

Investor Presentation

June 2023





# Disclaimer

### **About Orexplore Technologies**

Orexplore Technologies Limited (ASX: **OXT**) is a globally focused mineral technology business concentrating on advancing the commercialisation of its Technology Platform across the mining value chain within the global metals and mining sector. The Company's Technology Platform consists of the GeoCore GX10® hardware product and Orexplore Insight user interface software, that is continually advancing through its in-house multi-disciplinary research and development team based in Stockholm, Sweden.

Orexplore's first product, the GeoCore X10®, is a transportable X-ray rock mass scanning technology that converts drill core samples into a three-dimensional data set to provide a "through the rock" image of internal structures and texture in addition to elemental detections, and density.

The Company maintains core-scanning laboratories in Stockholm, Perth, and Santiago. Orexplore's talented global team includes consulting geologists, engineers, data scientists and physicists, and technology delivery experts. The Company continues to advance its solutions through development and delivery of customer solutions powered by its Technology Platform.

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#### Disclaimer

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Unless otherwise stated all the currency disclosures in this presentation are Australian Dollars.

The information included in this presentation is dated 13 June 2023.



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Who we are.

A diverse and global team of people empowering our customers to navigate global transitions via the transformational Geocore technology platform.

We believe in the sustainable extraction of minerals and metals creating value for all stakeholders to power a better world.

We are...

300+

3

YEARS EXPERIENCE ACROSS THE MINING VALUE CHAIN

CONTINENTS

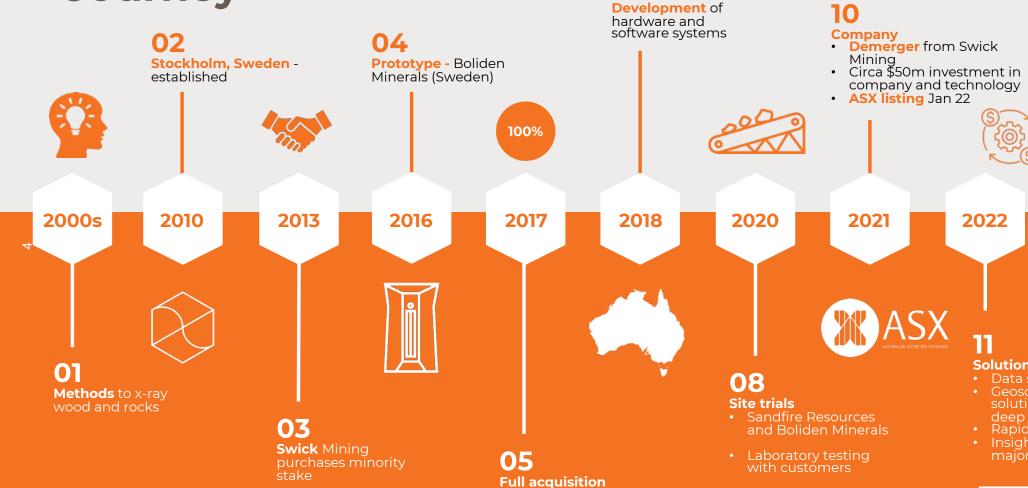
25+

EXPLORERS, GEOLOGISTS, PHYSICISTS, DATA SCIENTISTS, ENGINEERS, MATHEMATICIANS





# Commercialisation Journey



Swick Mining

V1 launched

Insight® software

06

07

Perth, Australia -

HO established

### **Technology advances**

- GX10® HQ capable
- Dual energy
- Core engine advanced physics and neural networks

### Scaling

- Operations, engineering and maintenance advanced
- Commercial scanning in Sweden and Australia labs
- Santiago, Chile office opens



Commercialisation

 European innovation consortium project

acceleration through

organisation, strategy and

technology development

2023



### **Solutions and Delivery**

- Data science team formed
- solution maturity speed and deep customer engagement

  Rapid solution development
- Insight ® software multiple major releases

12 **Traction** 

First major contract - \$2.3m OZ Minerals (now BHP)



# Why?

The mining industry is under pressure to deliver the minerals and metals of the future in a sustainable way, through multiple global transitions.

Orexplore's Geocore technology platform is solving industry pain points and transforming existing processes across the mining value chain.

From decreasing exploration returns, grades, and project techno-economics to complex operational challenges, environmental management and beyond, Orexplore is delivering solutions every day.



