

“Where data is king: How can mining operations maximise the use of their data to improve and evolve their operations.”

Presented by:

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Ausenco





Where data is king

How can mining operations maximise use of their data to improve and evolve their operations

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Operations Manager – Advisory & Sustainability

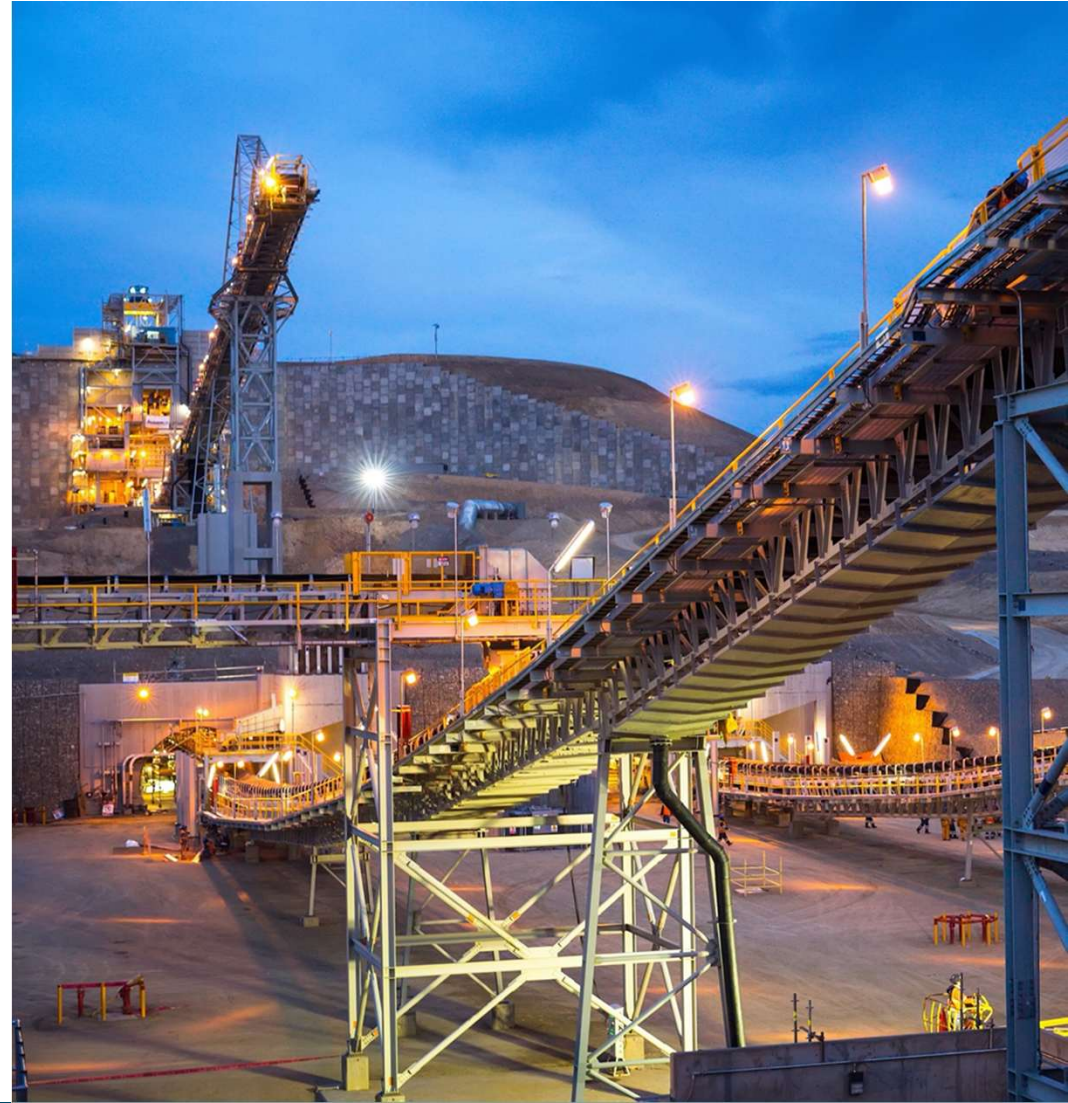
3 October 2024

Find a better way.



