PLOTLOGIC®

AusIMM Technology Forum
July 2026

OreSense®

Real-time Orebody Knowledge



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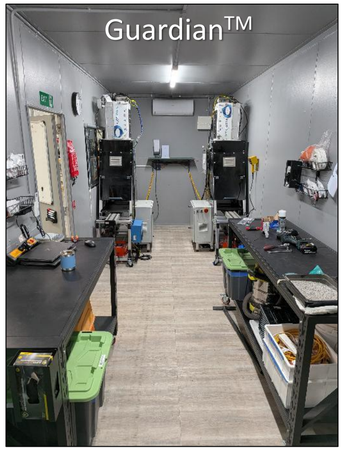
What is OreSense®?

SOLUTION VALIDATION | **DATA ACQUISITION** | **PROCESSING & AI** | **RESULTS & INTERFACE** | **SERVICE & SUPPORT**

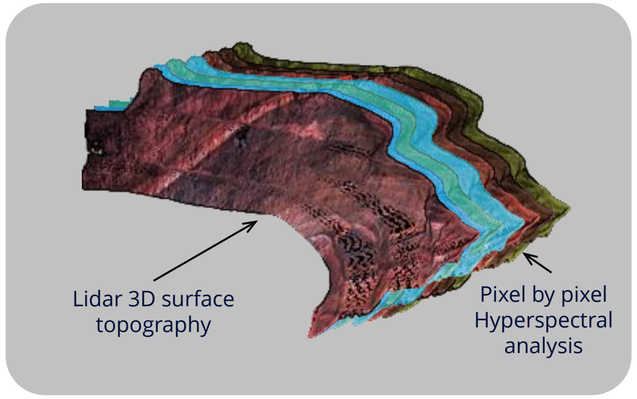
Supporting Hardware

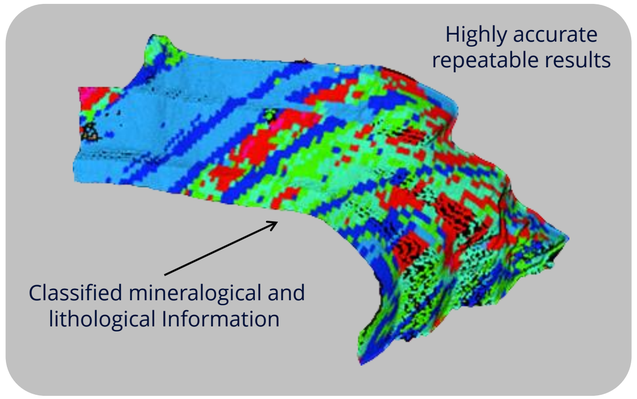












OreSense® Solution

Application specific - decision ready outputs:

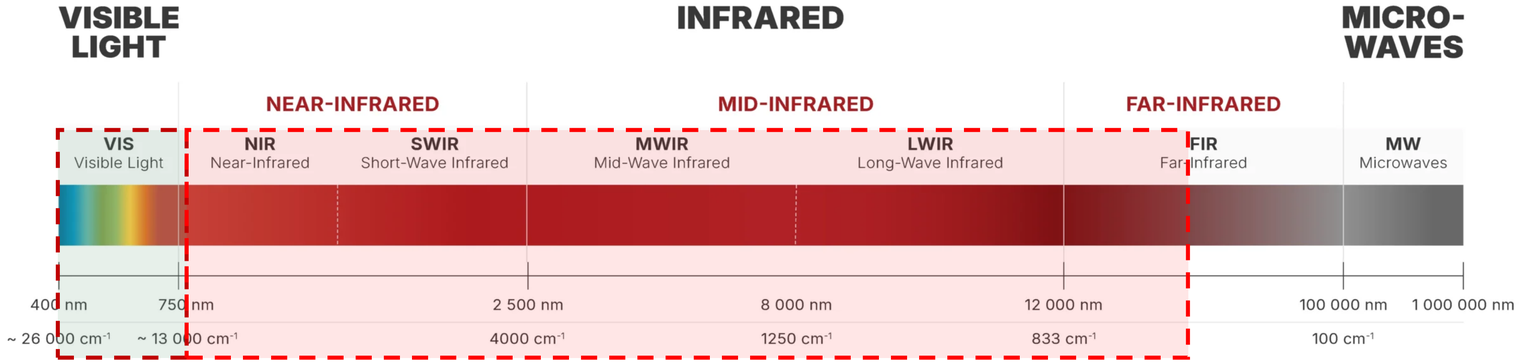
- Predict grade
- Differentiate lithologies
- Detect material properties
- Detect mineralised zones
- Identify deleterious materials

Breakthrough processing techniques resolve historical hyperspectral limitations:

- Simple outputs suitable for time poor frontline teams
- No manual handling – production ready operation
- Rapid, offline processing
- Robust across most ambient conditions – dust, cloud, surface moisture etc
- Quantitative results & lower detection limits

The Basic Idea

Hyperspectral data allows recognition of mineral species based on their distinctive absorption features.



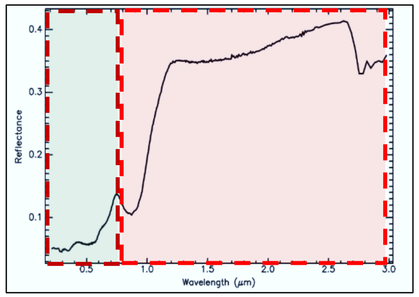
https://nlir.com/understanding-the-infrared-spectrum-range/

In (very) ideal conditions* a simple application of the hyperspectral approach allows for:

- Definitive identification of a mineral specie present in a sample;
- And therefore, the prediction of the elemental chemistry of the sample

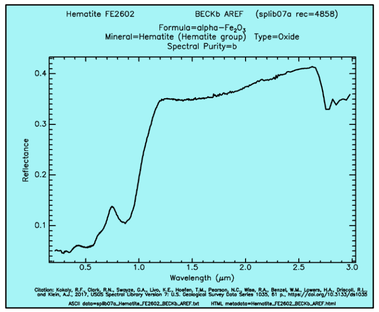


Hyperspectral camera records spectral information.
X axis = frequency
Y axis = reflectance



Compare to established library of reference spectra

1:1match



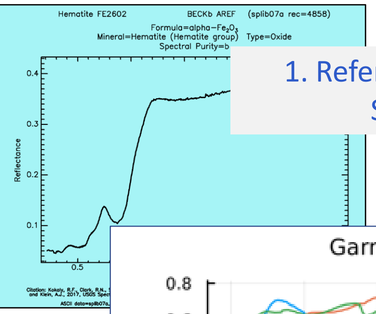
Hematite
Fe_2O_3

69.9 wt% Fe
30.1 wt% O

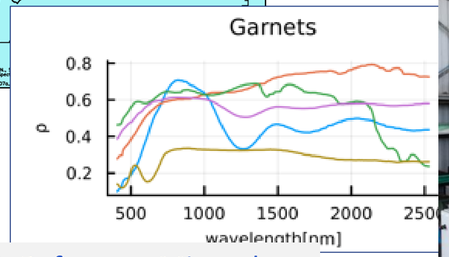
https://crustal.usgs.gov/speclab/data/GIFplots/GIFplots_splib07a/ChapterM_Minerals/splib07a_Hematite_FE2602_BECKb_AREF.gif