## Digital Transformation

- Technology enabled business model evolution
- Productivity
- Industry 4.0



### **Workforce Evolution**

- · Skills shortage
- Remote knowledge
- Transitory workforce
- · Tech decision support



### Business

- Mining techno-economics
- Increasing global competition
- Doing more with less
- · Risk quantification and control



### Automation

- · Manufacturisation of mining
- Human-machine collaboration
- Autonomous systems & vehicles



### **Metals Demand**

- Energy transition
- Critical minerals & rare earths
- Electric vehicles
- Developing nations



## Sustainability

- Ethical investment
- Social value
- Emissions targets
- Natural environment
- Global targets



# Accelerating Value Chains

- Business models synchronising to accelerating markets
- Rapid reconfiguration to service market opportunities



# Key Investment Highlights.



analysis

# Transformational technology

True 3D – CT scanner maps the entire 3D core volume, compared to typical surface only sensing

Non-destructive – drill and scan once to create digital twins for collaboration and future proofing

Fast in the field – results in an hour anywhere in the world

Human-Machine automation – Insight® platform enables machine learning powered



## Scaling







Contracts – Gold Fields, Oz Minerals, and 10+ commercial OXT laboratory engagements

**Pipeline** – accelerating across three global regions

Globally significant team – industry leaders delivering transformation

Hub and spoke – centralised geoscience and support meets simple remote scanning

Reliable, simple to operate - GeoCore X10® field units



### **Solutions adoption**

Geoscience solutions – servicing a broad set of customer types

Solution suite – exploration, studies, operations, critical minerals, ESG

Solving industry pain points -

structural, persistent opportunities

**Creating customer value** - as they navigate global transitions

**Simple operation -** with centralised remote support



## Global growth markets

**Critical minerals enabler -** uniquely suited technology unlocking deposits and projects

**Global transition enabler** – digital, automation, workforce, ESG, energy

**Macro-economic scenarios** - creating value through the cycles

**Large Total Available Market (TAM)** 

- multiple commodities

Across the Mining Value Chain - exploration, studies, projects, operations and ESG



# Pipeline.

The road ahead.

Our solutions are now rapidly advancing and starting to be pulled into regions by our customers.

1.

## **Latin America**

Entering the region and accelerating pipeline flow

- Gold Fields Chile
- Regional tier-1 miners
   deep engagement
   and opportunity
   scoping
- Initial core scanning for multiple potential customers starting through Santiago office

2.

### Australia

Accelerating sales outreach and attacking Critical Minerals

- Multiple tier-1 and other operators scanning core in OXT laboratories and validating solutions
- Multiple Critical Minerals customers scanning in laboratories - developing new industry solutions
  - Leveraging solutions from OZ Minerals project

**5.** 

### **Rest of World**

Responding to Tier-1 customer pull and defining the pipe

- Deep engagement post commercial lab trials with tier-1 on African site
- Project scoping post commercial lab trials with European customer
- Multiple European customer commercial lab trials in Stockholm
- Early North American partnering out-reach

# X-ray Powered Solutions.



## True 3D scanning unlocks powerful solutions

The Geocore X10 scans the entire 3D core volume creating a unique 3D data set that powers a suite of new products across the mining value chain from exploration to closure.

- The technology platform enables geologists and mining professionals to analyse remote site core within 15 minutes of placing it in the machine
- Improving exploration outcomes, unlocking ore-bodies, accelerating resource to reserve conversion, and saving time and resources within customer's operations
- A sustainability enabler to advance precision mining and support the ESG transition

















A single digital model straight from site can potentially replace multiple traditional processes

## **OXT delivers the full puzzle**

A full digital twin of the drilled core that unlocks both elemental composition **and** mineralogy in a single solution - in the field in less than 15 minutes, that enables

- traditionally siloed groups to "drill once" and collaborate around a single digital model
- directly connect remote SME's and study teams to deposits as they are drilled
- provide near real-time decision support to operations and explorations teams
- the creation of a digital core farm a unique asset that can be used for current and future techno-economic assessments



## Versus jigsaw pieces

- delivering pieces of the puzzle elemental concentrations through the labs or mineralogical information through other core scanning techniques
- waiting and paying for slow and expensive assays to build grade-dominant models
- scanning for minerals on site and waiting for remote analysis and reporting



# Solutions across the mining value chain.













ESG

**Environmental management** 

Acid drainage and waste impact monitoring

## **Exploration**

Targeting tool

Mineralisation indicators and vectors guiding campaigns





### Resources to Reserves

**Accelerating developments &** acquisitions

3D field information supporting accelerated conversion and techno-economic reviews

RRR

**OBK** 

**SDM** 



## Extraction Economics

Matching methods to deposits

Mine design and process selection through rock characterisation e.g., ore sortina



