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Daily news on ASX-listed biotechnology companies

Dr Boreham's Crucible: Micro-X

By TIM BOREHAM

ASX code: MX1

Share price: 5.9 cents

Shares on issue: 664,173,290

Market cap: $39.2 million

Chief executive officer: Kingsley Hall

Board*: Patrick O'Brien (chair), Jim McDowell, Ilona Meyer, Andrew Hartmann

* Dr Alexander Gosling and David Knox left in November 2024 and January 2025, respectively

Financials (December 2024 half year): revenue $3.96 million (down 51.7%), net loss $8.68 million ($7.66 million deficit previously), 1.59 quarters cash at March 31, 2025

Identifiable major holders: Perennial Value Management 12.9%, Acorn Capital 10.85%, Varex Imaging 8.15%, Tiga/Thorney 6.8%, Billion Prima 4.02%, Peter Rowland 2.4%

Many life science companies stress the virtue of diversity: multiple programs to protect against one of them failing.

Diversity can be helpful: after its failed phase III eye disease programs, Opthea would be wishing it had another drug candidate up its sleeve.

But chasing too much stuff can spread resources too thinly and create investor confusion.

Just last week Clarity Pharmaceuticals ditched neuroblastoma and some prostate cancer programs from its crowded radiotherapy rota and Clinuvel has paused its stroke program.

In the case of Micro-X, as part of a “strategy re-set” the x-ray imaging house has decided to focus on medical applications, rather than security and defence uses such as bomb and baggage screening.

“The tech we have developed has fantastic applications in medical, security and defence,” CEO Kingsley Hall says.

“We have decided that while our technology enables applications in all those fields, we can impact medical the quickest and the best.

“While the security industry is quite large, it tends to be slowest to move and has some significant incumbents.”

About Micro-X

Micro-X has commercialized two mobile digital radiology (DR) devices: the first-generation Nano and a sturdier iteration called Rover.

Based in the Adelaide suburb of Tonsley, Micro-X listed on December 21, 2015, having raised $20 million at 50 cents apiece.

Along the way, Micro-X entered several alliances and distributorships, including with Carestream Health Inc (formerly Kodak Medical Imaging), MXR Imaging Inc and listed French x-ray equipment manufacturer DMS Imaging SA.

EG Capital co-founder Alison Coutts says she co-founded Micro-X in 2011 with Ko Koike, and appointed Peter Rowland as CEO to oversee commercialization of the company’s revolutionary cold-cathode x-ray technology. Mr Rowland says he founded the company.

Amid investor frustration about slow progress, in May 2023 Mr Rowland stepped down in favor of chief financial officer Kingsley Hall.

In September 2022, Micro-X inked a deal with Nasdaq listed x-ray component supplier Varex Imaging Corp, by which Varex took a 9.9 percent equity stake for a $15 million outlay.

Hot to trot on cold cathodes

In a century-old process, x-rays are generated with a heated filament cathode that generates electrons in a vacuum tube. The process is inefficient because of wasted heat and the electrons don’t all move in the right direction.

Micro-X's cold cathode technique is based on four-nanometre wide carbon tubes, under an electrified fine mesh structure.

While standard computed tomography (CT), scanners use only one x-ray source to rotate around an object.

Micro-X's tubes enable x-ray beams to be fired from different angles with no moving parts.

The tubes are substantially smaller and lighter and are controlled electronically - rather than via heat - and can be turned on and off instantly.

Rover runs well in the field

A lightweight 'ruggedized' version of the Nano, Rover is proving its mettle in the Ukraine conflict. Initially funded by two US-based charities, Micro-X delivered 13 Rovers to the Ukraine in late 2022, followed by 16 more Australian government-funded units last year.

"The feedback from surgeons using them on the frontline has been phenomenally positive," Mr Hall says. "One of them was used 6,000 times in its first month."

In toto, Micro-X has sold 400 Rovers in 39 countries, with the US comprising the biggest market.

The company also has Conformité Européenne (CE) mark approval for Rover, but it's a "large and difficult market."

The company is awaiting formal feedback to undergo a large formal trial in the US, with an unnamed hospital group.

… and he's a good sport

Another Rover application is on the sporting field rather than battlefield, with about one third of US Major Baseball League teams deploying the units to examine player injuries.

Rover was also the mobile digital radiology units of choice for the recent National Collegiate Athletics Association's US basketball championships.

Rover has also been used in driver's pits at grand prix events.

"It's found a really nice niche among professional sporting teams and associations," Mr Hall says.

Baseball and basketball may not be contact sports, but hand and feet injuries abound.

Rover means teams may not have to send players to hospital for an x-ray and may be able to get them back on the field.

‘World first’ full body CT: image-in that?

In early December last year, the US Advanced Research Projects Agency for Health (ARPA-H) awarded the company up to $US25 million over five years to develop the world’s first portable full-body computed tomography (CT) scanner.

The first $US8 million is in the bank and the rest depends on meeting “technical objectives” and US Food and Drug Administration approval.

Th compact is part of the US government’s ‘Paradigm’ program, to take hospital-grade computed tomography into regional America.

Mr Hall says that to be selected, the unit needed to be at least 80 percent lighter than a traditional computed tomography device, which typically weighs a tonne.