Plotlogic Approach

Universal Ideal samples + Real samples for training (“labelled data”) + Tuning to a specific deposit + Deployment to Client



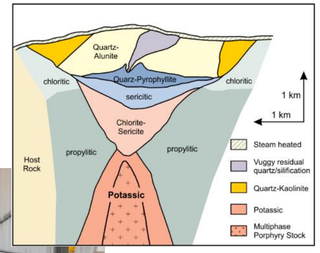
1. Reference Mineral Spectra



2. Reference Mineral Chemistry

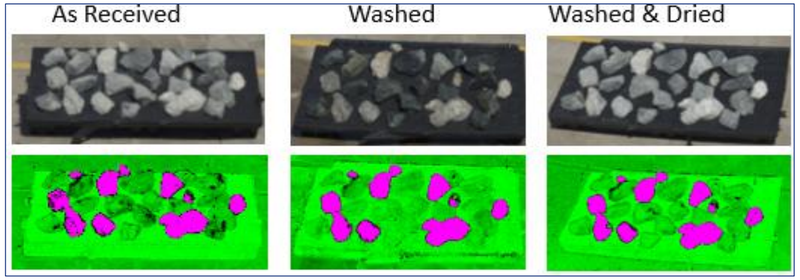
Spessartine $Mn_3Al_2Si3O_{12}$
Andradite $Ca_3Fe_2Si_3O_{12}$







Continuous Improvement and Feedback Development & Roadmap



First principles → Machine Learning, Predictive → With larger datasets and model updates more Universal → Tuned, Applicable to Industry Use-cases

From Lab…..



