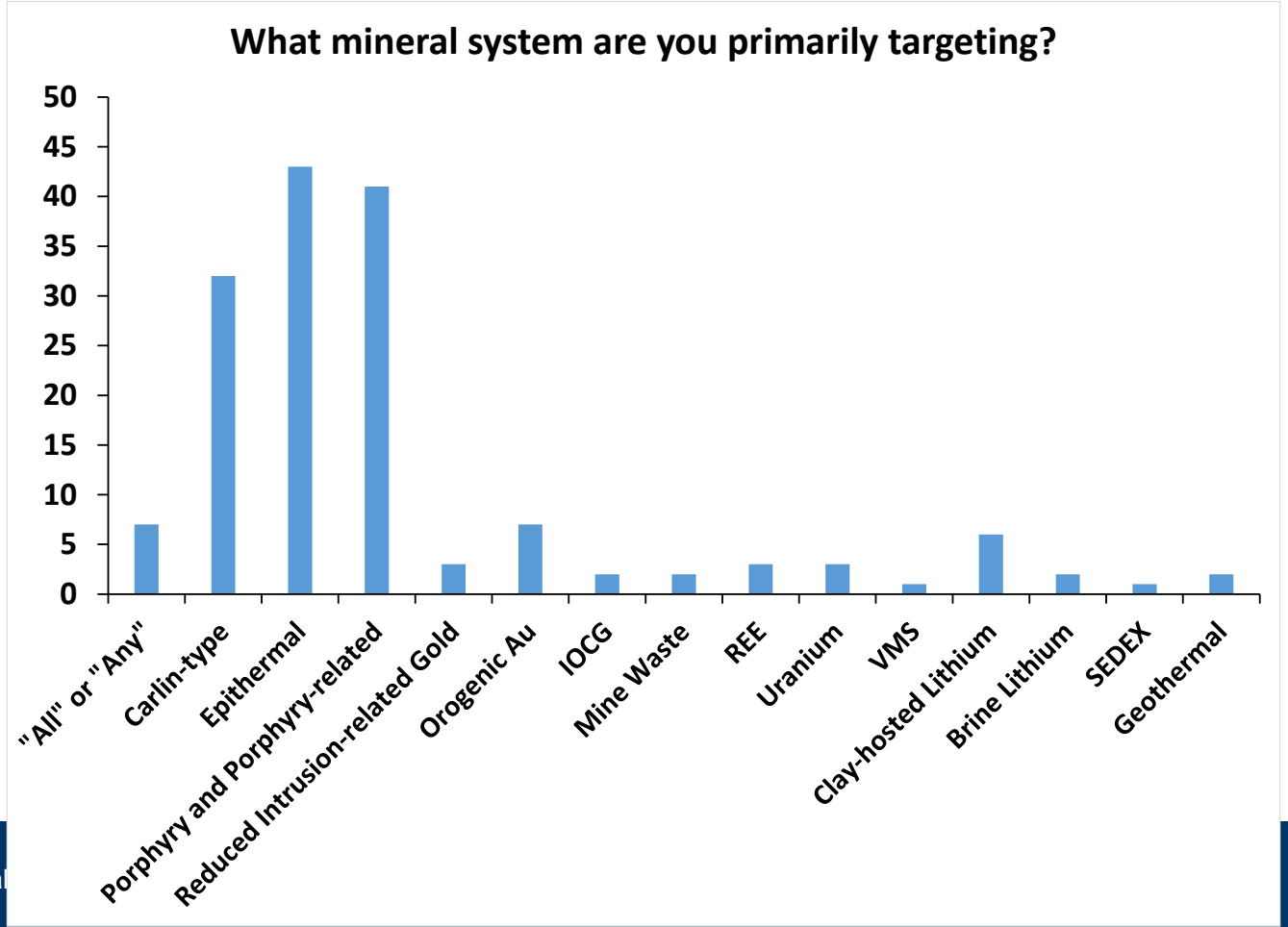




…but what precompetitive data do we need?