**ROD** 



## Operations

**Production & Analysis** 

Optimising core sampling and dynamic grade control



SOO











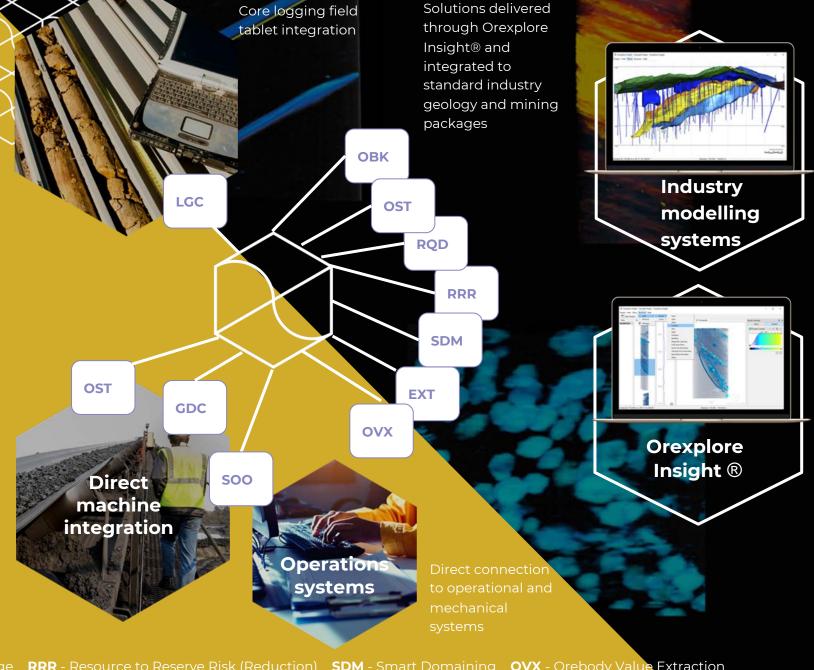


ARD



The Geocore technology platform produces data products connected through multiple methods to Orexplore Insight® software and standard industry software packages.

API (application process interface), CSV and other delivery formats are available to ensure seamless connectivity to standard industry modelling, operations, and field-based systems and processes.





# Increasing Market.















Base metalsOther metals

**Drilled core** 111.6<sub>CY231</sub> **Million Metres** 









**Precious Metals Critical Minerals** REE's & Battery Gold

**Base Metals** Nickel, Copper, Zinc, Lead

SAM

**TAM**\*2

Mining

Drilled

Core

(chips etc.)

New core drilled

Gold and base

metals

**COMMODITIES** 

<= HQ size

> HQ size

**CORE SIZE** 

Target geographies

**GEOGRAPHIES** 

**Rest of World** 

**Critical Minerals** 

Other commodities

Warehoused & maintained core in long-term storage

Geology

**Operations** 

Drilled non-core material suitable for OXT scanning

Mining

Processing (incl. Ore Sorting)

ESG (incl. Talings)

**ARD** 

OST

Key market segment



Alternative marketing / potential future delivery

Other

\*1 - See Table 7 of Minex Consulting report from Prospectus Source: Minex Consulting - Independent Technical Report - On the available global drilling market - see Orexplore Prospectus 22 November 2021 - Annexure C - available at www.Orexplore.com - Market Segments Modified From: 18/04/2023. Images for communication purposes only.

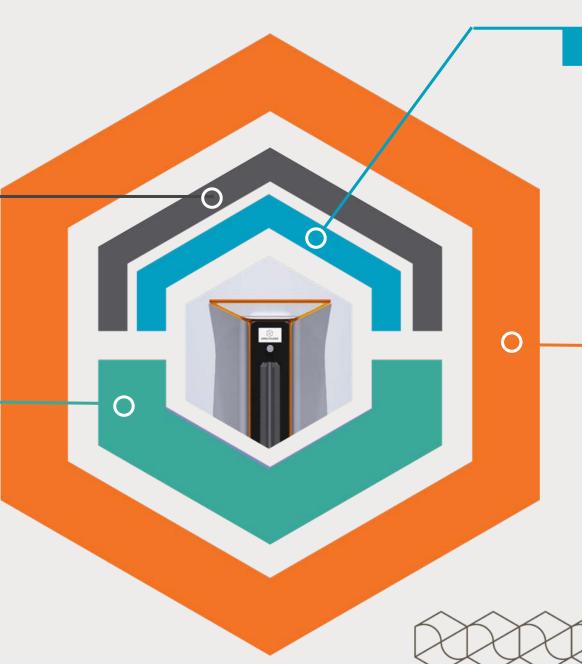
# Business Model.