…to Real World

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OreSense® Case Studies

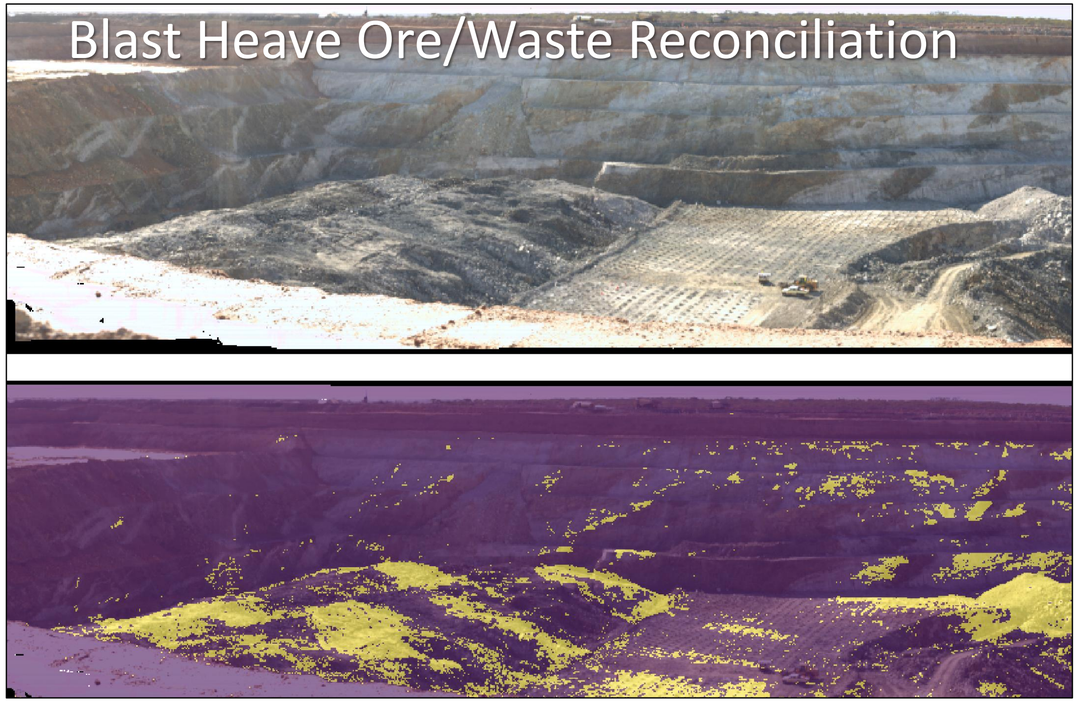


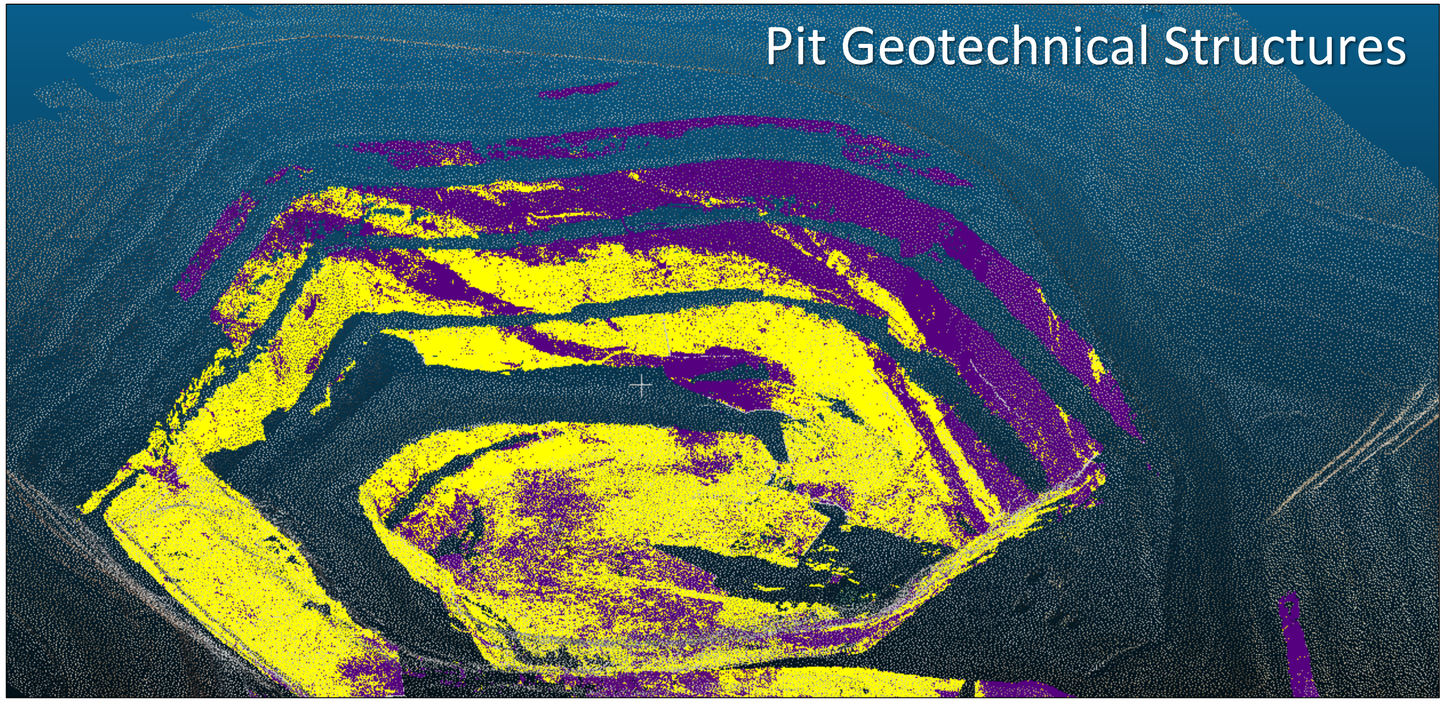


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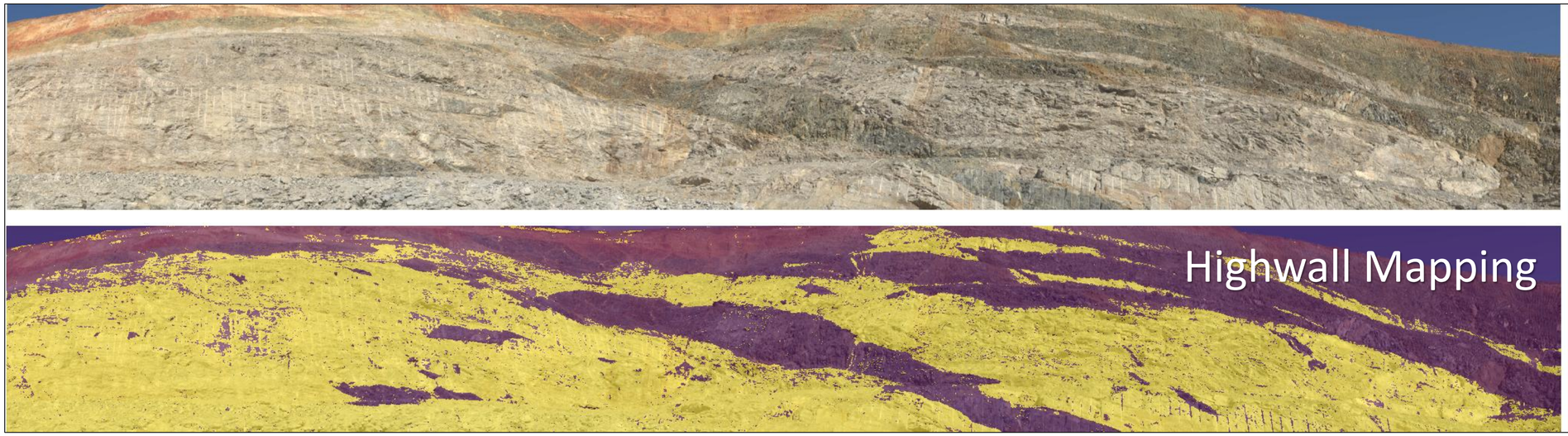
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Sample Use Cases

