



FUTURESMART MINING™

Tony O'Neill, Group Technical Director, Anglo American

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WE ARE RE-IMAGINING MINING

Operating Model

P101

FutureSmart Mining™

Digitalisation

The Intelligent Mine

Technology Innovation

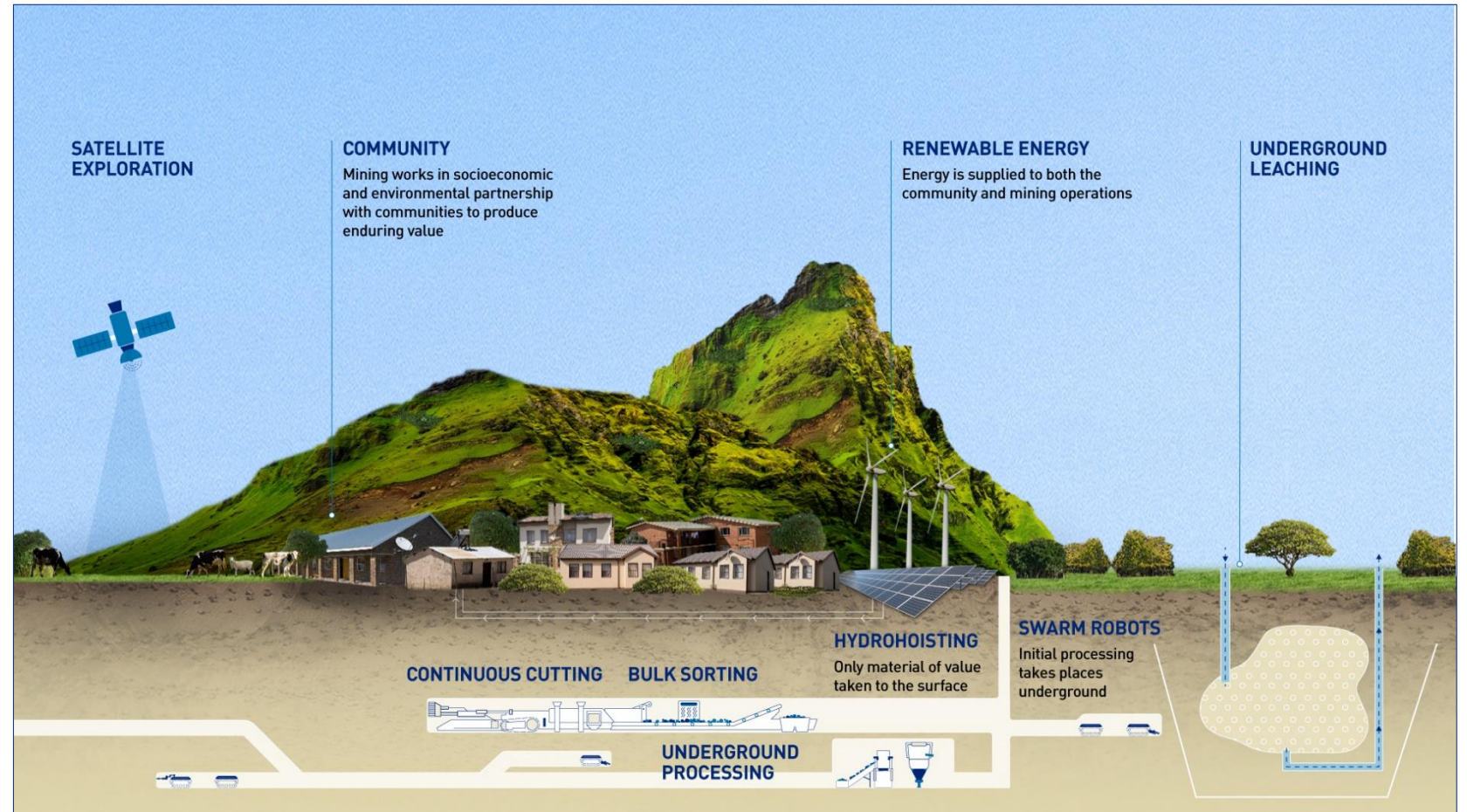
The Concentrated Mine

The Waterless Mine

The Modern Mine

Sustainability

Sustainable Mining Plan



OPERATIONAL EXCELLENCE AS STANDARD

Operating Model

1. Provides clarity
2. Produces stability
3. Reduces variability

*“Integrity and certainty,
by nature”*



FUTURESMART MINING™



Concentrated Mine™



Waterless Mine



Modern Mine



Intelligent Mine



STEP-CHANGING THE INTENSITY EQUATION

Challenge

Precision mining with minimal energy, water and capital intensity

Approach

Concentrate the Mine™ concept:

1. Coarse particle recovery
2. Bulk sorting
3. Grade Engineering™
4. Precision classification
5. Ultrafine recovery
6. Novel leach