- USGS Earth MRI program driven by USGS and state input; the latter has been sidelined at times
- Need to recognize that some funding has perhaps gone to pet projects with perhaps more limited impact for industry
- These data are designed to support industry and mineral exploration… so we asked industry for input rather than second guessing what we think is needed
- Report will be released shortly; good range of responses received from companies active in Nevada and the wider Great Basin
- Preview here… watch this space for more and pick up a report copy at AEMA – will likely also do follow up surveys

So what precompetitive data do we need?



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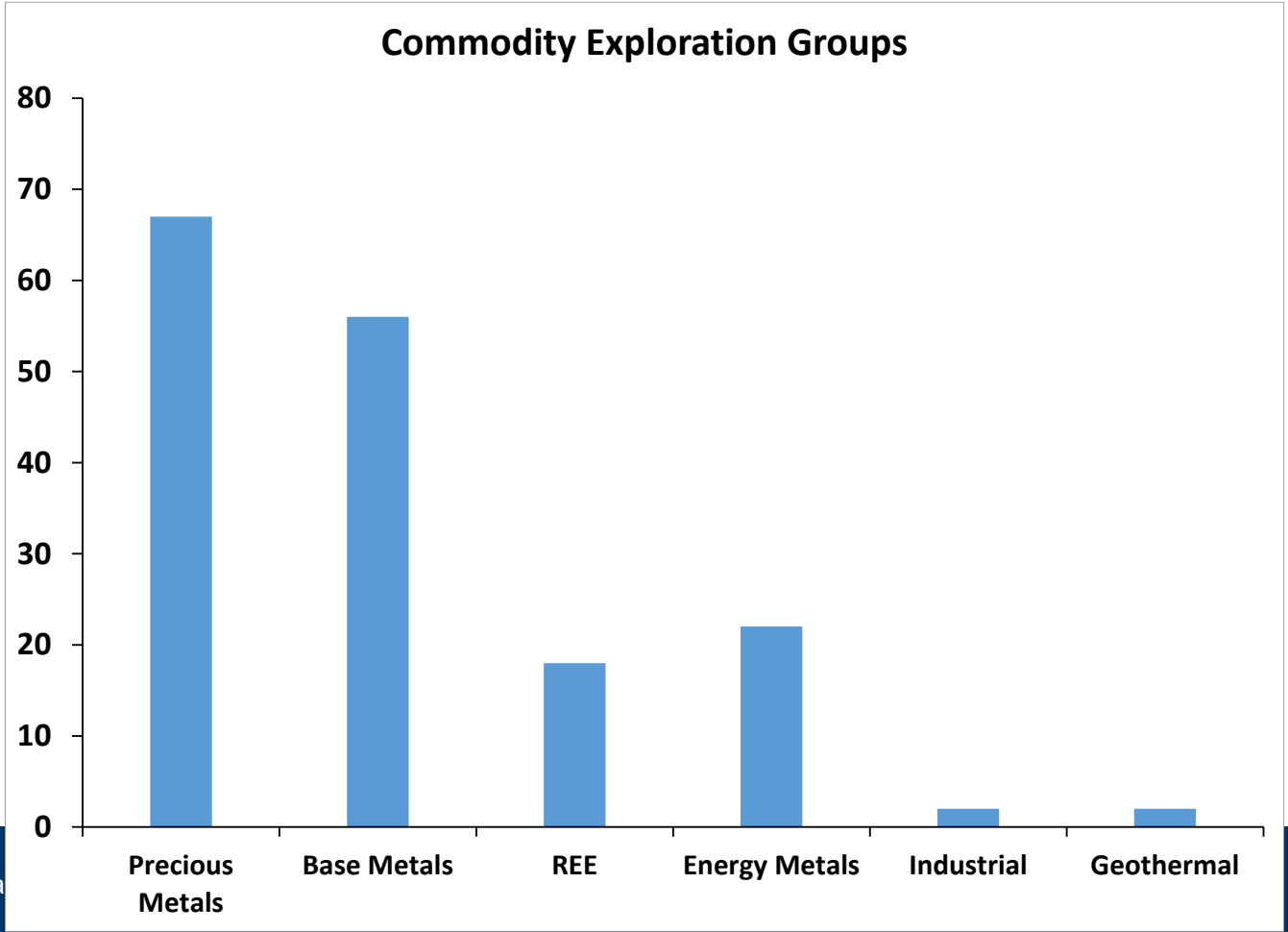
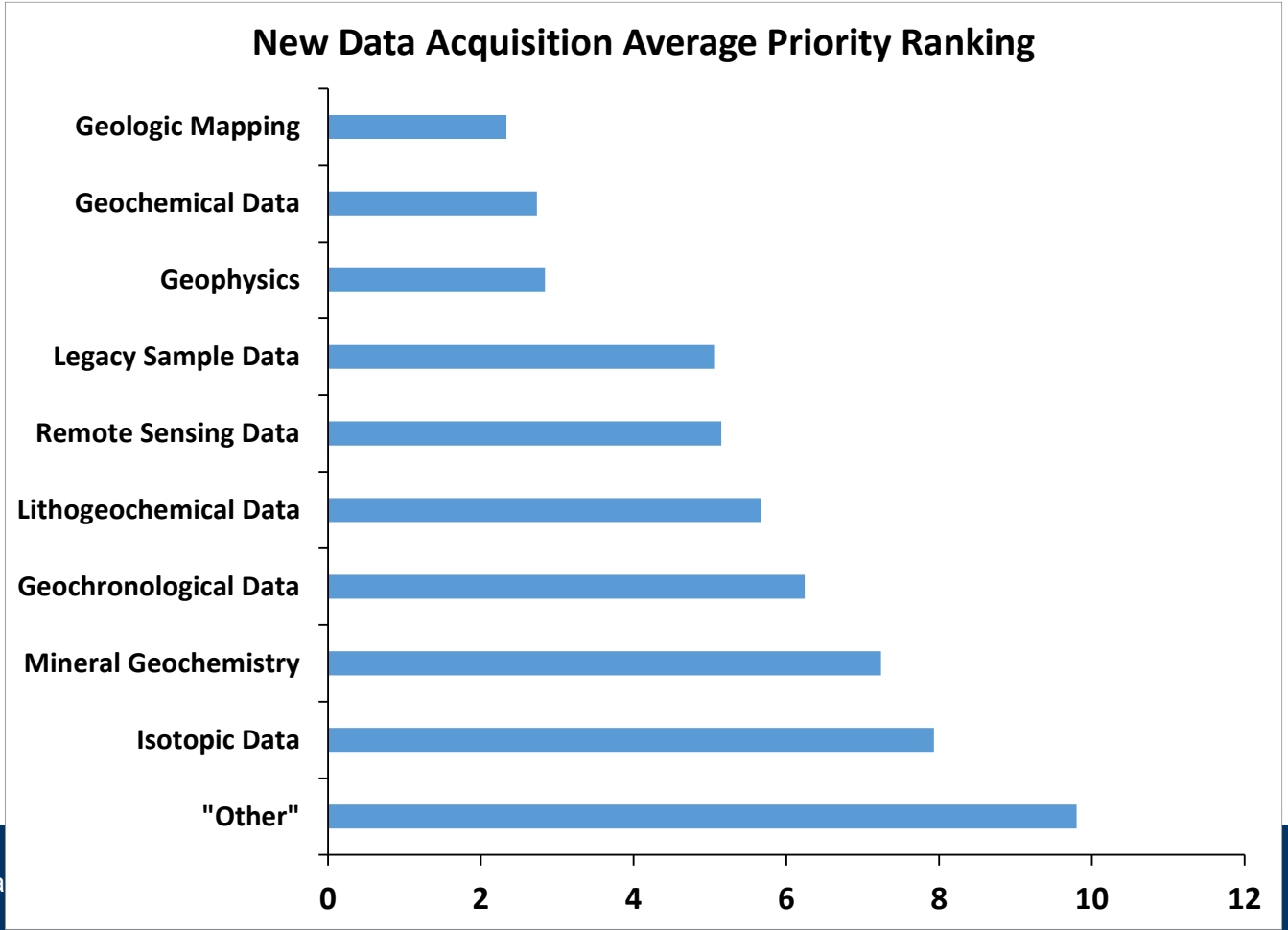