Agenda

- Introduction to Ausenco
- History & growth in data
- Challenges currently being faced
- ESG visibility
- Using data to optimise operations
- Opportunities & risks



Ausenco provides comprehensive solutions

Adding value and increase performance throughout your project lifecycle



Our global teams ensure we can deliver customised solutions wherever our clients are located.



Our global presence
29 Offices. 16 Countries

Main offices

Australia, Asia & South Pacific

- Brisbane, Australia
- East Mainland, Australia
- Honiara, Solomon Islands
- Kuala Lumpur, Malaysia
- Nuku'alofa, Tonga
- Perth, Australia
- Port Moresby, PNG
- Port Vila, Vanuatu
- Saleufi, Apia, Samoa
- Sunshine Coast, Australia
- Suva, Fiji

North America

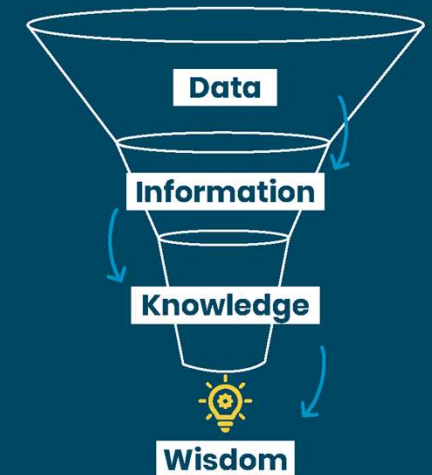
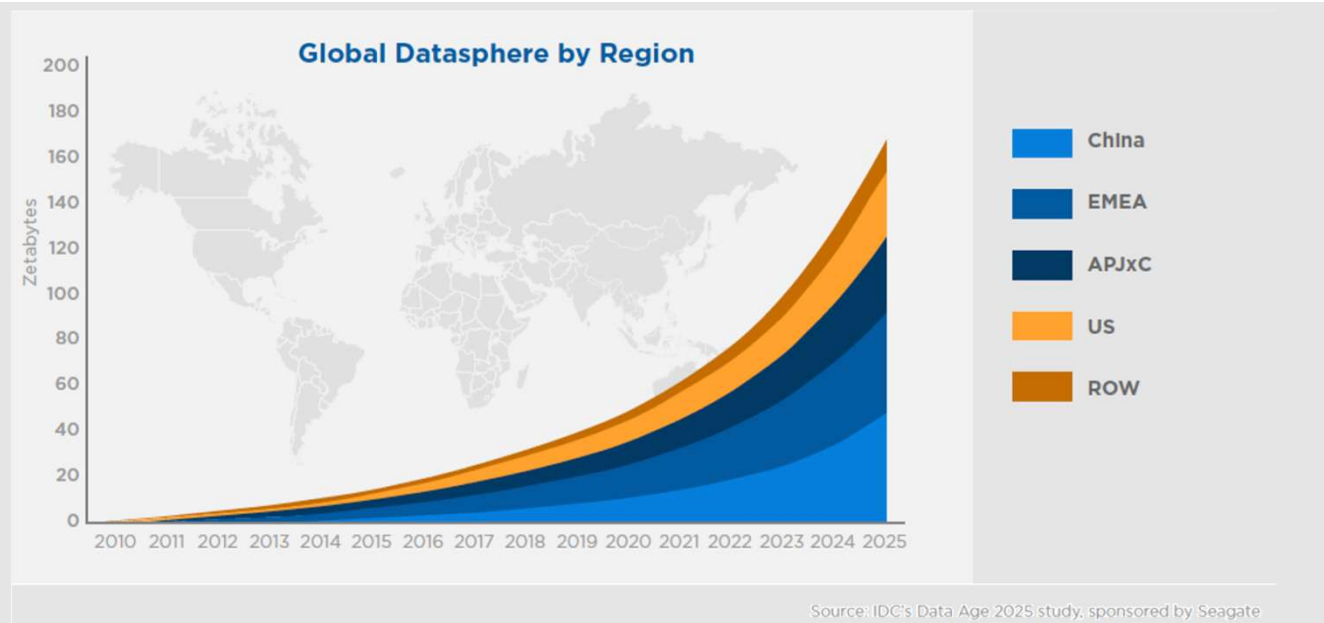
- Burlington, Canada
- Burnaby, Canada
- Calgary, Canada
- Calgary (Hemmera), Canada
- Concord, USA
- Oakville, Canada
- Toronto, Canada
- Tucson, Arizona, USA
- Vancouver (Homer St) Canada
- Vancouver (West Pender St) Canada
- Vernon, Canada
- Victoria, Canada
- Whitehorse, Canada