Value

CPR: 20% increase in throughput, 85% recovery of water

Bulk sorting: 5% grade improvement, 20% more throughput

Ultrafine recovery: 2-4% recovery improvement

Novel Leach: 60-80% recovery



RECOVERING AND AVOIDING WATER

Challenge

~75% current portfolio located in water constrained regions

Approach

1. Coarse particle recovery
2. Dry stacking
3. Dry processing

Value

Reduced footprint

Increased water recovery

Reduced TSF risk

Removal of expansion constraints



NOVEL LEACHING UNLOCKING NEW VALUE

Challenge

Re-dressing environmental legacies to recover low grade mineral concentrates

Approach

1. Novel leach
2. Coarse particle recovery

Value

Re-dressing environmental legacies

Reduction in water intensity

Reduction in energy intensity

Removal of constraint elements to enable new low grade recovery



DELIVERING ENDURING VALUE THROUGH SMART ENERGY

Challenge

Transformational use of renewables

Approach

1. Oversize PV
2. Plant tariff demand arbitrage
3. Produce H2 with excess PV
4. Consume H2 in trucks

Value

Reduce GHG on large site by 30% in plant and 100% in trucks

Increase truck power by 5%

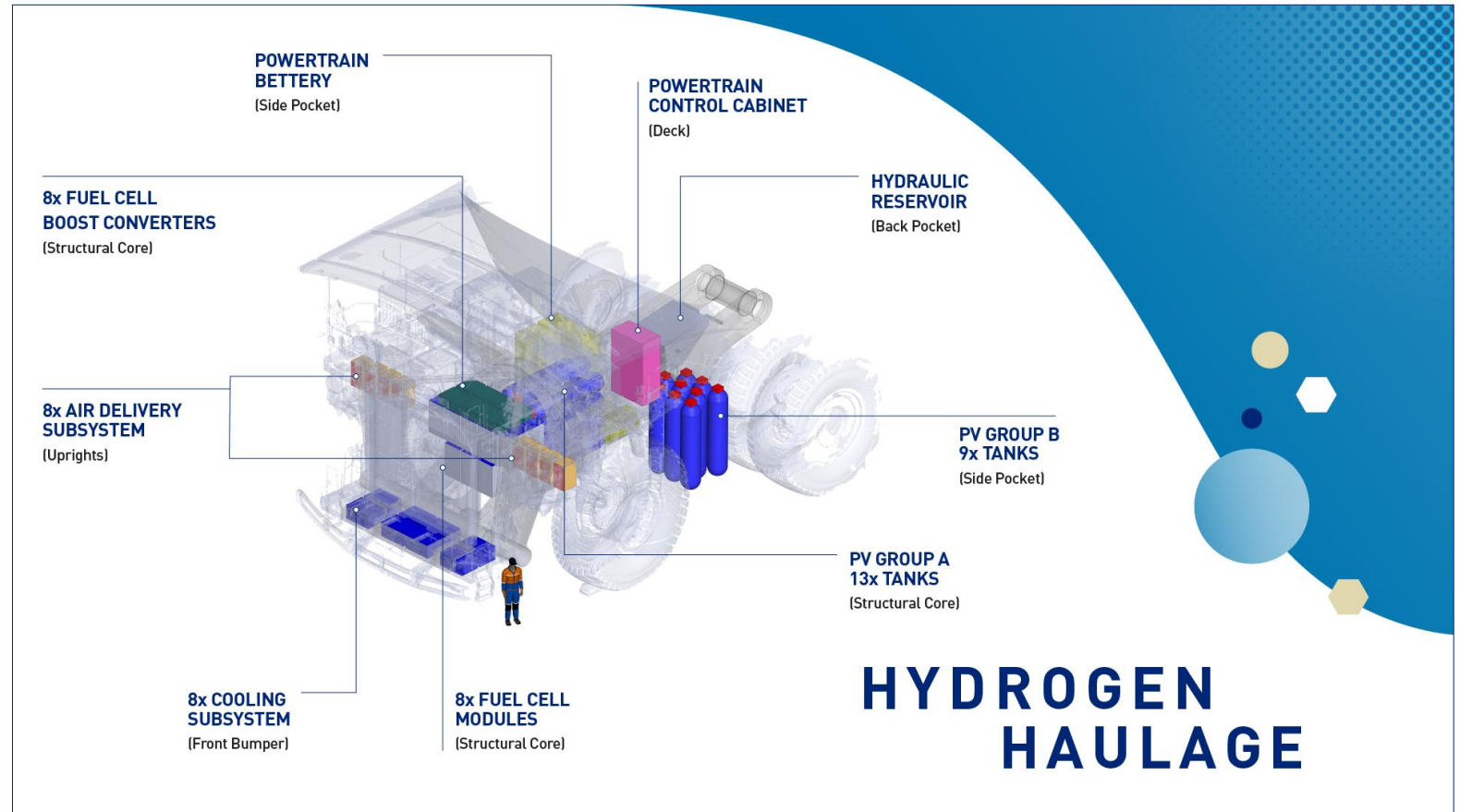
Energy security

Price resilience

Move to hydrogen economy

Next generation mining vehicles

Host community participation



RE-DEFINING THE RISK PROFILE

Work

Challenge

Everyone goes home safely every day

Approach

1. Modernise – Electro-hydraulic drills, gel explosives, no scraper-winchies
2. Mechanise – Remote operated ultra-low-profile equipment
3. Continuous cutting – Hard rock cutting machines
4. Swarm robotics – Small self-organising intelligent machines