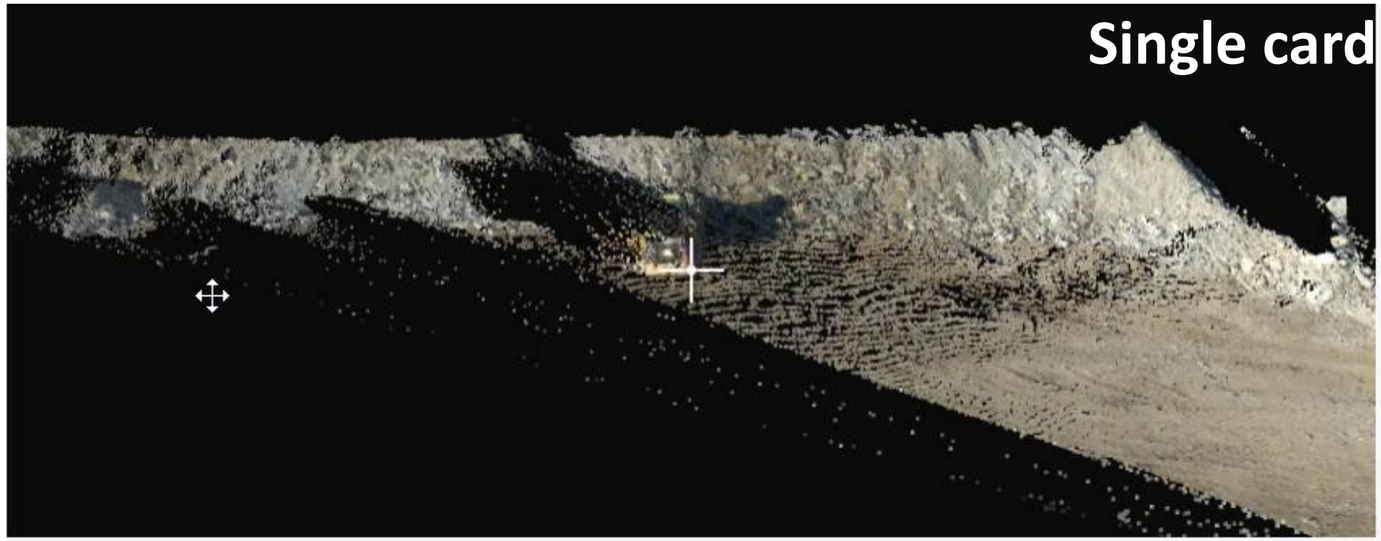


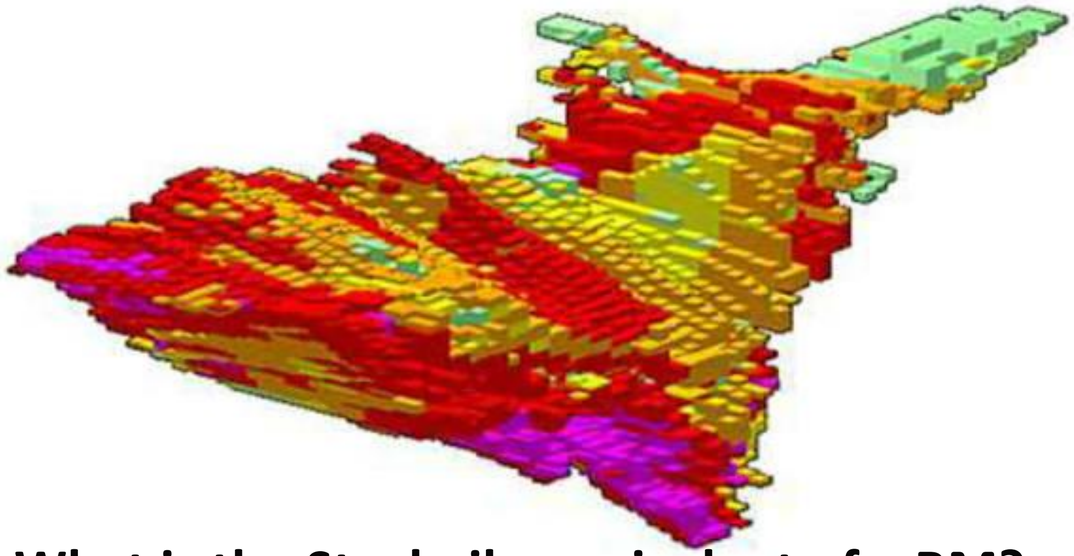






OreSense® Stockpile Modelling

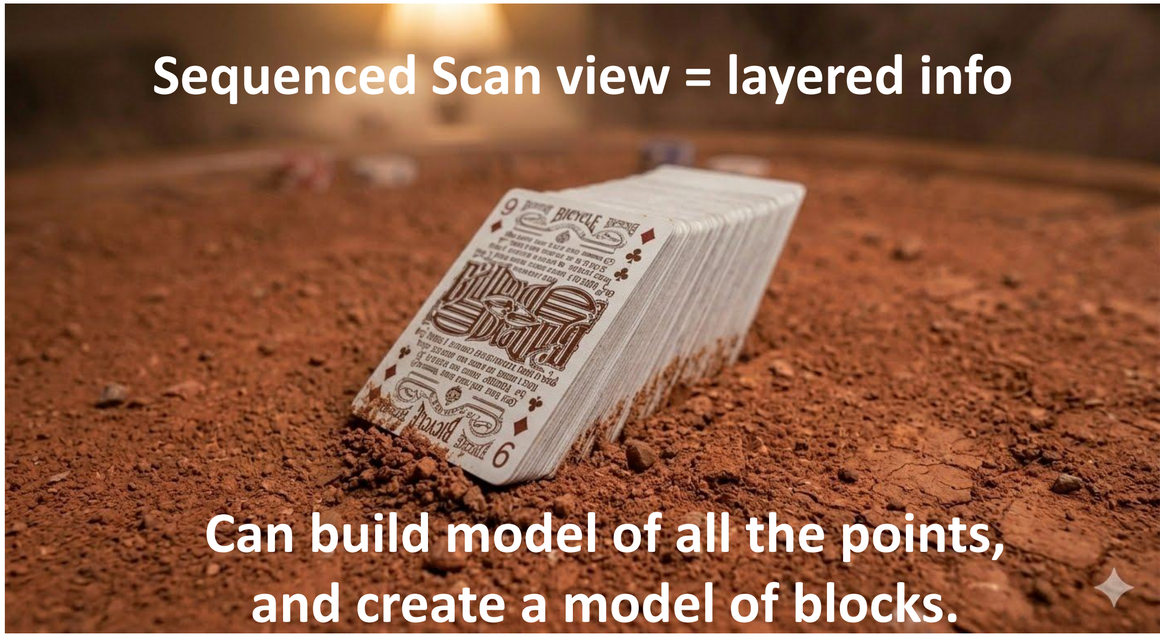




What is the Stockpile equivalent of a BM?



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OreSense® Stockpile Modelling



OreSense® Stockpile Modelling

1. Scan Stockpile During Build (~3 minutes Daylight Only)

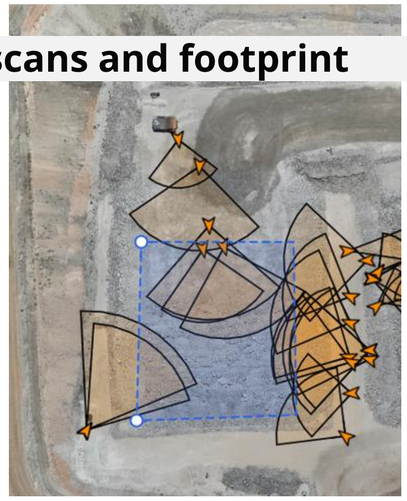
2. Processing of scan, Automated QA/QC checks (~10 minutes)

3. Spatial Stockpile Maps Update After Each Scan

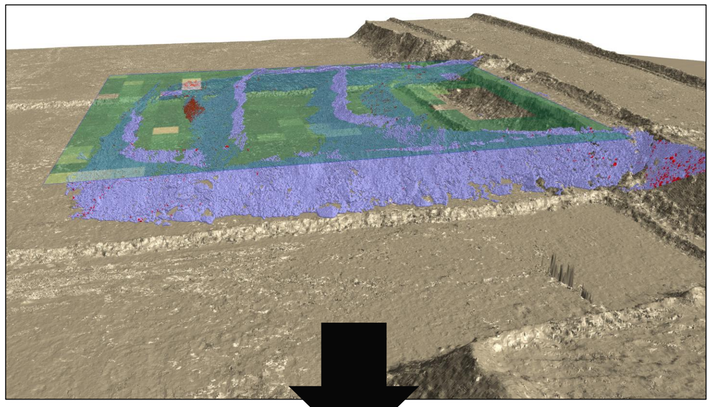
4. Planners view all available stockpiles & identify hotspots