South America

- Belo Horizonte, Brazil
- Lima, Peru
- Mendoza, Argentina
- Salta, Argentina
- Santiago, Chile

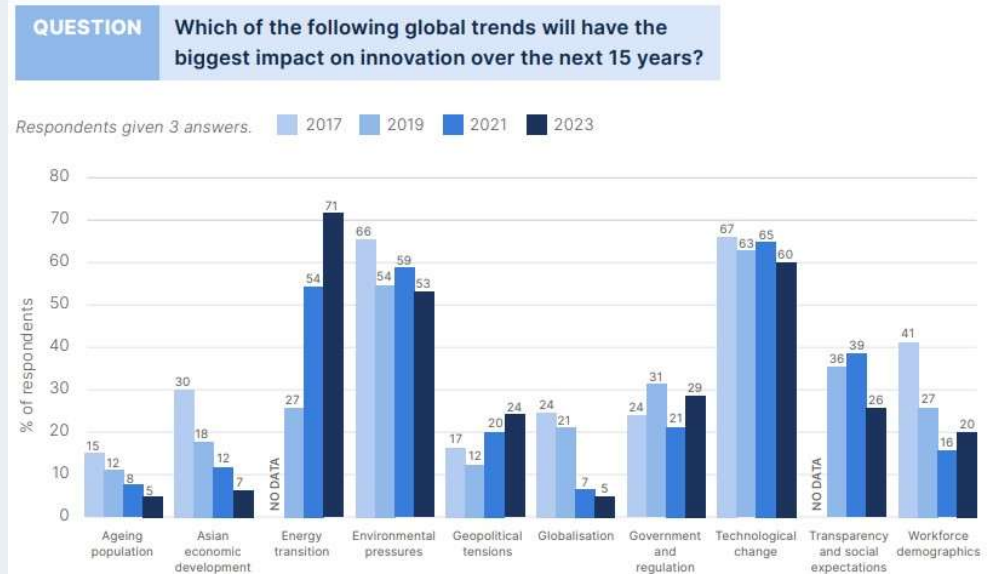
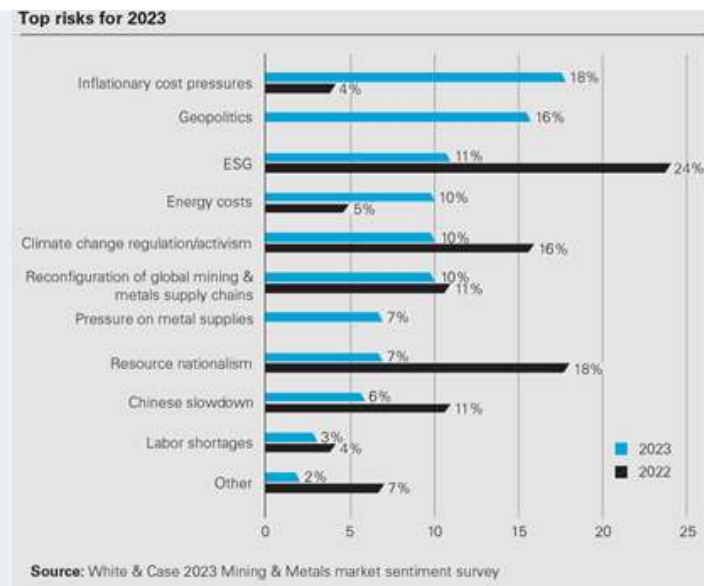
Data availability over history