Value

Safer and more efficient working environment
Transition pathway in existing operations



RE-DEFINING THE RISK PROFILE

Tailings

Challenge

Eliminate wet tailings

Approach

Reduce risk

1. Fibre-optic sensing
2. Satellite monitoring

Eliminate

1. Coarse particle recovery
2. Unsaturated stacking
3. Dry processing

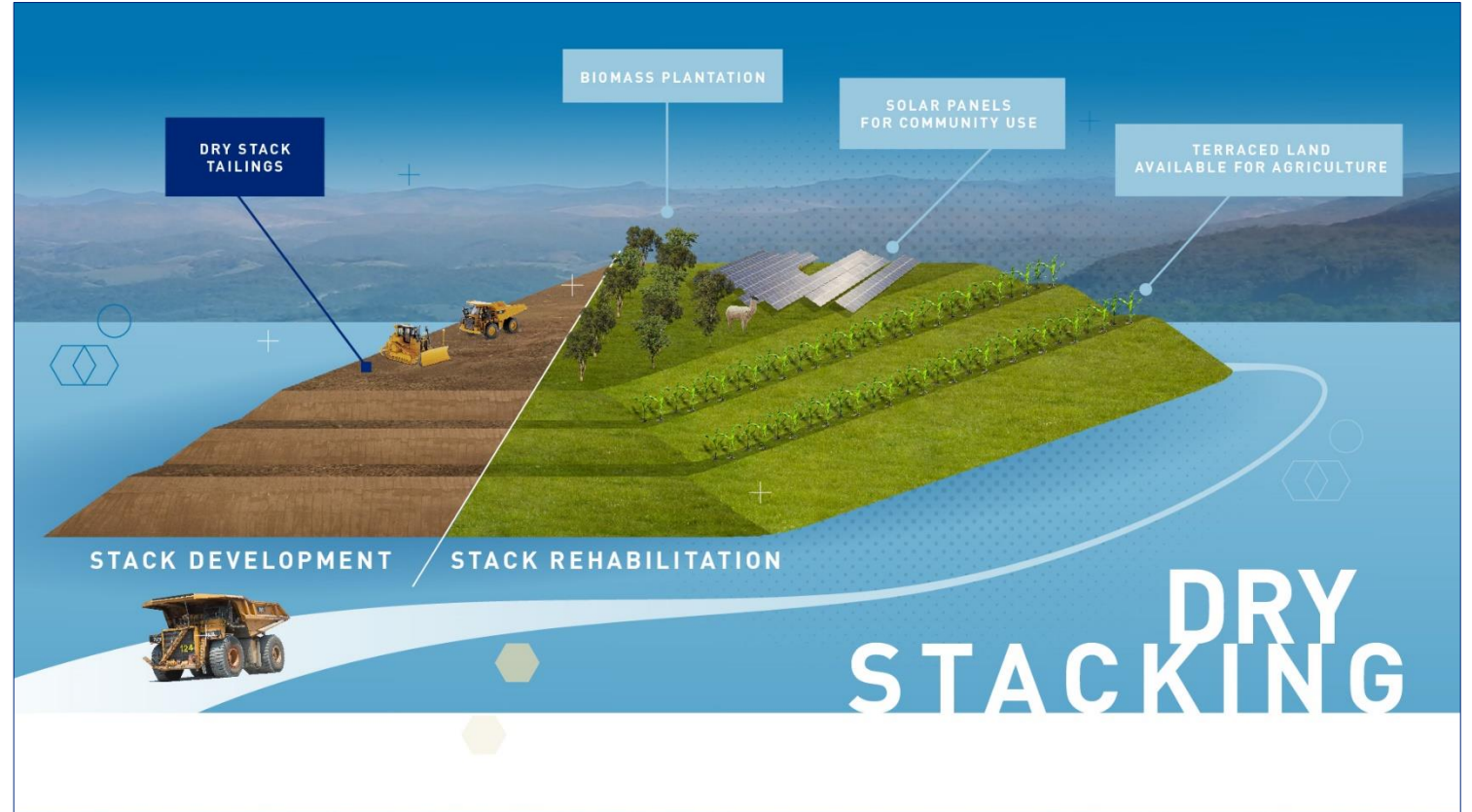
Value

Increased water recovery >80% for similar cost

Reduced footprint

Increased water recovery

New value options



ENGINEERING DRY STACKS

Challenge

Create a dry stable stack from wet tails

Approach

1. Engineer and construct vs placement
2. Hydraulically place CPR sand with conventional thickened tailings
3. Creates drainage pathways throughout