## **Site Scanning**

- Machine transported to customer site
- Medium to high volumes of over 1500 metres per month (resolution dependent)
- Larger customers with machines embedded into site workflows
- Continuous rapid scanning

### **Orexplore Insight® Software**

- User interface platform
- Visualises easy-to-interpret scan results
- Enables remote SME's to view and analyse results rapidly from the field
- Supports the analysis of structures, faults, fractures, fabric, density and lithology
- Illustrates detected elements and emerging 3D modelled geochemistry
- Ongoing machine learning / human analysis platform development



### **Laboratory Scanning**

- Core transported to Perth, Santiago or Stockholm laboratories
- Initial customer test ground to leverage into site deployment
- Typically, lower volumes of several metres to 1,000 metres per engagement
- Product development with clients

### **Geological Consulting**

- Drives adoption "Geo to Geo" selling of transformational technology
- Supports customer integration into site processes and workflows
- Working with customer champions to articulate and promote value within the customers organisation
- Close collaboration with customers drives solution maturity speed and new solution development



# Commercialisation.

**Traction – \$2.35m OZ Minerals** (now BHP)

Revenue (2022) – \$1.2m - commercial field deployments and OXT laboratory scanning

Sales – growing global pipeline across geographies, metals and customers

**Adoption** – tier 1 and other mining companies actively adopting

**Laboratories** – developing the solution suite through commercial engagements

**Operations** – safely scanning 24/7 in the field on commercial deployments

Financial discipline - robust financial management





**Data science team** – transforming field sensed geology to produce data products powering solutions across the value chain

**Customer driven** – software solutions developed through rapid collaboration

**Demonstrated value** – of new-to-industry solutions through case studies

**Prioritisation** – focused on Tier-1 opportunities and resellable solutions



## **Technology**

**GX10**® – dual energy capability unlocking critical minerals solutions

**Insight**® – quarterly releases of customer requested functionality

**Support** – engineering and maintenance to ensure seamless field deployments and operations

**R&D** – next generation sensor development and future horizons

# Recent Progress.

## Commercialisation

Operations – reliably and safely scanning core in the field 24/7 and connecting data streams to existing client geological models and systems

**Gold Fields Salares Norte contract** – initial ~\$430k commercial field deployment for Orexplore's "Smart Sampler" solution (SOO)

**Latin America market entry** – robust pipeline growth and customer engagement in the region

**Critical Minerals market** – unique technology fit driving adoption rates of ore sorting, grade control and other solutions

**Solutions development** – customer driven solution development through the OZ Minerals and other OXT laboratory projects - building our globally resellable software solutions







# Solutions

Auto RQD – linking structures to processing options

Smart domains – challenging established block model boundaries

**Digital test proxies** – expanding limited slow and expensive test work across ore bodies

**Density** – high resolution automatic density reducing the inherent risk of "tonnes in the ground"

**Recoverability** – particles, elements, mineralogy and more driving optimised process options to maximise recoverability and study techno-economics





"We are building brand new solutions for the Industry - fed directly from near-real-time field sensed data and connected directly to a rapid study team"

Stephen Coward – Principal Geoscientist Orexplore



# Recent progress. Technology

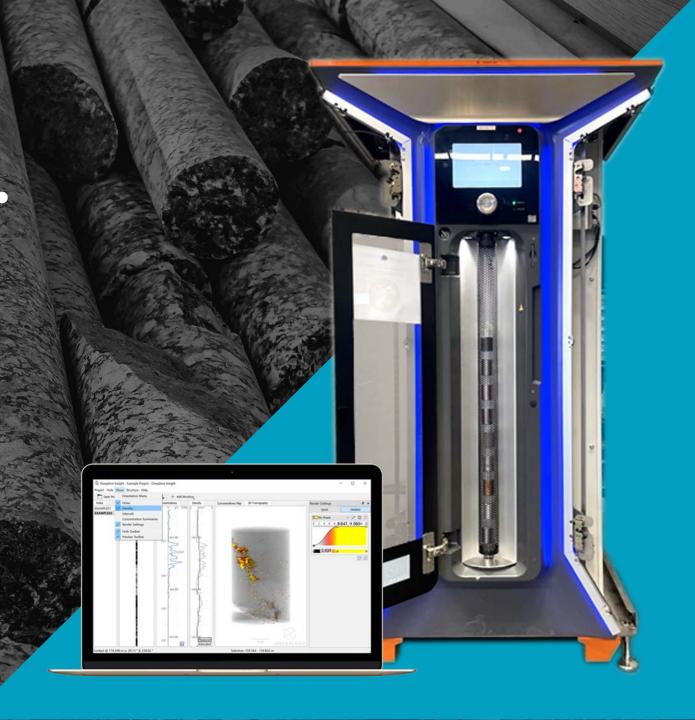
**HQ machine** – now scanning up to HQ core size – circa 40% serviceable market increase