- Data availability has increased exponentially.
- Can we leveraging the increased data to make better decisions?



Challenges & opportunities across operations

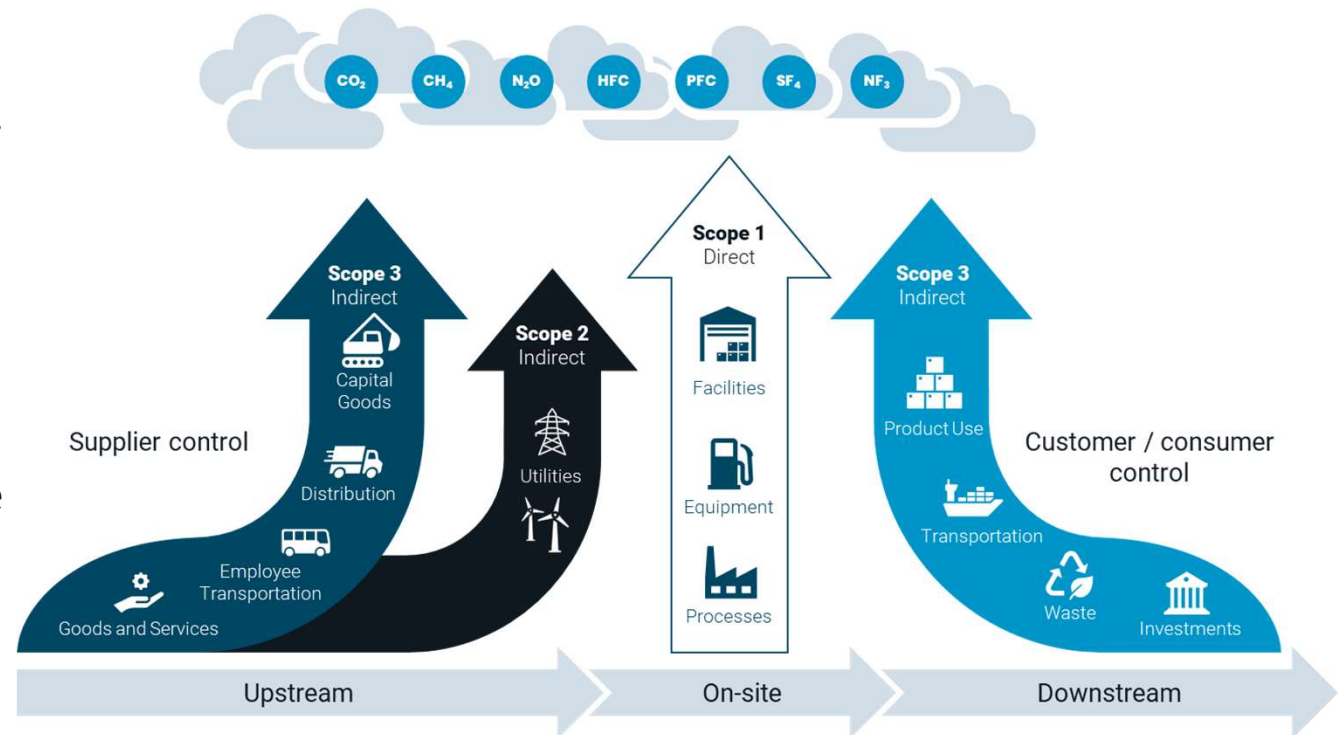
- The complete mining cycle is facing increasing pressure.
- Many internal and external market drivers.
- An optimised operation delivers the value to realise many of these opportunities.