Value

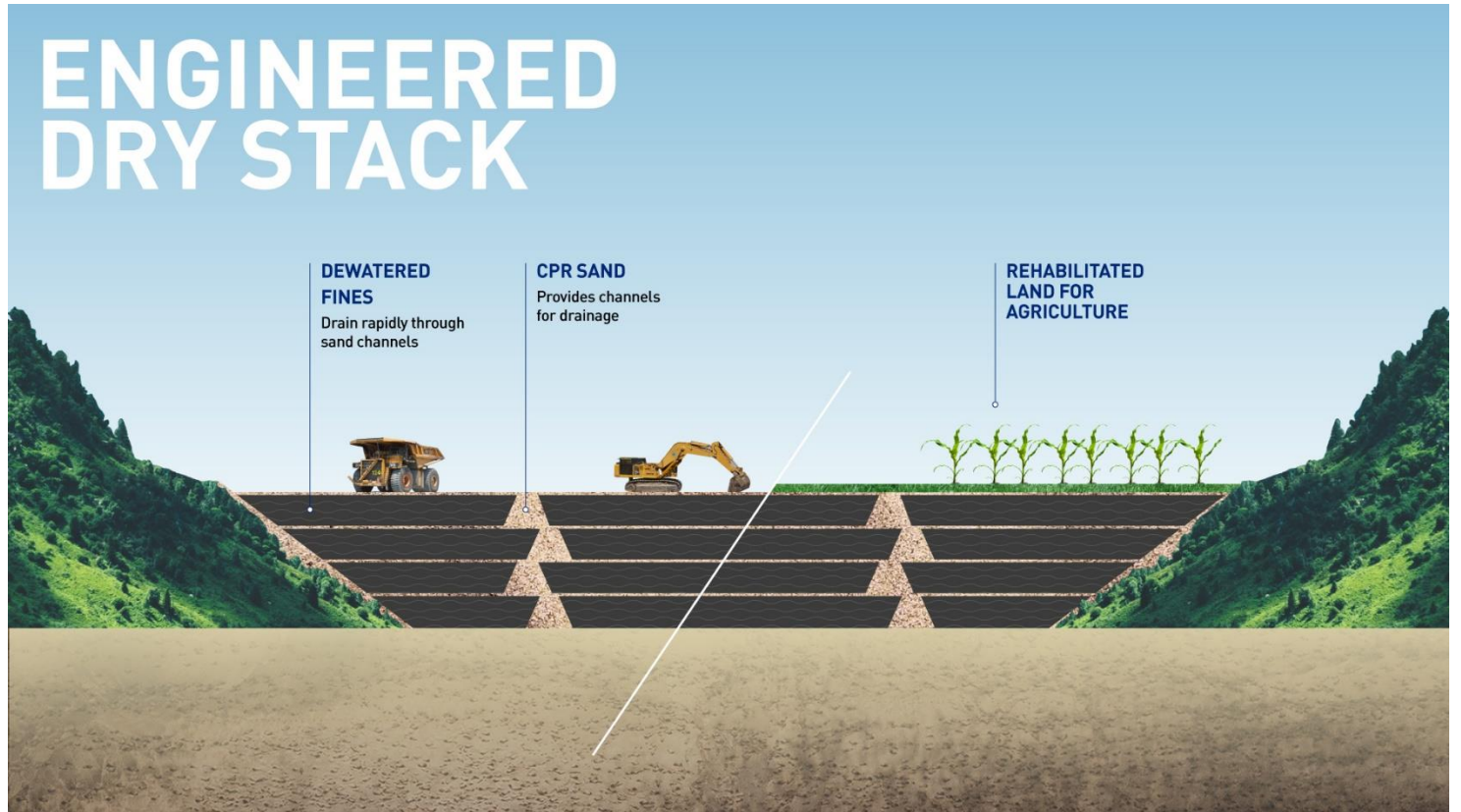
Water recovery for additional production

