



Revolutionary Australian Memory Technology Tackles \$78B Market

ASX listed Strategic Elements (SOR) has agreed to back a revolutionary memory technology developed by the University of NSW (UNSW). The technology consists of tiny cube-shaped memory cells with potential to enable **massive** amounts of data to be stored on **smaller, faster** memory chips.

Rigorous Testing of Revolutionary Technology

The nanocube memory cells developed by UNSW are 10,000x smaller than a human hair. Conceptually two trillion nanocubes could fit on a postage stamp sized area. If one nanocube holds one byte of data, this would equal two terabytes of data.

This is equivalent to over 500,000 songs or 500 hours of High Definition Video being held on a small device. Significantly, the nanocubes have potential to be stacked in layers multiplying the amount of potential data storage with each additional layer.

Testing has proven that data can be reliably stored in and retrieved from the nanocube memory cells. Accurately repeating this over 200,000 times in testing also proved exceptional reliability. The technology is aimed at the USD 78 Billion global memory markets.

Company Comment

Strategic Elements Managing Director Charles Murphy said, "There has been an explosion in the amount of data being stored and accessed on smaller and smaller devices. It is accepted that current Flash technology can't keep up. The nanocube technology is absolutely cutting edge and has the potential to revolutionise how data is stored and used. It's being developed to enable more data to be used faster, in much less space at less cost".

Why is Strategic Elements Different to Other Companies?

Strategic Elements is registered under the Federal Government "Pooled Development Fund" program. This program is designed to increase investment into Australian Small and Medium companies by providing tax incentives to investors in Pooled Development Funds.

Strategic Elements registration as a Pooled Development Fund by the Federal Government enables most shareholders to pay no capital gains tax when they sell their shares and pay no tax on dividends received.

Strategic Elements is the only Pooled Development Fund on the ASX with a mandate to back resources **and** technology projects. It is listed under the code "SOR".

Exclusive Global Licence

Development will be conducted by Australian Advanced Materials (**AAM**) which is 100% owned by Strategic Elements. AAM holds a global licence from UNSW to use, develop and commercially exploit the technology and associated intellectual property rights.

AAM was established a number of years ago by Strategic Elements to commercialise **rare earth** based technology developed by Australian research groups.

How it Works

The technology is a new type of resistive random access memory (**RRAM**) using tiny nanocubes made from cerium oxides (**rare earth**). The technology works by applying jolts of voltage to the nanocube memory cells, changing their state between resistive and conductive to create and store digital zeroes and ones (data).

The nanocubes are intended to be stacked like Lego in 3D directly on top of standard silicon wafers, potentially making it highly cost effective to fabricate within existing infrastructure of global players.

Development

UNSW has spent over two years developing the technology and the nanocubes are ready to be incorporated onto a prototype memory chip. AAM will engage an expert technical team to meet the challenge of incorporating the nanocubes technology into the electronic circuitry of a prototype memory chip.

AAM is aiming to produce a prototype with a single layer of nanocubes within the next 6 months. Information on technical achievements made during the development of the prototype will be released as required.

Need for the Technology

We create as much information every two days as we did from the beginning of history up until 2003. A staggering 90% of the data in the world today has been created in the last two years alone. Every minute of every day YouTube users upload 48 hours of new video. The entire world is constantly running out of memory on their phones, laptops, data centres and now in their wearable devices.

Flash is the defacto memory technology currently found in everything from smartphones, computers, data centres, and even USB thumb drives. However Flash memory technology is at a crossroads. It cannot be economically scaled any further without sacrificing reliability and working life.

The alternative technology being developed by AAM leverages resistive RAM properties to potentially enable new products that are smaller, faster and cheaper with far more storage capacity.

Market

The emerging non-volatile memory market is forecast to grow at a +118% per year disrupting USD 7 Billion of the USD 78 Billion memory market by 2020. This is forecast to start in 2015-16 with the enterprise storage, smart card and wearable markets.

Enterprise storage is forecast to be the largest market until 2020 due to fast adoption of RRAM. Wearable is forecast to be the second largest market because of the strong demand for low-power memory (Yole Development Research 2015).

Monetisation

The commercialisation strategy includes partnering with large global companies enabling them to incorporate the nanocube technology into their devices. The prototype being developed will showcase the outstanding properties of the technology and open the door to initial discussions with large global players developing faster, smaller, higher capacity memory products.

Parties Behind the Technology

The AAM team includes Director Elliot Nicholls (Bachelor of Electrical Engineering with First Class Honours) and Director Matthew Howard (Bachelor of Commerce, Business and Information Technology, Masters in Applied Finance) who have both worked with some of Australia's leading information technology companies.

AAM intends to contract the materials group at UNSW to assist with further scaling and performance optimisation, and to build and secure the intellectual property portfolio.

The Materials Science and Research group at the University of NSW led by Professor Sean Li and Dr Dewei Chu is ranked Number 1 in Australia and Number 17 in the World. It has received \$20M in research grants since 2005, 45 researchers and \$8M of world-class research equipment geared towards advanced materials.

Key Terms of the Licence

AAM has been awarded an exclusive royalty-free global licence to the technology and related Intellectual Property in return for developing and exploiting the technology. Within 3 years AAM must show reasonable efforts to:

- (1) Collaborate with UNSW for further research and development of the Technology.
- (2) Design and test a random access Memory Device prototype incorporating the Technology.
- (3) Investigate commercialisation opportunities for products using the Technology.
- (4) Identify partners for enhancing the Technology and expanding its market potential.

If AAM has shown reasonable efforts to conduct these activities UNSW, will assign its right, title and interest in the Technology to AAM.

Presentation Information

A presentation has been uploaded to the Company's website and to the ASX announcement platform. Please visit www.strategicelements.com.au to view the presentation.

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