Visibility of our ESG contributions

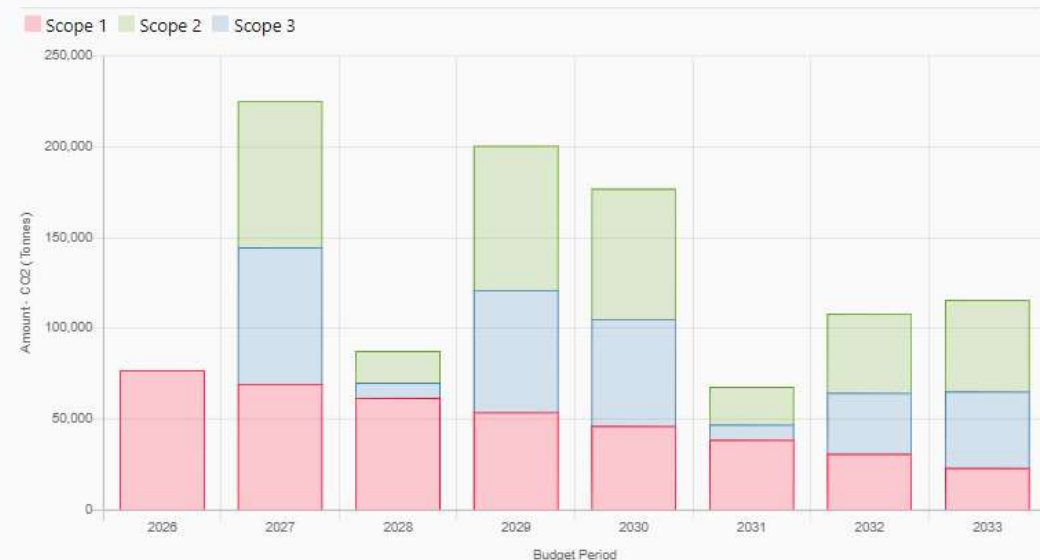
ESG is an increasing focal point in operations globally.

- There needs to be greater visibility and reporting to meet ESG commitments.
- A common bottleneck in the process is having a clear line of sight.



Begin the optimisation journey by building an emissions profile

- Define each 'Asset's' emission sources and data.
 - Direct emissions from asset function (ICE burn rate, reagent use data)
 - Energy consumption (Power, gas meters)
 - Materials used (ERP Data)
 - Actual & forecasted utilisations
 - Reductions & Offsets (Carbon capture technologies)
- Track and forecast and report emissions.