Rapid transition to dry, stable stack

Enables future repurposing for land use

Engineered to eliminate the risk of liquefaction

Low opex – comparable to wet tailings



AUTHORING THE OPTIMAL MINING SYSTEM WITH DIGITALISATION

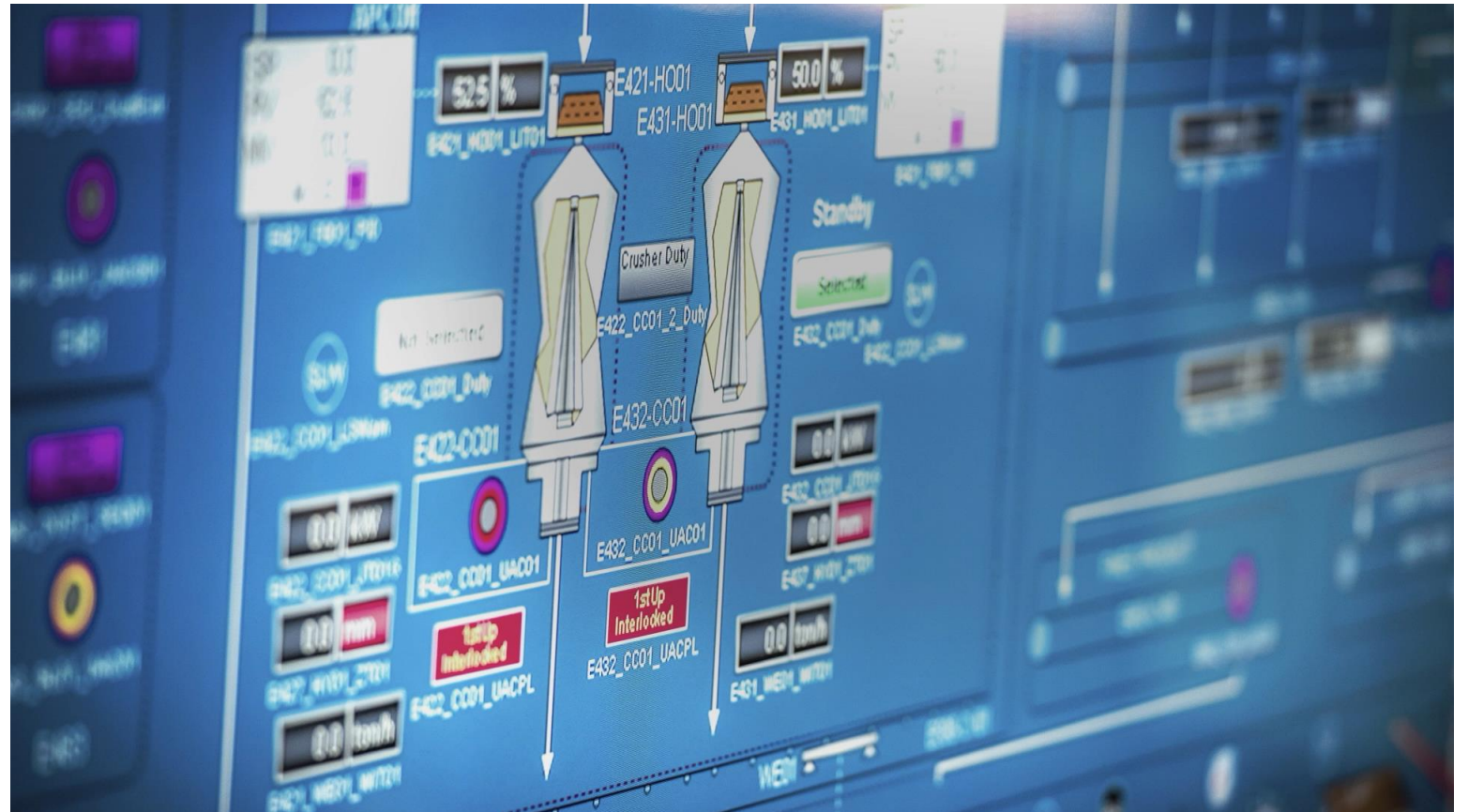
Advanced Process Control

2% recovery/yield

5% process throughput

30% process stability

5% energy efficiency



DATA ANALYTICS PLATFORM

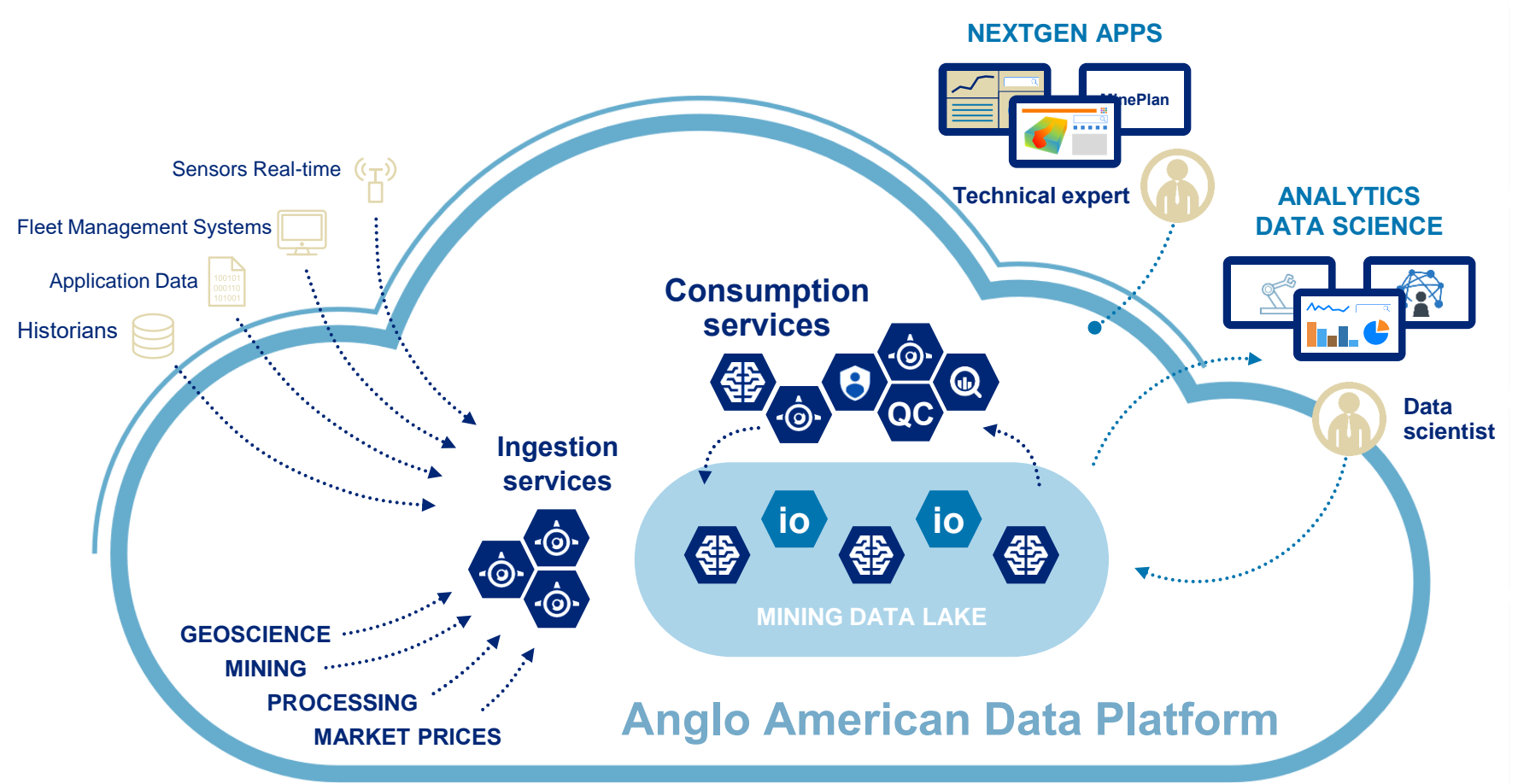
Providing business insight, empowering better decisions