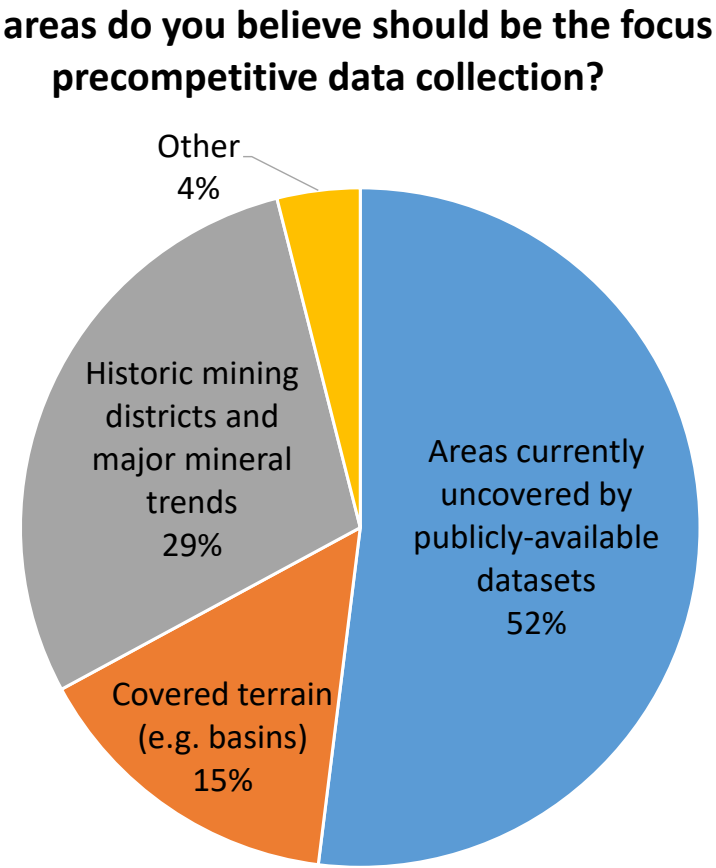
Asked respondents to rank data types (1 = most important)

	Geologic Mapping	Geochemical Data	Geophysics	Legacy Sample Data	Remote Sensing Data	Lithogeochemical Data	Geochronological Data	Mineral Geochemistry	Isotopic Data	"Other"
Average	**2.3**	**2.7**	**2.8**	*5.1*	*5.1*	*5.7*	*6.2*	7.2	7.9	9.8
Lowest Rank	9	9	8	10	9	10	10	10	10	10
Highest Rank	1	1	1	1	1	2	2	4	4	5
Median	2	3	2	5	5	6	6	7	8	10
Mode	1	3	2	5	4	6	7	6	9	10

So what precompetitive data do we need? (1 = highest)



So what precompetitive data do we need?



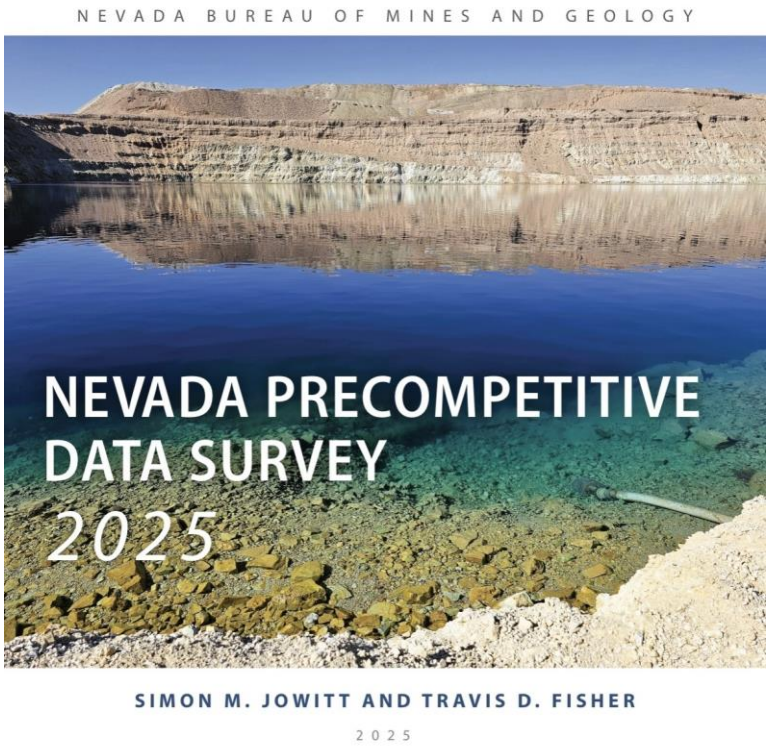
So what precompetitive data do we need?

