

# Orexlore leads the pack in core analysis



Fast



Mobile



Sustainable

Game-changing technology, connecting decision-makers to drilling in near real-time

**T**echnological advancements are transforming the mining industry at a breakneck pace. One company at the forefront of this rapid evolution is recently-listed Orexplore Technologies Ltd, which launched on the Australian Securities Exchange in January.

The company has invested strongly in world-class research and development in recent years, inventing a new technology platform that sees the company poised to accelerate its commercialisation across the mining value chain, focusing on delivering rapidly improved decision-making for customers across their operations from exploration to mining, processing and beyond.

By sensing at the source soon after extraction and connecting the best minds within an organisation to recently drilled core through the Orexplore Insight® software, the technology seeks to transform the time from “drilled to insight”.

With a self-sufficient GeoCore X10® unit placed adjacent to drill rigs or at the core farm, a near real-time data stream

can generate core information, including structure, lithology, density, rock quality, and elements, which can be collected, interpreted and analysed. Each GeoCore X10®, scanning at less than 15 minutes per metre, can be combined in a configuration to keep up with your drill rigs, meaning that valuable results can be presented through the Orexplore Insight® software only hours after the core is drilled.

Orexlore is setting the pace by forming and demonstrating transformational new value through extracting unique insights straight from the ground to support time-sensitive decisions across exploration campaigns and mining operations – delivering the right information to the right people at the right time. In an industry where information is king and decision-making speeds are critical, Orexplore has the potential to revolutionise the approach and speed of extracting critical information from rock cores. This non-destructive rich analysis seeks to move the dial on the mining industry’s sustainability, delivering maximum results with minimal impact.

Orexlore’s growth has been enabled through its deep understanding of industry level transformational technology adoption via demonstrating customer value and its flagship instrument, the GeoCore X10®. In combination with the Orexplore Insight® software, these field-based units are already delivering impressive results through field trials at mine sites across Western Australia, Europe and its Perth and Stockholm laboratories.

## What is it?

The GeoCore X10® combines XRF instrumentation with a CT scanner through advanced Physics and Mathematics to generate a three-dimensional internal ‘through the core’ volumetric model. This reveals the internal structure and fabric of the core, in addition to lithology, particles, emerging RQD as well as the detected elements across the entire surface of the core.

Orexlore collaborates with customers to further refine and develop its solution

suite across the mining value chain. The solution suite continues to advance from field-based, rapid drill-campaign decision support to mine design ore-sorting solutions, operational sampling optimisation, grade control potential applications and broader orebody-characterisation improvements.

At the heart of its suite of solutions is Orexplore’s proprietary software, Orexplore Insight®. Through the platform, the rich information generated by the X10 is presented in a user-friendly manner to deliver the very best insights from the scanned core in near-real-time. This architecture truly connects a customer’s best geological decision-makers to its resources and reserves from anywhere in the world.

As advancing technologies such as Machine Learning are further adopted, the ability to learn from user interaction will drive the semi-automation of core analysis over time.

Managing director Brett Giroud is adamant that this technology is part of the “people and machines” revolution and is well suited to helping subject-matter experts engage more meaningfully with their work.

“By reliably capturing information from drill core hours after it is extracted and offering it through a remote analysis platform to our customers SME’s we are aiming to create new value across the mining sector.”

## Drill for insight

Having delivered some of the mining industry’s most transformative technologies over 24 years, Giroud has a demonstrated track record of disrupting industries and delivering transformative technologies in critical operational environments.

“A single GeoCore X10® unit can scan over 4m of core, at the touch of a button, feeding the results directly into the Orexplore Insight® software and customer systems, delivering an unparalleled “drilled to insight time”, he said.



When asked about the comparison to the assay industry and the extensive delays faced industry-wide, Giroud remarked: "We're beginning to see disrupters in this niche to serve the current industry-wide delays, which is great for advancing technology adoption rates across the industry."

"Rather than being a direct like-for-like replacement of assay processes, however, our technology platform seeks to provide broader information sets to support time-sensitive decisions within our customer's exploration campaigns and operations and potentially inform their projects and studies through improved ore body characterisation and sorting solutions."

"The speed offered by the technology being deployed in the field offers several advantages."

"For instance, screening the core in near real-time using our CT scanner that can see through the core can potentially help geologists make decisions in the first place about even what should be sampled (or not)."

"This can significantly help with some current assay delays, not by becoming a like-for-like technology/process alternative but rather by supporting time-sensitive decisions historically fed by assay results only that may benefit from a new speed/broader data set approach."