Approach

1. Build an end-to-end data platform that supports the entire value chain
2. Use artificial intelligence to interpret data
3. Engage end users with next generation apps that are mobile-friendly
4. Productization strategy helps with scaling our value generation

Value

- Speed to market
- Scale of deployment
- IT/OT integration delivers value
- Operations decision support focused



CAVITY PREDICTION DURING LONGWALL OPERATIONS

Challenge

Predict cavity risk to optimise operating approach

Approach

1. Use artificial intelligence to model the parameters and learn from outcomes
2. Identify geologically similar blocks
3. Determine historically best operating regime
4. Recommend future operating regime to optimise production

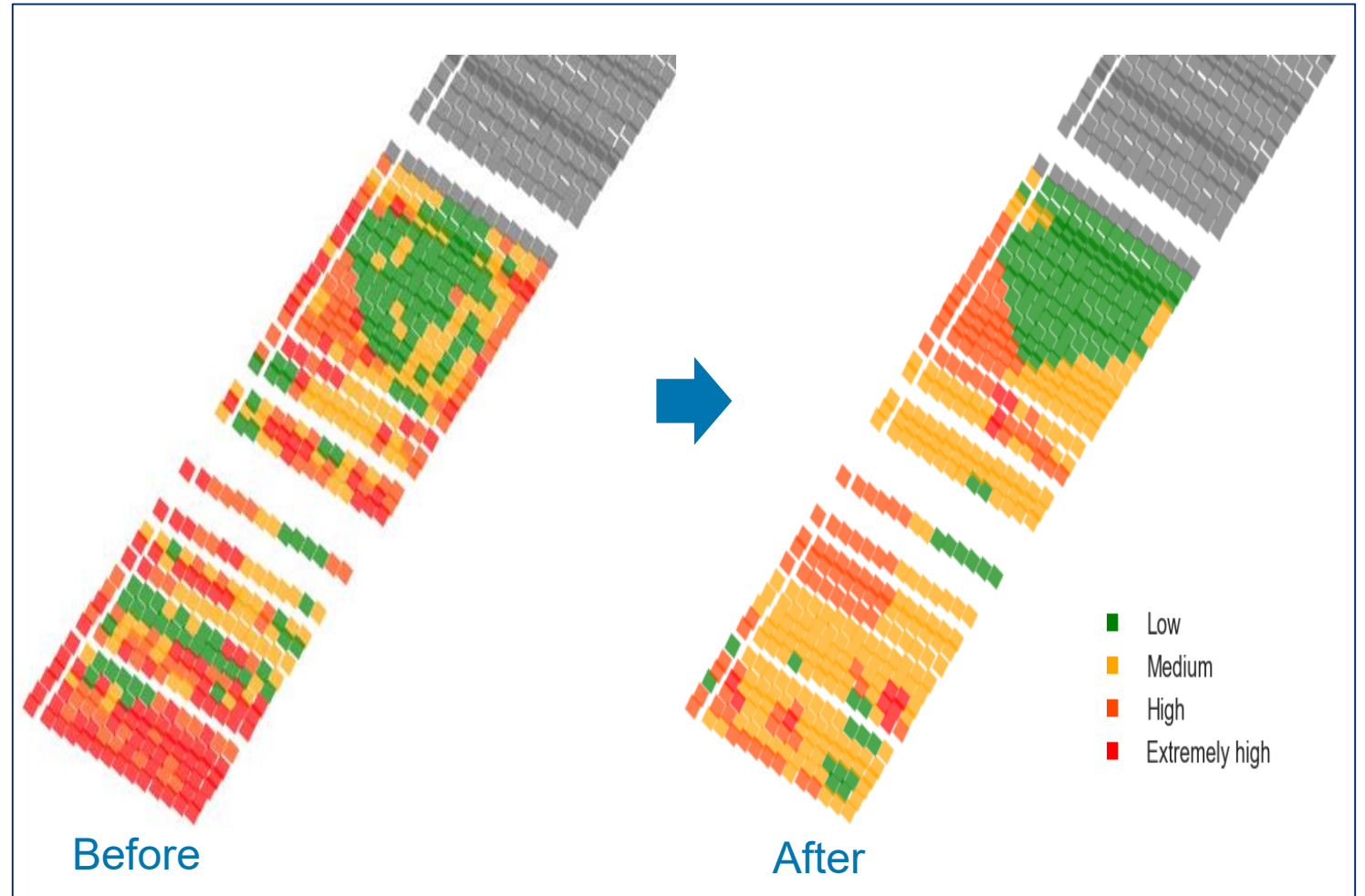
Value

Predict cavity risk ahead of mining operations

Improves safety

Boosts productivity

Adaptable to changing conditions



ASSISTED HYPERSPPECTRAL CORE LOGGING

Challenge

Precision geological information in minimal time

Approach

Use machine learning to augment geoscience expertise and automate logging & material classification