**Dual Energy CT** – a step change in the power of the results from the CT scanner, unlocking in-field ore sorting solutions for critical minerals customers

**Core engine** – major advances in the digital core models driving rapidly improving near-real-time elemental and mineralogical outputs direct from the field

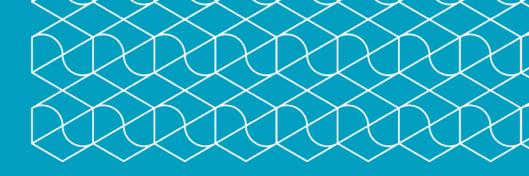
**Orexplore Insight®** – customer driven quarterly releases of new functionality

**Future horizons** – advancing in-house designed next generation sensors









# Operating 24/7.

Oz Minerals.

Operating in a harsh and remote environment, the Orexplore team and technology platform is safely scanning drill core 24 hours a day, 7 days a week for OZ Minerals.

Using remote satellite links, the team has connected the rapid field scanning to the accelerated study team, who transform the data streams into valuable information that is integrated into standard OZ Minerals geological packages.

This first major field-deployment for the business has been pivotal to build operational capability and capacity and refine Orexplore's solution delivery model in preparation for scaling.



# Salares Norte Chile.

# Entry to operating mine

Integrating the technology into ongoing mine operations, through an Annual Recurring Revenue (ARR) style installation at the Gold Fields Salares Norte gold and silver mine, in Chile.

Initial \$430k agreement for the scanning and analysis of approximately 3,000m of drill core as part of the larger scale annual exploration program.

Roll-out of Orexplore's new sample optimisation solution (SOO), reducing the drill core sent to downstream laboratories.







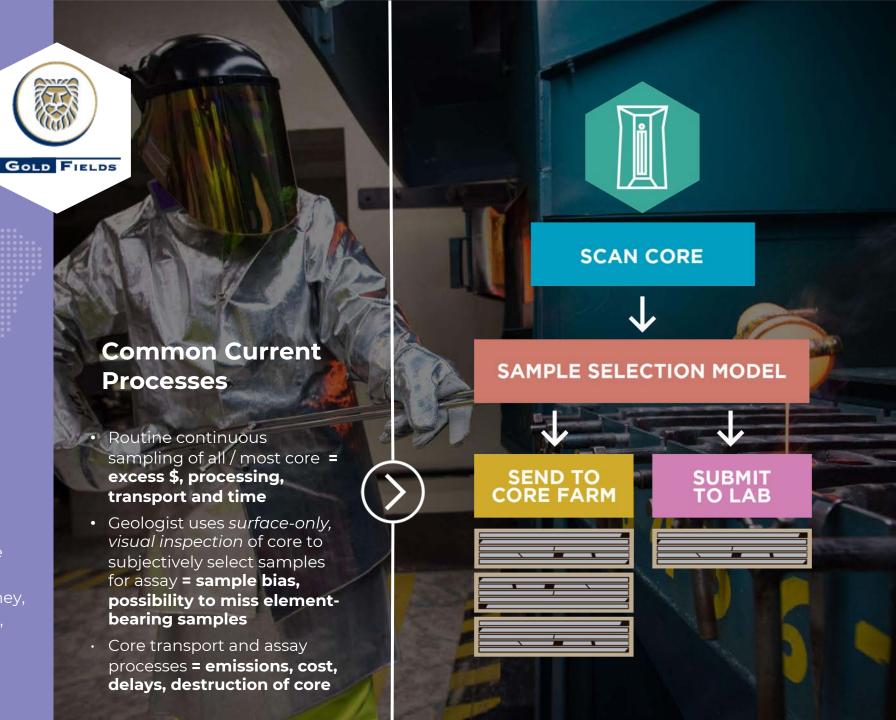
soo

# Solutions.

# Sample optimisation

Explorers and operating miners are under pressure to do more with less and delays associated with receiving sampling results often have significant schedule and cost impacts.

Orexplore's technology platform allows customers to pre-screen the entire 3D core volume and then sample to optimise the overall sampling process, saving time, money, and the associated emissions from cutting, transporting and destroying core through traditional processes.