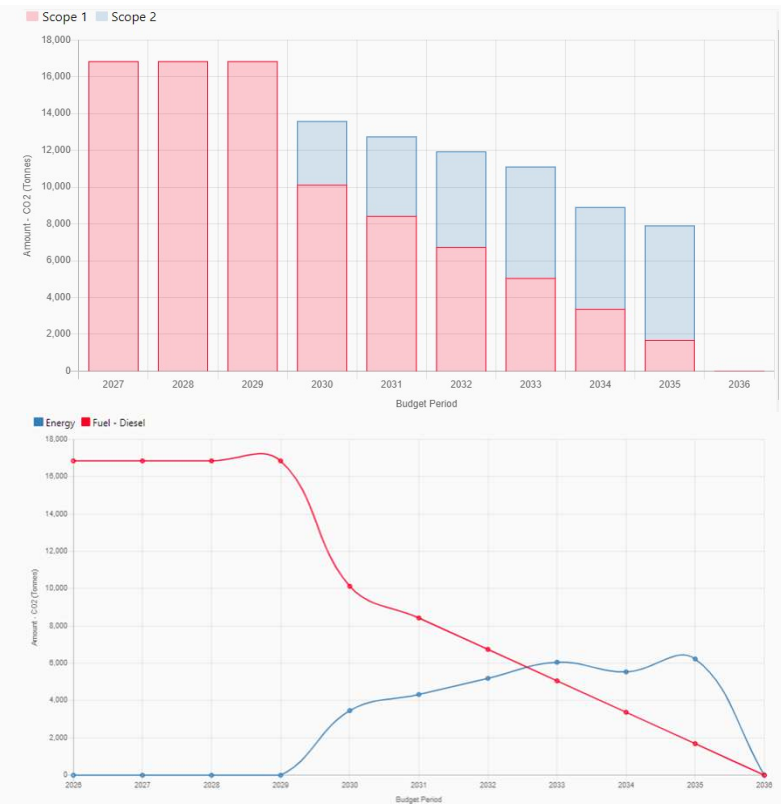
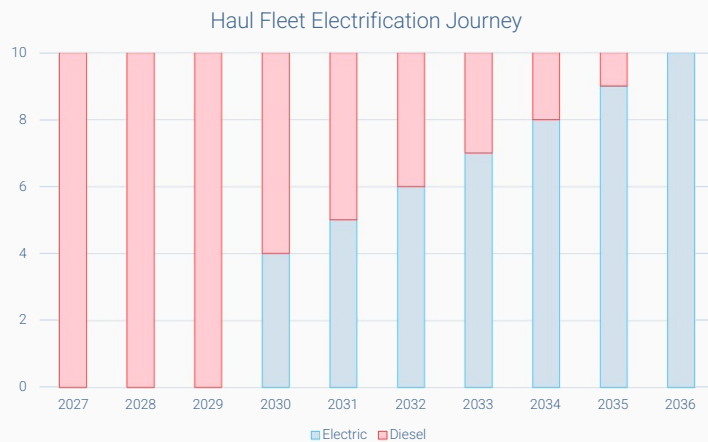


Building the strategy to improve ESG

Knowing the baseline and constraints, we can plan the path forward.

Technology can enable modelling to consider:

- Technology adaption over time
- Market constraints
- Changing efficiencies



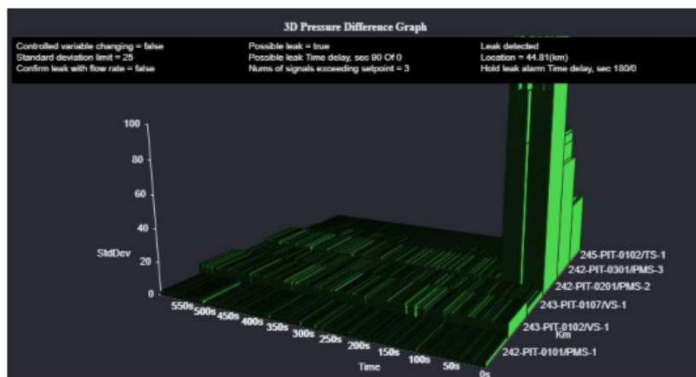
Using data to optimise our operations

Visibility of our operational data has evolved over the years.

- **How can we use this data** to enhance operational performance.
- We can improve our operations through:
 - Ability to react and predict sub-optimal performance
 - Ability to plan and act for optimal performance
 - Ability to gather and learn from *other* operational data.

Ability to react and predict sub-optimal performance

- Performance and condition monitoring techniques using live real-time and sample survey data streams.
- Traditional operational measures for new prediction applications.



Criteria	Pressure Wave
Time to detect	Typically 1 minute
Best suited for	Bursts/Ruptures

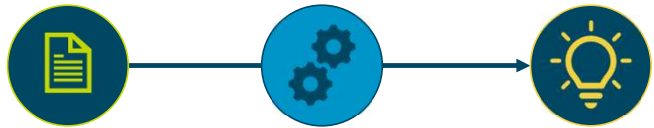


Criteria	Volume Balance
Time to detect	10 to 60 minutes
Best suited for	Slow developed leaks

Ability to plan and act for optimal performance

Learning from our operations and using existing data to optimise the next steps.