5. Decisions made that generate value

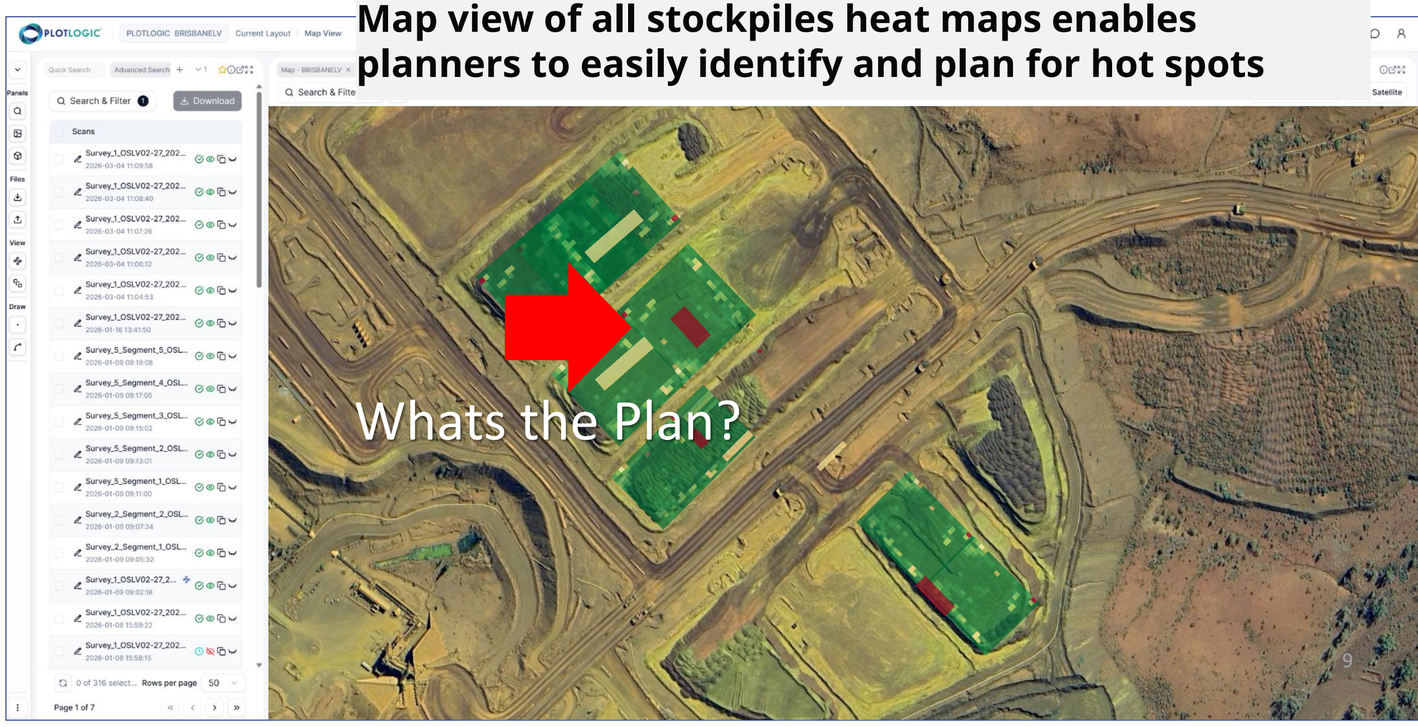
Selection of relevant scans and footprint



Points aggregated into spatial voxels and displayed as heat map

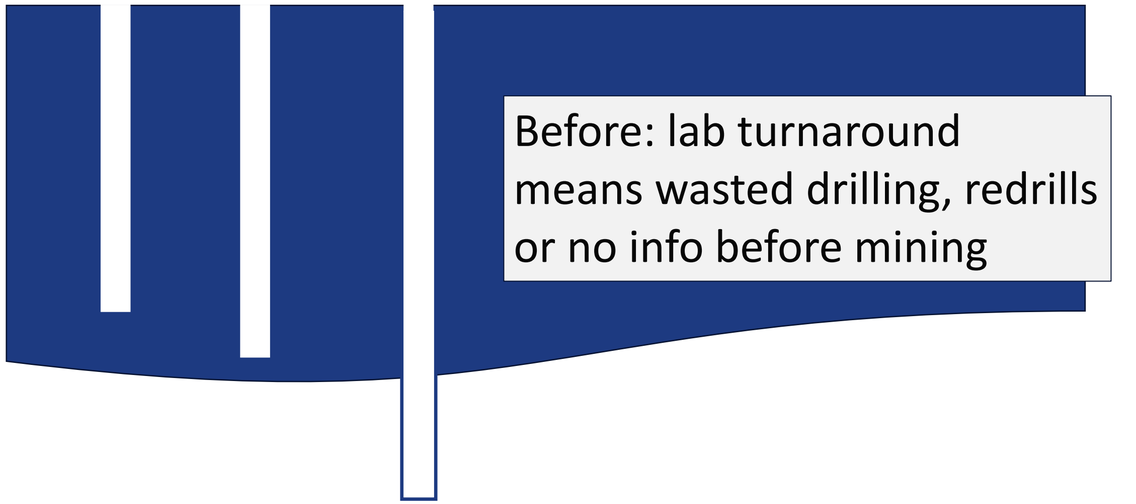


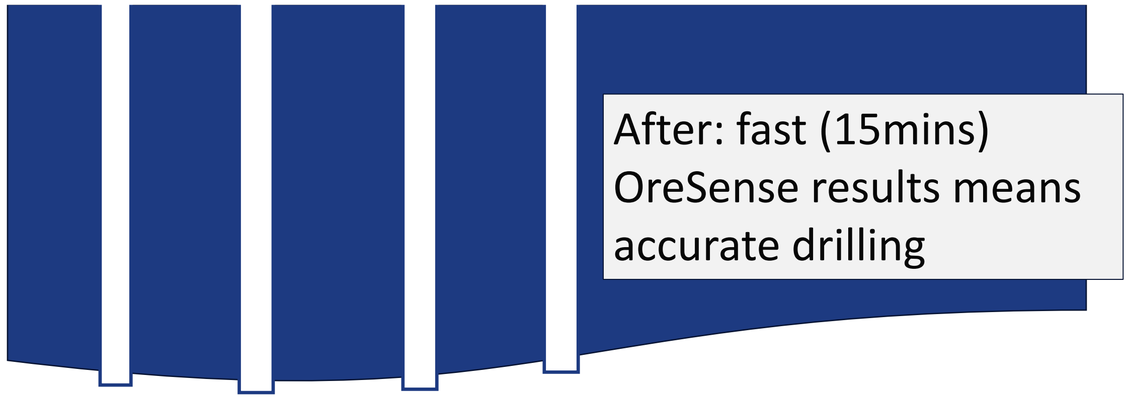
Map view of all stockpiles heat maps enables planners to easily identify and plan for hot spots