# Critical Minerals

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Precious Metals Critical Minerals
Gold REE's & Battery

Base Metals
Nickel, Copper, Zinc, Lead

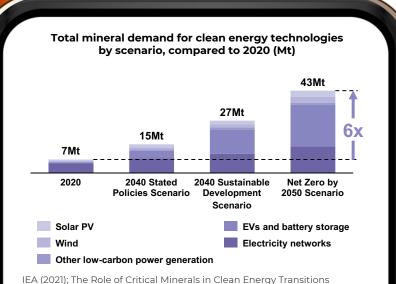
Critical Minerals are increasingly required in modern industries across all supply chains

Among all critical minerals, lithium, graphite, cobalt, nickel, REEs, manganese, copper, silicon, chromium, and zinc require the largest percentage growth by 2050 to meet the demand of growing low-carbon energy technology under the Net Zero Emissions by 2050 Scenario (NZE). <sup>1</sup>

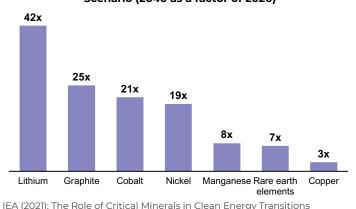
The net zero pathway is expected to **increase critical minerals demand by almost 6x between 2020 and 2050**, from less than 10 million metric tons (Mt) to roughly 43 Mt.

Global rare earth element (REE) mines, deposits and occurrences (May 2021)





Growth in Mt demand for selected minerals from clean energy technologies for Sustainable Development Scenario (2040 as a factor of 2020)



Note 1: Columbia SIPA (2023) Critical Minerals Demand Growth in the Net-Zero Scenario











# Critical minerals.

# Unique Technology Market intersection

**Dual Energy** – a step change in the power of the results from the CT scanner, unlocking in-field ore sorting solutions for critical minerals customers

**High energy XRF** – delivering excellent REE discrimination compared to other technologies

**New solutions** – ore sorting, grade control and others

**Project enabling** – proving orebody sortability and ability to undertake operational grade control





OST

# Solutions. Ore Sorting

As deposits become harder to discover and more marginal in response to rapidly changing global macro-economics, customers are seeking solutions to upgrade their technoeconomics. Or explore is working with customers across base and precious metals and critical minerals to develop ore sorting solutions that can help them achieve these outcomes.

By adding in deposit scale "sortability" information into existing geological block models, the potential of ore sorting economics can be established during early study phases, unlocking the ability to optimise process flow sheet design early in the investment lifecycle.









# Contact.

Reach out to Orexplore to learn more about our potential.

info@orexplore.com

Perth | Santiago | Stockholm

www.orexplore.com





Fast
industry leading
Drilled to insight



## Mobile

Anywhere in the world





## Sustainable

scan core

**Transport information** 

ave time, money and emissions



# Appendix.



# **Corporate Structure | ASX: OXT**

Well positioned to accelerate solution adoption across a growing customer footprint.

### **Capital Structure**

Shares on issue **103,664,196** 

Performance rights

8,293,136

Share Price (12.06.23)

\$0.051

Market Cap (12.06.23)

A\$5.29m

Q1FY23 Revenue

~A\$821k

Cash position (31.03.23)

~A\$4.79m

No debt

## **Led by Experienced Board & Management**

Alan Bye

Non-Executive Chairman

**Brett Giroud** 

**Managing Director** 

**Kent Swick** 

Non-Executive Director

Stefan Sädbom

Non-Executive Director

**Stuart Carmichael** 

Non-Executive Director

William Randall

Non-Executive Director

Frank Campagna

Company Secretary

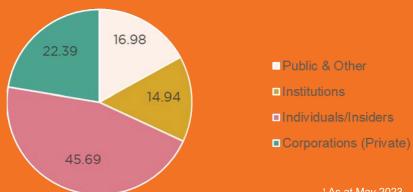
## Top Shareholders<sup>1</sup> % Shares on Issue

Circle 5 Management Pty Ltd. 19.00%

Kent Jason Swick 15.00%

Castle Point Funds Management Ltd. 8.56%

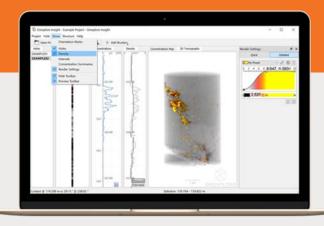
### **Shareholder Structure**



<sup>1</sup> As at May 2023 Source: S&P Capital IQ



# Technology offering.















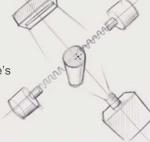
### GeoCore X10 ®

### **High Energy X-ray Source**

XRT (X-ray transmission) CT provides 'through-the-core' structural 3D imaging used to estimate potential elemental composition, geological structure, texture & density.