And for anyone wondering about the security of the funding, it helps that regional America is Donald Trump’s voting heartland.

Stroke me, stroke me

Micro-X is building three prototype versions of its portable stroke units, which will be used in three planned local hospital trials.

Current stroke detection CT scanners weigh 600 kilograms and need a crew of five.

Oh - and they cost $1.5 million.

Micro-X’s so-called ring scanner weights 75kg, is much cheaper and emits 85 percent less radiation.

In December, the first stroke patient was successfully imaged.

The trials will entail suspected stroke victims being subject to standard CT imaging, then overlaid with the Micro-X scan.

Aiming for “several hundred” scans, the studies only need to prove that the Micro-X tech is just as good as the conventional ones.

In essence, the scans aim to distinguish clot strokes, the most common, from bleeds.

This is crucial because a clot can be treated with blood thinning drugs, but for a bleed patient, that could be fatal.

The program is backed by the Australian Stroke Alliance (ASA) and the Australian Medical Research Future Fund (MRFF).

Shedding the baggage

Initially funded by the US Department of Homeland Security to the tune of $US29 million, Micro-X's self-service baggage scanning program has been far from wasted.

In February, the company struck a deal with Malaysian logistics company Billion Prima Sdn Bhd to develop the technology.

The compact involves Billion Prima taking a $2.4 million equity stake in Micro-X – just under four percent of the company - at nine cents a share (a 15 percent premium).

Prima will pay Micro-X up to $3.2 million to develop a baggage scanner for them, over the next 12 months.

If successful, the units would be distributed to up-to nine South East Asian countries.

"I think they will be very good partners," Mr Hall says. "But we have also had other good ongoing conversations bout monetizing other parts of our security assets … in the short to medium term."

Bombs away

Micro-X won't spend any more money on its Argus bomb detection program, but that doesn't mean it's been detonated altogether. A lightweight self-contained camera carried by a robot, Argus can detect a suspicious object in 10 seconds - at up-to 1,500 metres.

The Australian Defence Force provided initial seed funding for Argus, which was launched in early 2024. But the company quickly realized there wasn't enough demand.

"The product was well engineered and well-resourced, and it did what it set out to do," Mr Hall said. "While the product was being developed, the environment changed".

The 'problem' is that terrorist activity has lessened, meaning bomb threats aren't as prevalent.

"We still think the technology is of great value and well will seek to commercialize it, outside of Argus as a product," Mr Hall says. "But we are not actively marketing it."

Finances and performance

Micro-X recorded revenue for the six months to December 31, 2024 of $3.96 million, 51.7 percent lower year-on-year. Partly explaining the decline, the previous period included a $2.8 million government Rover contract.

The company lost $8.68 million, compared with a $7.66 million deficit previously.

The revenue included $995,000 from Rover sales and $2.96 million of “engineering service income”: $300,000 from the ASA and $2.666 million from the US DHS.

In March, the company completed a placement and rights offer that raised $6.4 million at seven cents a share, a 10 discount. This was over and above the $2.4 million placement to Prima. The retail rights stanza raised only $620,000 of the maximum $2.74 million.

In December, the company pocketed a $6.4 million Federal Research and Development Tax Incentive. The accounts record a $1.5 million loan, which is an advance on this year’s expected refund.

In February, the company also received $1 million from Prima as the first instalment in the development deal.

Over the last 12 months Micro-X shares have traded between a low of 5.0 cents (mid-September last year) and 9.7 cents in early December. The latter reflects a 70 percent share surge after the ARPH funding announcement.

Not tariff-ic, but we can live with it

Micro-X makes its goods - tubes, generators and high voltage - in Adelaide, with more than 90 percent of its input materials sourced from Australia.

Mr Hall says of the presumed 10 percent tariff: “It’s difficult. But it’s not as bad as [the US tariff on] our European and Asian trading partners.

“Our cost position relative our competitors is good, so … it is not a game stopper.”

What’s your favorite?

Rather than nominating his favorite program, Mr Hall says the real hero is the company’s underlying technology.

Over time, the company has evolved from making and refining the tubes, to making the high voltage generators and switching between the tubes

“We have three tubes but are developing a fourth one,” he says.

“They are different in size and shape and what they do … but the underlying tech and applications are the same.”

While the head (stroke) CT has 21 tubes, the full-body scanner has more than 100.

“Also, the majority of our software is constructed in-house,” Mr Hall says. “We are really focused on the technology platform and how that transforms into medical products.”

Dr Boreham's diagnosis:

Mr Hall says the company is looking for "positive and profitable" applications for its technology.

Who could argue with that?

"Our goal is to make great imaging products that are better than our competitor," he says.

"We think all three of our current medical products will be strong for us and the demand will grow as each one enhances our position in the market."

Micro-X has done well to attract non-dilutive funding from various sources. But as is almost the case in the medical device game, progress to profitability has been slower than expected,

"There's a lot going on, but we have to get on with it and demonstrate some real positive results," Mr Hall says.

Disclosure: Dr Boreham is not a qualified medical practitioner and does not possess a doctorate of any sort. He has a lot going on and hopes to demonstrate some positive results in the not-too-distant future.