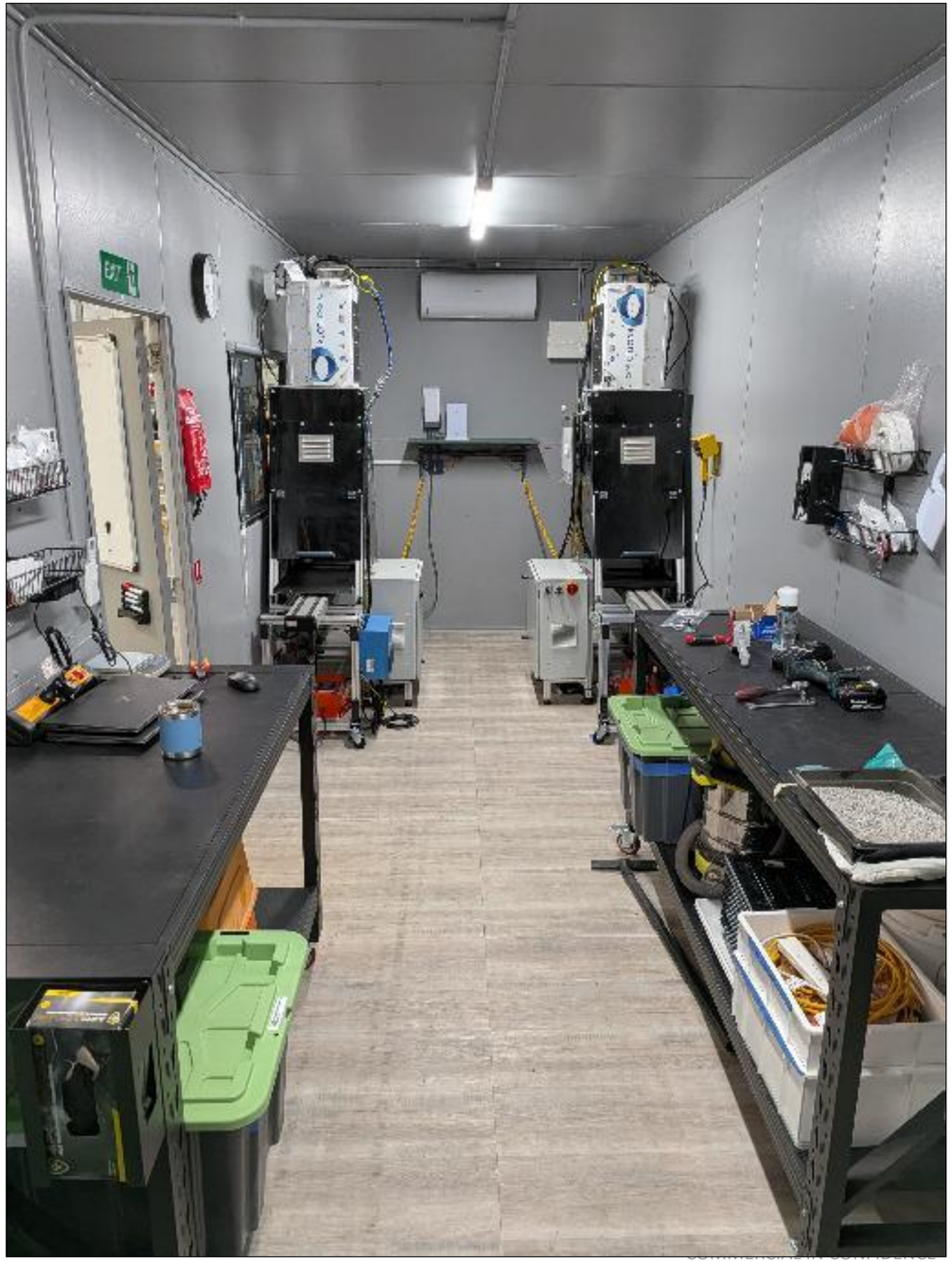


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Use Case – Rapid detection of bottom of ore