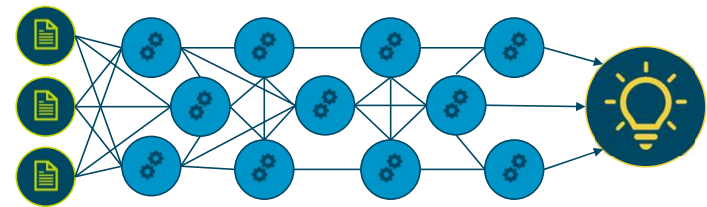
Single source of data



A simple data stream enables informed decision-making and regulatory control.

- Maintenance decisions based on history.
- Pumping circuit control improvement.

Multiple sources of data



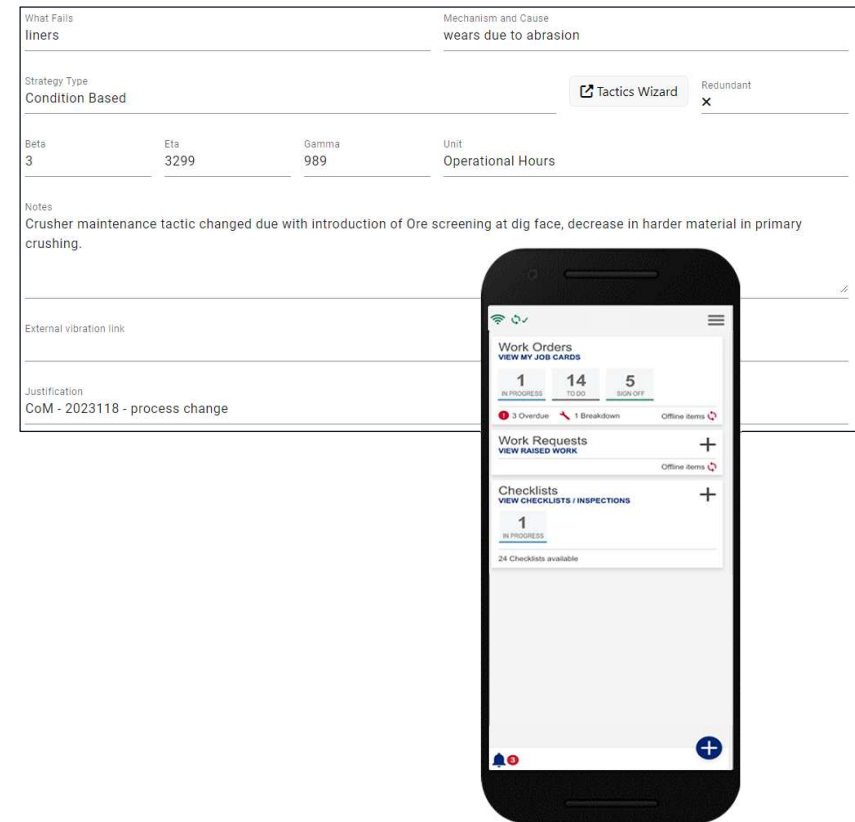
A complete data array enables holistic modelling and advanced controls.

- Maintenance digital twin models
- Implementation of multi-variable advanced process controls.

Ability to gather *other* operational data

How do we collect and use our human capital knowledge?

- Implement technology to ensure we have effective Management of Change and streamlined day-to-day operations.
 - Digital Work Instructions, with live updates to our systems.
 - Capturing institutional data and decision making.



Leveraging on opportunities & mitigating risks in data

As access to our data grows, it opens up even more opportunities, but it also presents risks.

Opportunities

- AI
- An operations business partner - Effective & Efficient modelling
- Automation & advancing operations
- Shared data capital

Risks

- AI
- Technology dependency
- Cyber Security
- Keeping current – technology evolution
- Investment curve – upfront costs



Thank you

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