- Anonymous quotes; emphasis is mine:
- “Geophysics - higher res **mag and gravity** in parts of the state not covered by Geodawn/Earth MRI”
- “**Legacy data** - any and all data available from old drill holes”
- “The lack of an **exploration mineral data repository** is holding Nevada back in discoveries compared with its neighbors…instead, explorers are spending money on work that has already been done previously due to the **lack of a data repository**.”
- “Statewide 1 km **gravity** grid with 200 m line spacing **mag**, 10 m or less true **hyperspectral** imagery, comprehensive **U-Pb dating** of volcanic and plutonic rocks starting with known mineral districts, expanded **stream sediment data** (including Hg) at 3-5x the density of NURE.”
- “**Gravity**, both ground stations and air-borne gradiometry, **mag+EM**, LiDAR”
- “**Gravity and magnetotellurics**”

So what precompetitive data do we need?

- EM, aeromag and aerorad are already being acquired, albeit slowly.
- LiDAR now covers the state, no plans for gravity, magnetotellurics, regional geochemistry… need to strategically think what we need to effectively target different mineral systems
- Most acquired through USGS Earth MRI – need to compete with other states for funding (would rather it comes to NV than say Tennessee)
- Earth MRI funding about to fall off a cliff; $74 million/yr to $10 million/yr, so what then?
- Earth MRI data also slow to be released; perhaps lack of workforce, perhaps USGS holding on to data to do their own research – not the point of the program!
- We are still 20 years behind Australia, Canada, Finland… perhaps even the north of Ireland (TELLUS)
- This all adds to the unrealized potential of Nevada, and beyond… but we need the data to help realize this potential

Watch this space



Final thoughts…

- Precompetitive data acquisition has a definite, positive ROI; demonstrated multiple times
- Need to make policymakers and other stakeholders aware of the value, importance,, and multiple uses of these data
- Mineral exploration and discovery is vital for national and economic security, supply chain development, manufacturing… precompetitive data is a proven way to support this industry
- We need to better highlight the results and talk about how the data we generate are being used
- Learn what is working well, what is not, and identify region- and mineral system-specific approaches
- If we don't do this, we fall further behind, and discovery success will likely drop

Few more final things

- NBMG has a huge role to play relating to precompetitive geoscience data for the state; acquisition, curation, dissemination, and interpretation
- My door (and email) are usually open; **if you want information on a specific area or deposit, just ask – it's part of our mission**
- Ralph J. Roberts Center for Research in Economic Geology (aka CREG) also crucial on the research and workforce sides, and much more
- Some recent good news for CREG; thanks to a generous donation from their respective families the CREG Director is now the **Donald J. Decker & Alan Branham Endowed Director**
- **$200k for new Director startup research, and a $5.5 million endowment specifically for CREG; will pay out $220-250k a year for CREG student support and research**
- **Funds specifically for CREG and not for other uses elsewhere at UNR; SMJ was part of agreement process**

Any questions?

- Email me at sjowitt@unr.edu
- Nevada Mineral Industry 2024 and Nevada Precompetitive Data Survey 2025 reports available soon (pick up copies at AEMA!)
- Happy to pass on this powerpoint and continue this discussion
- Remember, we are your state geological survey; if you have questions, want data, want maps, want to know how we are pushing for more support for industry of all types – ask your friendly local state geologist