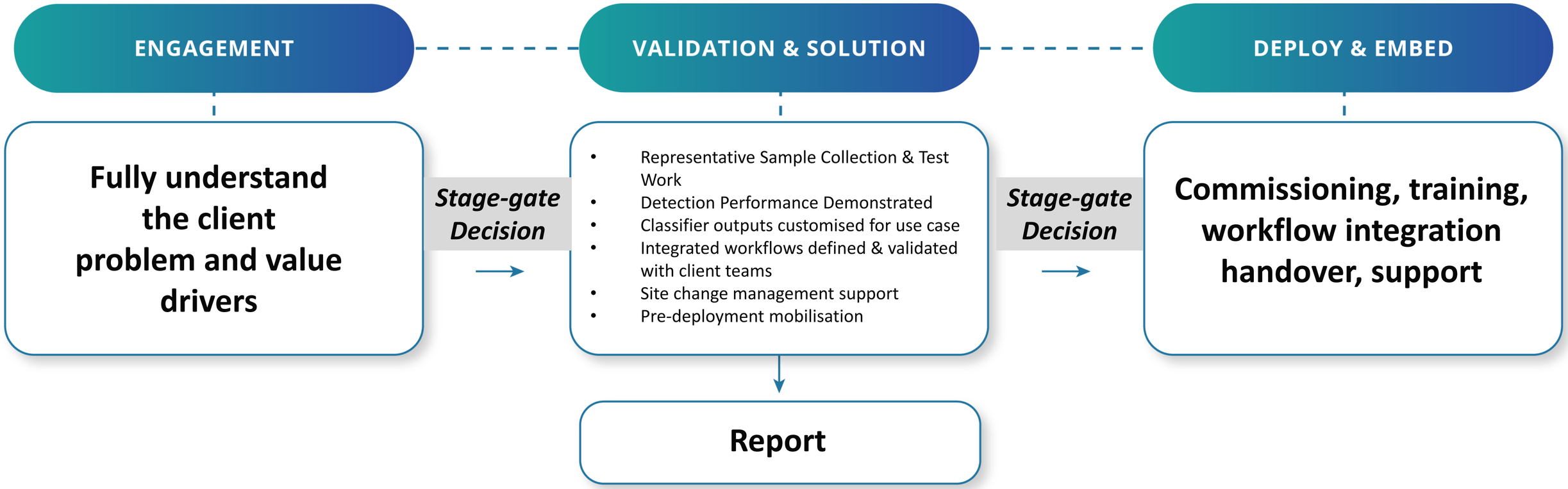


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Solutions Framework

Assurance, Performance and Value-Add

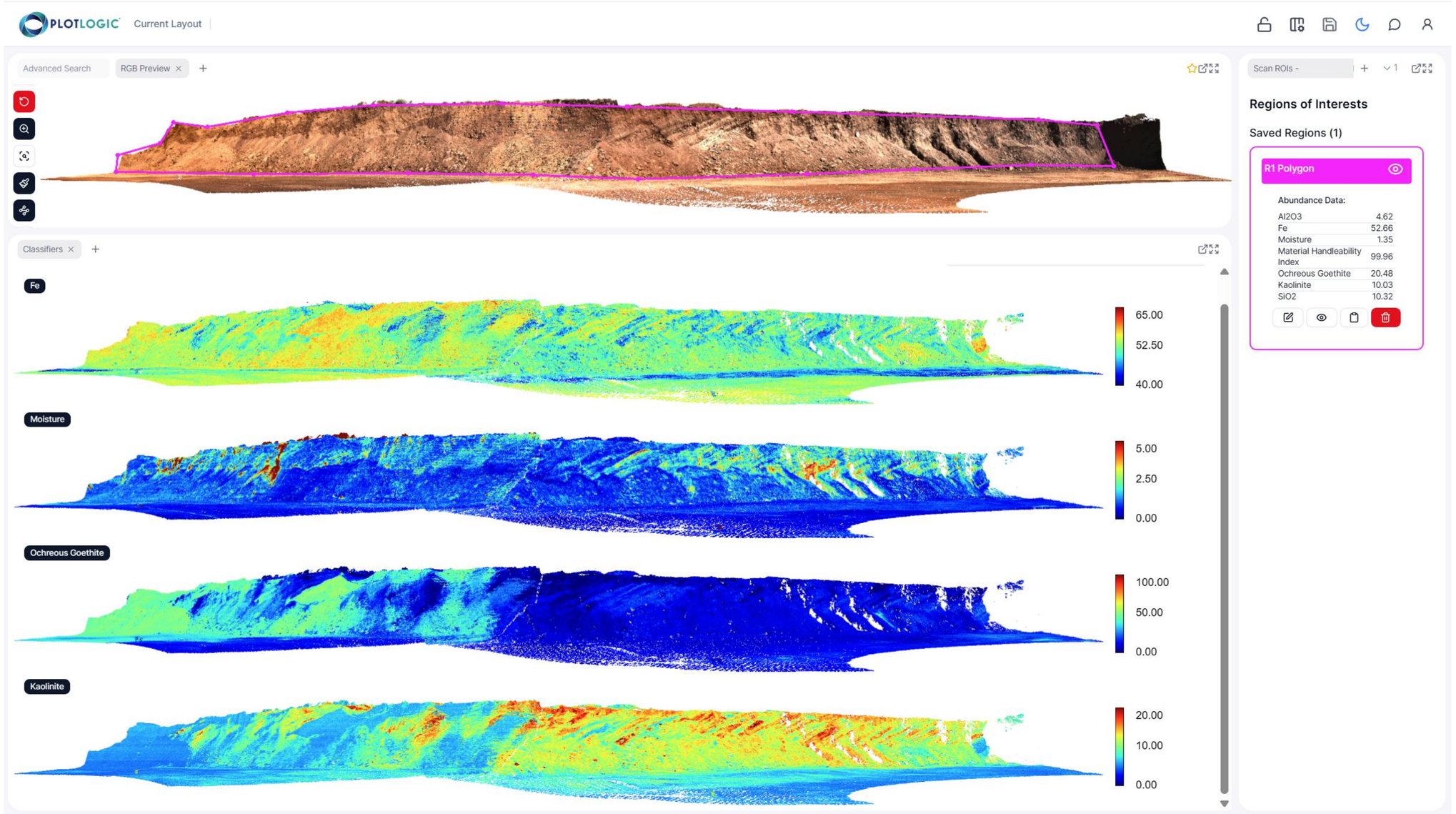
Technology alone doesn't deliver results - success relies on a structured approach. Grounded in mining expertise, our three-stage framework ensures solutions are understood, validated, and embedded for lasting operational impact.



Questions?


PLOTLOGIC®
50kg per point
AUSTRALIAN MADE
CAUTION
Class 1
Laser
Product
50kg per point

Quantitative Mine Face Grade/Minerals

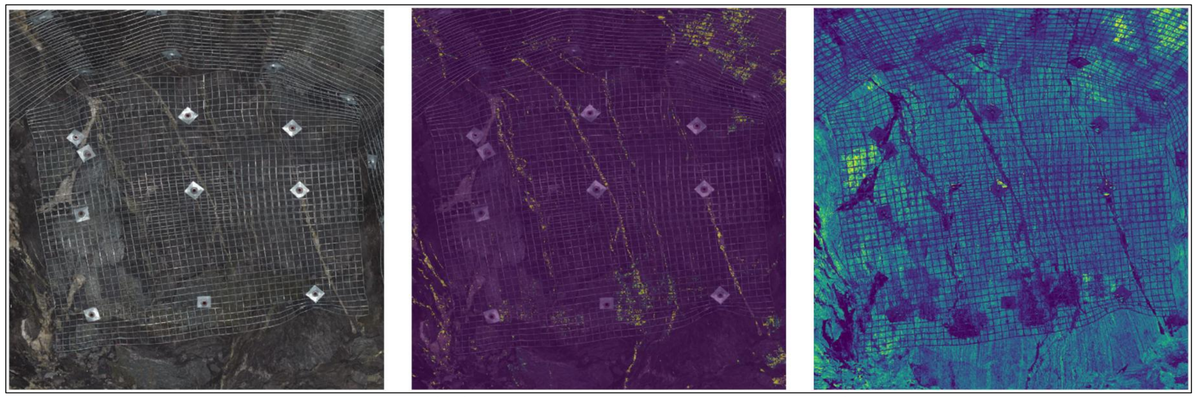


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Every pixel quantitative, over 300,000 independent measurements!

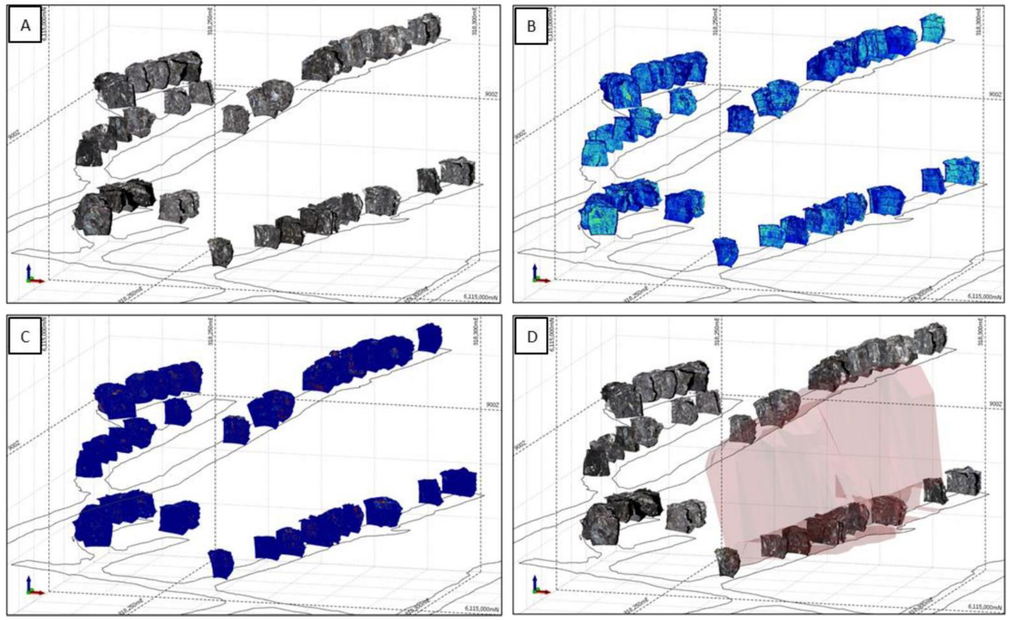
Development Drive Mapping





RGB Chalcopyrite Alumina Oxide

- Every drive is scanned, every day, providing unbiased face mapping for grade control and mine design.
  - Data available at decision time for production geologists.
  - No variance due to opinion or competency
- Reduce human exposure to hazardous zones
- Complete digital record of all scanned faces