Another example where the technology is delivering value is by being able to quickly see correlations between minerals, detected elements and structures in the field as part of an exploration campaign, which drives a different set of dynamic decisions, potentially while operators are still drilling.

Similarly, being able to drive ore sorting solutions for customers and work with them on project techno-economics and digital mine models is again a disruptive area of value that the platform seeks to support.

"Speed is king to some customers. Bringing our technology to the rigs and core farms, providing fit for purpose information so rapidly, may disrupt some of the existing decision processes and logistics of hauling and analysing core. We prefer to transport information, not core," Giroud said.

The visualisation allows your subject-matter experts to see through the core – as if they too have X-ray eyes. Disseminated sulphides, fold hinges, veins of mineralisation, bedding, shear bands and foliation of sulphides can be coloured, highlighted and annotated. Various customisable tools can also generate and record density, grain size, detected elements, and core texture indices.

Equally as impressive is the mobility of the GeoCore X10®, with three units

able to be deployed in a single container across mine sites and core farms in a matter of days, ensuring that already accelerated speed of analysis can be applied to your most remote essential field campaigns and samples.

### Decision support

"Geologists are presented with the visuals straightaway," Giroud said.

The speed at which data is available means decisions to improve the scope and targeting of drill campaigns can be made rapidly, saving time and increasing efficiency. Furthermore, a geologist could be working from a different country and receive the data via the software platform in the same way as if they were in the field, next to the rig.

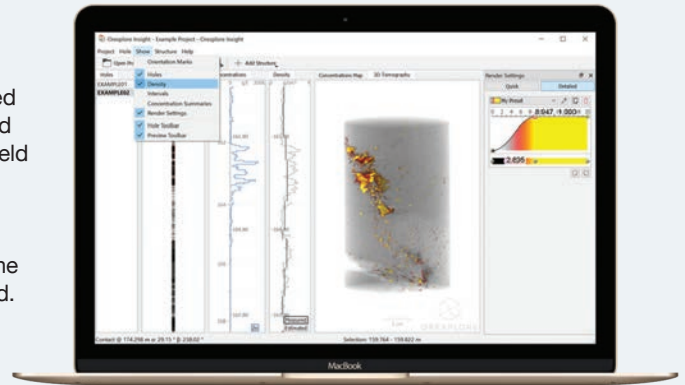
"Time is money. Explorers, having spent millions on a drill campaign and then unable to control the timing and sequence of third party analysis, welcome additional supporting information sets. Particularly when it can be provided only hours after drilling in the field and offers fit for purpose information specifically tailored to support certain highly time-sensitive decisions. The Units are self-contained, ergonomic and straightforward to use. A high-school-qualified operator can easily be trained to operate these machines," Giroud noted.

"In addition to its technology, Orexlore also boasts an impressive team of in-house consulting geologists. We help companies analyse the results and move the needle on campaign efficiencies, such as potentially redirecting drill holes or focusing on different areas of a lease."

Time is money, and speed is critical in this cyclical, competitive and capital-intensive industry. In many instances, the information required for significant irreversible decisions rests heavily on the outcomes of pressured drill campaigns. Accelerating the range and pace of data delivery provides a significant advantage to companies that adopt this technology and embed this approach in their businesses.

### Capability

The company already has several GeoCore X10® units available to customers globally, offering an innovative new approach to potentially help with some sampling delays, improving exploration results, creating dynamic flexibility in mining, and potential improvements across orebody knowledge generation and effective mine design. Working alongside the Australian contingent is Orexplore's Swedish office, which features the company's research



and development teams and an additional testing laboratory.

"Over time, these labs will expand significantly. But our goal is to have a large-scale field focused fleet of GeoCore X10® and GeoCore X10+ units internationally," Giroud said.

Each unit takes just over a week to assemble, and they are readily transportable in our custom-fitted sea containers, meaning the company is well poised to expand its capacity at a rapid rate.

"We can be in the middle of Brazil, for example, as fast as our customers can provide exploration and operational services in the field or at operations anywhere around the globe," Giroud noted.

### Conclusion

To date, Orexplore has analysed many thousands of metres of core worldwide. Still, with over 100 million metres of core drilled annually and a potential super-cycle on the way, the company is staring at a large and growing multi-billion-dollar market.

"Although we might be seen as a technology-driven start-up, we are also genuinely driven and passionate about finding ways to improve efficiencies and sustainability across the mining industry. In this way everybody benefits! Mining is an ubiquitous human endeavour. The differences we make will have enduring returns for a far wider group of stakeholders than just the mines and the communities in which we operate."

### OREXPLORE TECHNOLOGIES

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