### **Spectrometers**

XRF Spectrometers provide elemental detection at the core's surface.



- Fast: scans four x 1m cores at a time, in less than 15 minutes per metre.
- Versatile: non-destructive scanning of both core & non-core (chips etc.) material.
- Easy: requires minimal skill set to operate. One technician can operate up to 3 machines.

## Insight software platform

Orexplore's software system, Orexplore Insight®, provides users with the ability to interact and analyse the scan results obtained from the GeoCore X10®. It allows for 3D-visualisation of the core and the ability to further analyse the resource and physical information, providing rich capability to understand, interpret and extract key information contained within the sample such as:

- Geological structures
- Lithology / texture
- Density high resolution
- Rock mechanics & physical characteristics e.g. RQD
- Particle detection
- Detected elements
- Emerging geochemistry

# Mining transitions.

Sustainable pain-points are combined with transformational new solutions to guide the strategic focus of Orexplore



## **Digital Transformation**



Sustainability



**Business** 



**Automation** 



**Metals Demand** 



Workforce **Evolution** 



**Accelerating Value Chains** 



## **Exploration**

- Diminishing discoveries
- Campaign efficiencies
- Pressure to become a producer quickly



## Stakeholders

- Continually expanding
- Accelerating expectations
- Demonstrating leadership across domains – ESG,
   Carbon



## **Operations**

- Productivity pressures
- Skills shortages & changing ways of working
- "Do more with less"



## **Projects**

- NPVs under pressure
- Challenging techno-economics
- Technology adoption
- Evolution of engineering



## ) Corporate

- Evolving business models
- Global competition
- Complex dynamic value chains
- Synch to accelerating markets
- Access to capital



# Orexplore provides traction through transitions

- Decision support
- · Operational transformation
- Corporate value
- Risk and Sustainability

# Your challenges, our solutions.



Slow resource to reserve conversion

Mining blind

**Project techno-economics** 

**Production efficiencies** 

Assay delays & costs

ESG value creation & risk control



### **Exploration Targeting tool**

Mineralisation vectors derived from mineral indicators. alteration states, and rock characterisation.



Unique 3D insights from the field supporting accelerated conversion and techno-economic reviews.



Operationally embedded units for grade control improvements to assist dynamic mining decisions.

### **Project Economics** Matching plants to deposits

Ore sorting and rock characterisation to "best fit" process plant design with orebodies to drive NPVs.



Optimising core sampling and analysis through prefiltering and driving operational efficiencies

## **Environmental controls**

Dynamic field based environmental risk controls – such as acid drainage and waste impact monitoring.









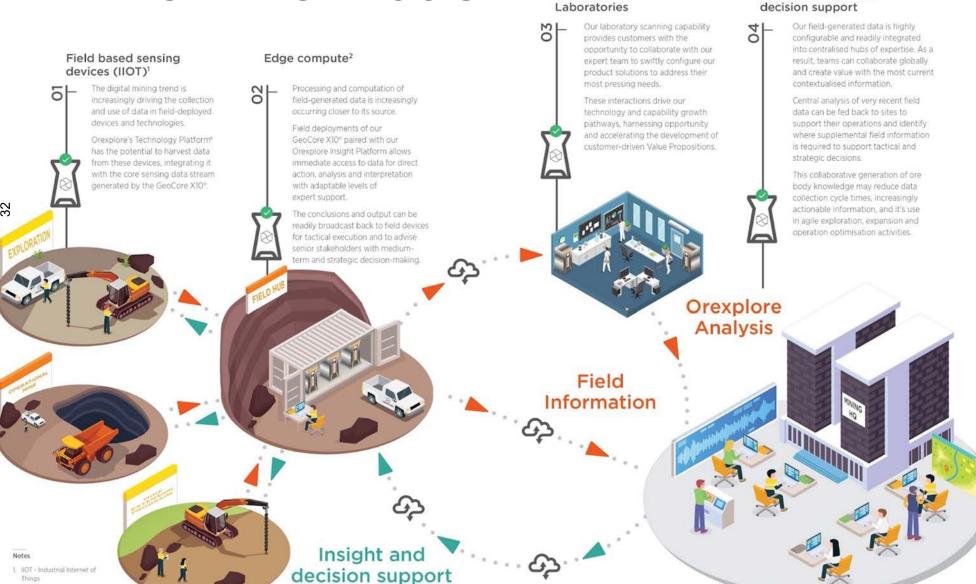




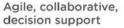


# **Drill for information.**

2. Edge Compute - A technology paradigm of Industry 4.0



Orexplore





## **Fast**

industry leading **Drilled to insight** remote analysis within 15m



## **Mobile**

exploring with you Anywhere in the world rapidly transportable containers



## Sustainable

scan core

**Transport information** save time, money and emissions

# Technical capabilities.

### Geochemical

Detected elements and emerging geochemistry

Elements - continually improving the accuracy and number of elements that can be detected.