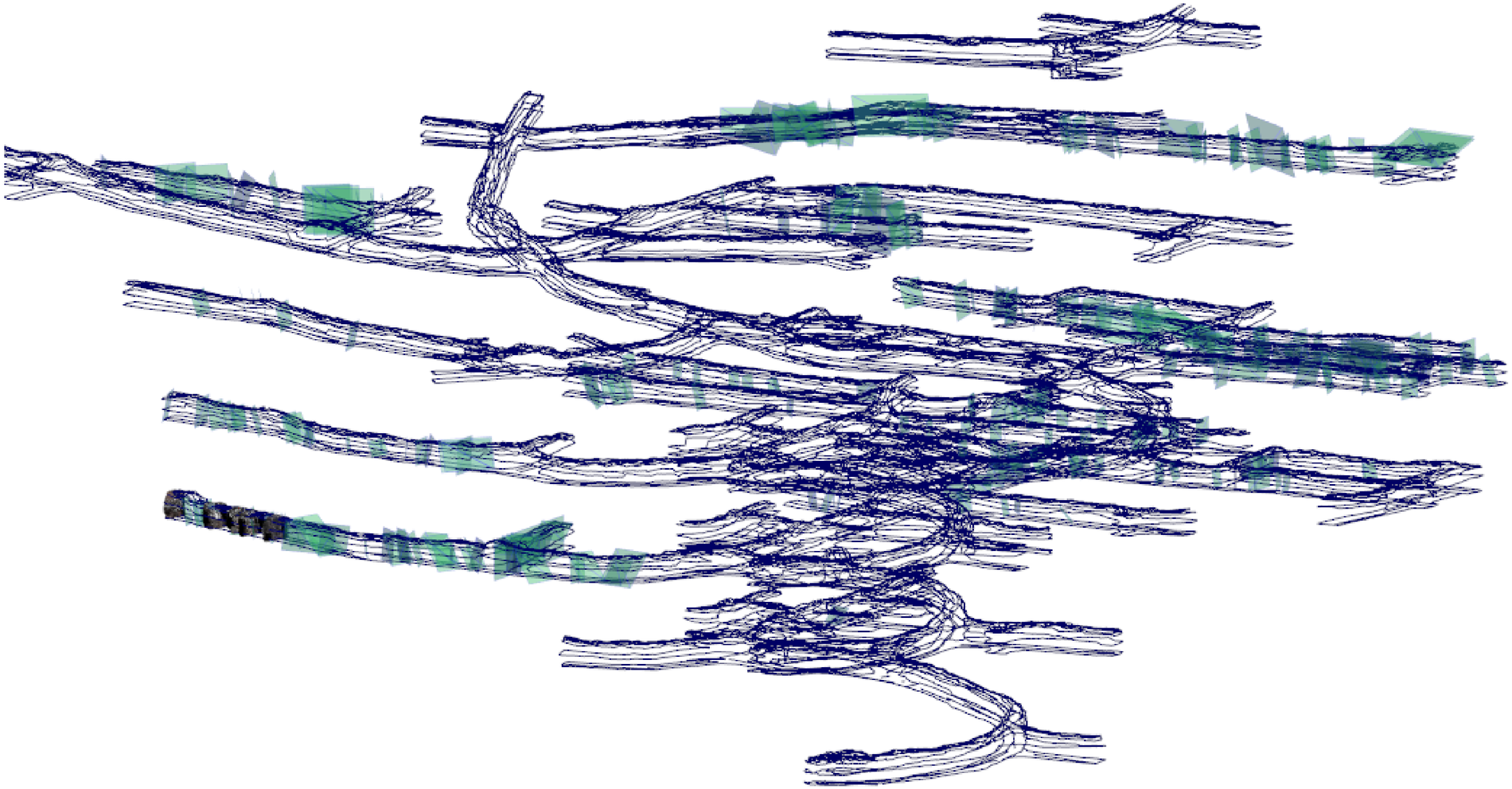


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Geotech Applications

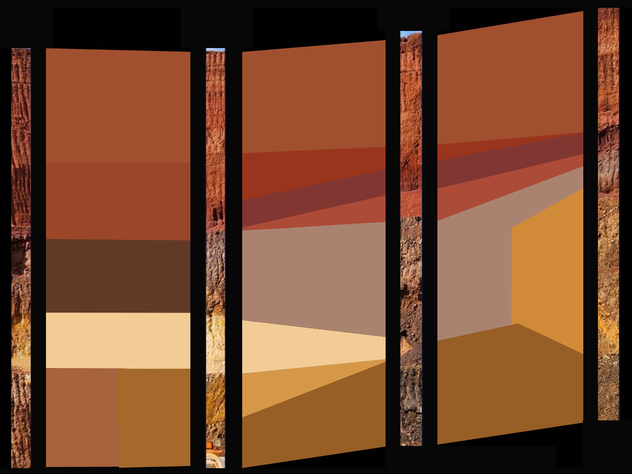
Characterisation of joint sets and fractures

- Orientation
- Spacing
- Number



Which one best defines resource boundaries?

DH - The points we have are best practice accurate but very sparse



Our modelling is very good, but we still introduce interpolation error and extrapolate sample error

Drill Hole Resource Model



Real Image

PL - The points are slightly less accurate
But we have so many more!



Imaging Spectroscopy technologies like OreSense®

OreSense® vs Traditional Methods

- Precision extraction is hamstrung by access to fast chemical & mineralogy results
- Many pit to port precision extraction opportunities exist in the <4-hour time frame
- The available legacy chemical and mineral analysis technologies don't support this
- OreSense doesn't replace these methods, but adds an additional independent data source that unlocks value

	RESOURCE DRILLING	PRODUCTION DRILLING	FACE SAMPLING	HANDHELD ANALYSERS	IMAGING SCANNERS
TIME HORIZON	MONTHS TO YEARS	DAYS TO WEEKS	HOURS TO DAYS	MINUTES TO HOURS	MINUTES TO HOURS
RELATIVE COST	$$$$$	$$$	$$	$	$
TIME TO RESULTS	DAYS	>4HRS	>4HRS	<15MINS	<15MINS
PEOPLE EXPOSURE	MEDIUM	MEDIUM TO LOW	HIGH	VERY HIGH	MEDIUM TO LOW
SAMPLE SPACING	50x50m	5x5m	5x5m	1x5m	0.01 x 5m

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