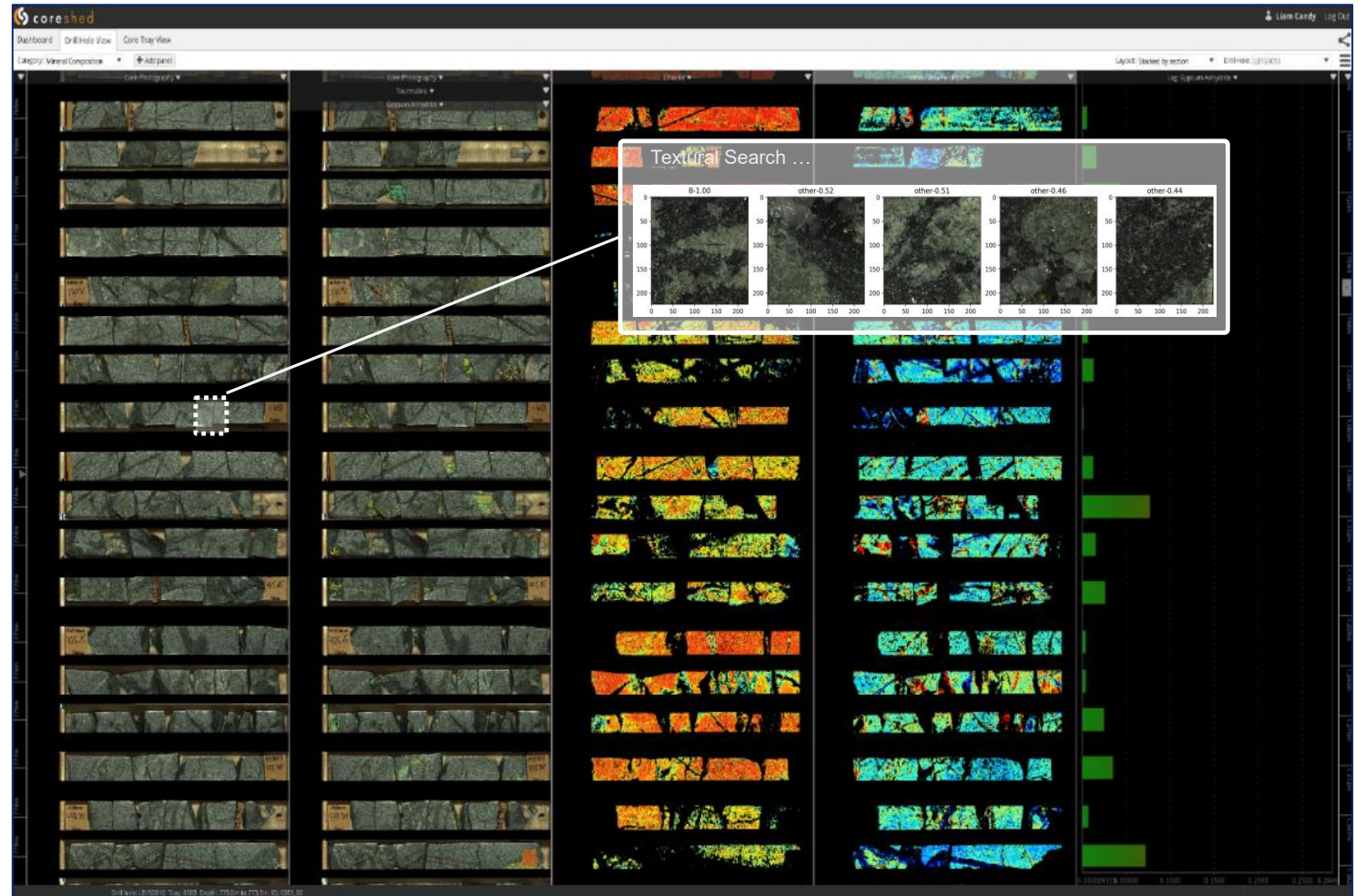
Value

Dramatic decrease in drill to resource model time

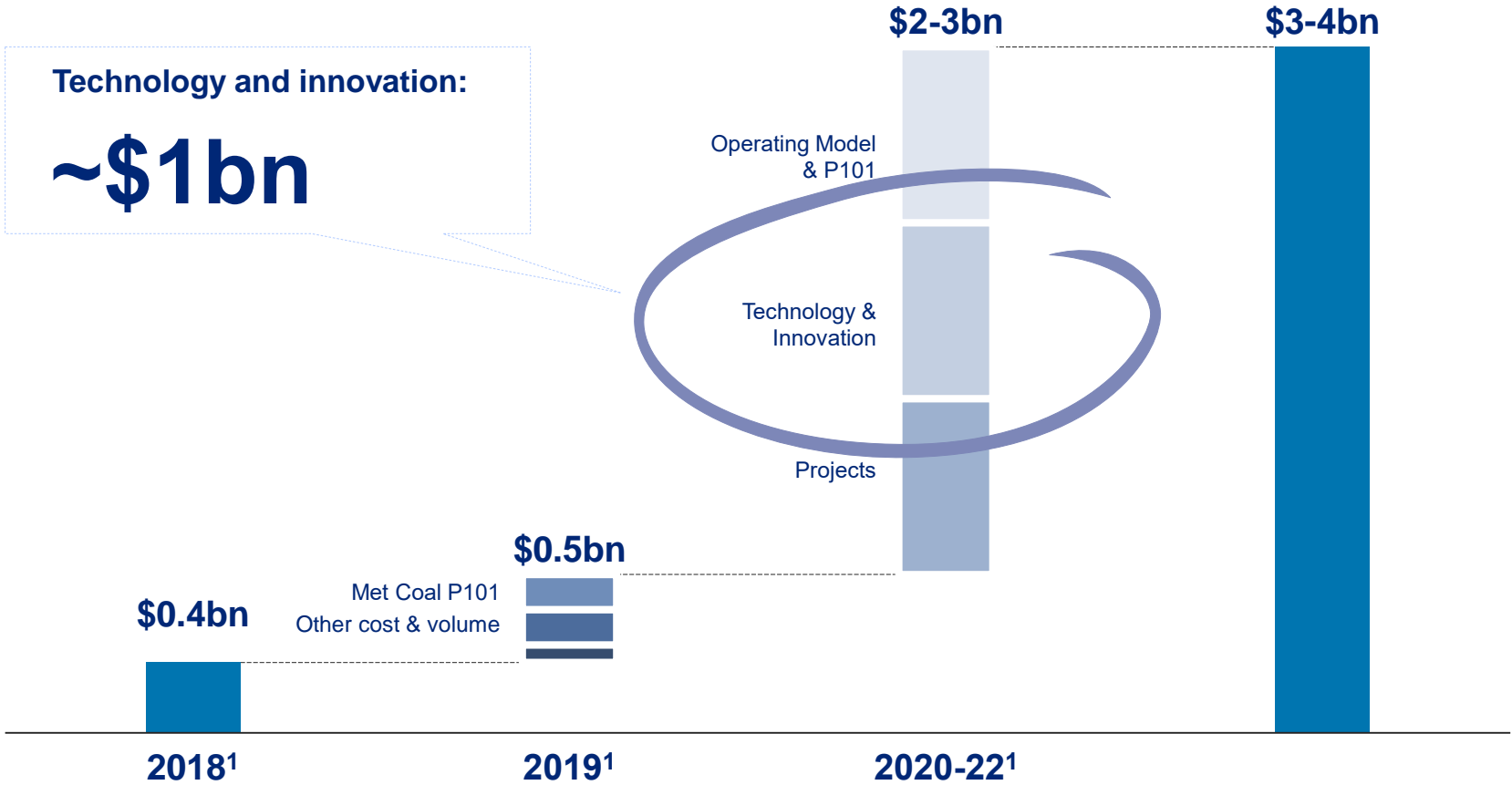
Increase in precision logging and material classification

Increased SME availability to build better model interpretations

Reduced risk to personnel



\$3-4BN COST & VOLUME IMPROVEMENT



1. EBITDA volume and cost variance. Volume variance calculated as increase/(decrease) in sales volumes multiplied by prior period EBITDA margin. For assets in the first 12 months following commercial production all EBITDA is included in the volume variance, as there is no prior period comparative. Cost variance includes inventory movements.

RE-IMAGINE MINING, TO IMPROVE PEOPLE'S LIVES





THANK YOU