**Dense particle detection** 

Detection of the location of dense particles within the entire core down to 100-micron particle sizes.



Lithology / texture

Semi-automatic identification and logging of lithological features.

**Rock mechanics** 

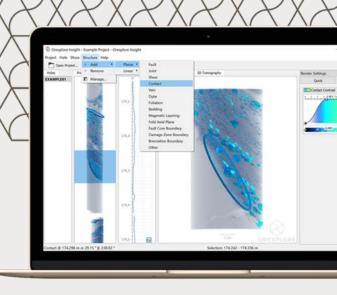
Collection and annotation of rock mass data incl. rock quality designation (RQD), detailed assessment of joint orientation and infill.

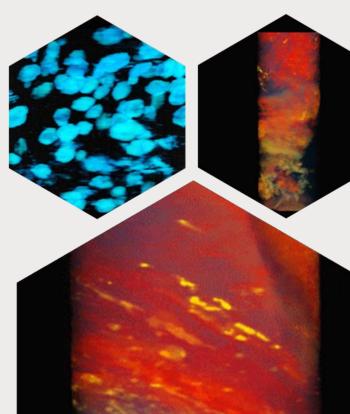
**Structures** 

Bedding planes, veins, folds and lineations through the core – oriented and exportable to 3<sup>rd</sup> party software.

Density

Accurate density measurement of each core sample. Inferred density up to 25 sample points per metre.





# Key Personnel.



# Board of Directors.

### **Kent Swick**

### **Non-Executive Director**

Kent is a Mechanical Engineer with over 30 years' experience in civil construction, mining maintenance and surface and underground mineral drilling. Kent successfully founded and has led (Managing Director) Swick Mining Services Ltd since its inception. Kent has a Bachelors of Engineering from the University of Western Australia and has completed the Owner/President Management program at Harvard Business School

### **Stuart Carmichael**

#### **Non-Executive Director**

Stuart is a Chartered Accountant with over 20 years' experience in the provision of corporate advisory services both within Australia and internationally. Stuart is a Principal and Director of Ventnor Capital Pty Ltd and Ventnor Securities Pty Ltd which provides corporate and financial advice to small-cap ASX listed companies. Further, Stuart acts as a Non-Executive Chairman / Director for a number of other ASX listed companies



### **Alan Bye**

### **Non-Executive Chairman**

Alan is a highly respected industry figure with strong expertise on the innovation of the resource industry – covering both digital and extractive innovation technologies. Alan is the co-founder and Managing Director of Imvelo Pty Ltd, a Non-executive Director at Scitech, and holds council positions at SmartSat CRC & CSIRO. Alan has a Ph.D. in Mining from the University of KwaZulu-Natal.

### **Brett Giroud**

### **Managing Director**

Brett brings over 24-years of technology delivery, creating and leading large high performing teams. He has driven mining industry transformation and delivered systems and technology across over \$15B of capital projects. Brett has created and led business units, lectured on future systems and is a sought after advisor to start-ups. Brett was previously the Chief Engineer (ICT) for Jacobs (SKM) Engineering, and APAC head of Strategy and Transaction Services for Worley (Advisian). Brett has a Bachelor of Engineering & an MBA from the University of Western Australia

### Stefan Sädbom

### **Non-Executive Director**

Stefan is a senior exploration geologist with over 35 years' experience in exploration and underground mining. Through various entities, Stefan has been deeply involved in several Swedish and European innovation projects relating to the improvement of the mining industry. Stefan sits on the board of a number of other Swedish listed and non-listed entities. Stefan holds a Bachelors of Geology from Uppsala University

### Will Randall

### **Non-Executive Director**

Mr Randall has over 25 years of operational and executive experience in the Global Commodity and Mining Industries, operating across cultures, geographies, products and supply chains. Mr Randall was based in Asia from 1997 to 2020 with a critical focus on business development and supply chain strategies. He has served on the boards of various listed and private companies over this period.