

21 May 2015

An exclusive global licence to a **revolutionary memory technology** developed at the University of New South Wales targeting the global USD 78 Billion memory market.

Revolutionary memory technology

Background to the Presentation

- 1 Strategic Elements has agreed to back a revolutionary memory technology developed by the University of NSW.
- 2 The technology consists of tiny cube-shaped memory cells with potential to enable **massive amounts of data** to be stored on ultra small, fast memory chips.
- 3 Development will be conducted by Australian Advanced Materials (**AAM**) 100% owned by Strategic Elements.
- 4 AAM was established a number of years ago to commercialize **rare earth** based technology developed by Australian research groups.

Why is Strategic Elements Different to Other Companies?

Strategic Elements is registered under a Federal Government program designed to increase investment in Small and Medium Australian companies.

Its registration as a Pooled Development Fund means most shareholders 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**".



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AAM has an **exclusive global license** to the nanocube memory technology.

Memory is **everywhere** but there is a **problem**

What is memory?

- Memory holds the data on your PC, Phone or Server.
- Memory also accesses stored data as you are using your device and then puts it back when finished.

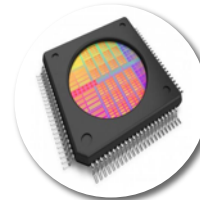
Memory provides your **working space** or RAM installed in the computer, smartphone etc)



Memory provides **storage space** for all the files and information you need on your computer, smartphone etc

What is the problem?

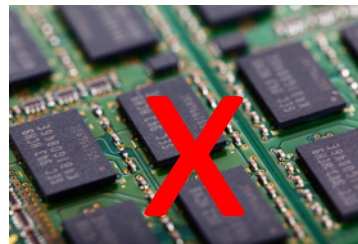
- Technology is becoming more complex and users demands are increasing. Everyone keeps running out of space !
- Current Flash memory technologies are at a crossroads and can't go smaller whilst staying fast and reliable.



A staggering 90% of the data in the world today has been created in the last two years alone.

What is the solution?

- Create memory technology that can hold exponentially **more data**.
- At the same time this technology needs to be **smaller, fast and reliable**.
- Create memory technology that is **cheaper** to make.



UNSW has spent several years developing a solution.

The UNSW has developed a **smaller, faster, higher capacity** potential memory technology.

The technology

- 1 AAM is developing ultra small cube-shaped memory cells with potential to enable massive amounts of data to be stored on ultra small, fast memory chips.
- 2 The technology is a new type of resistive random access memory using tiny nanocubes made from cerium oxides (**rare earth**).
- 3 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).
- 4 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.

Potential to enable new products that are smaller, faster and cheaper with far more storage capacity.

Nanocube 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.

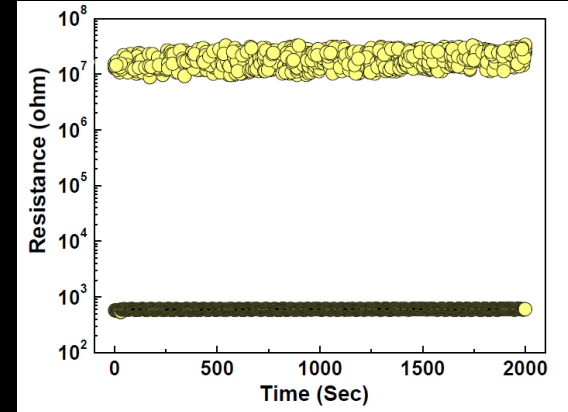
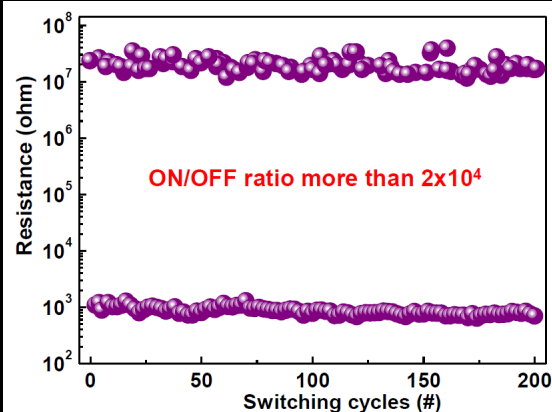
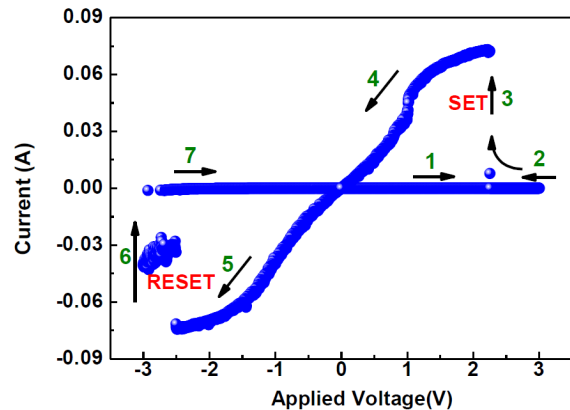
a human hair

This is equivalent data to over 500,000 songs or 500 hours of High Definition Video being held on a small device.

The nanocubes have potential to be stacked in layers multiplying the potential data storage with each layer.

Testing of the Nanocube Technology

- 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.



Nanocubes made from cerium oxides (rare earth).

This is a **massive** 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



AAM is developing a **smaller, faster, higher capacity** potential memory technology.

Commercialisation

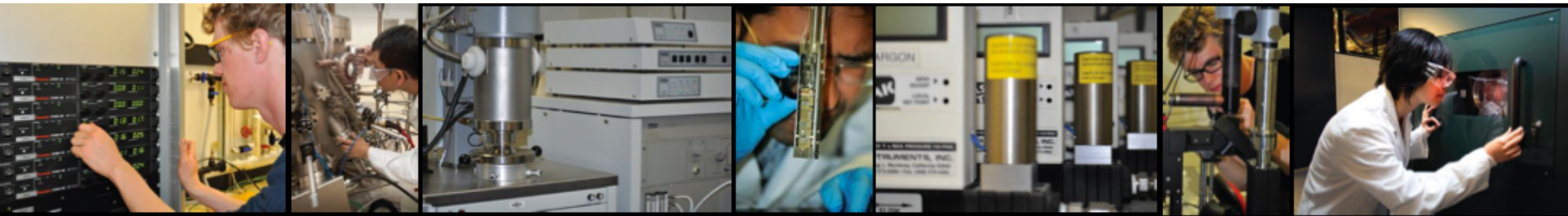
DEVELOPMENT

- 1 UNSW has spent over two years developing the technology and the nanocubes are ready to be incorporated onto a prototype memory chip.
- 2 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.
- 3 AAM is aiming to produce a prototype with a layer of nanocubes within the next 6 months.
- 4 AAM will work the materials group at UNSW in further scaling and performance optimisation, and to build and secure the intellectual property portfolio.

COMMERCIALISATION

- 1 The commercialisation strategy includes partnering with large global companies enabling them to incorporate the nanocube memory technology into their devices.
- 2 The nanocube technology is specifically being developed to fit within standard manufacturing systems used by device manufacturers.
- 3 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.

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.



Technical achievements during the development of the prototype will be announced as required.

ASX Company registered under Federal Government program enabling most investors to **pay no capital gains tax** when selling shares .



An Australian Government Initiative

STRATEGIC
ELEMENTS

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- **Strategic Elements** is registered by the Australian Federal Government under a special program to encourage investment into Australian SME's.
- The Company's special registration as a Pooled Development Fund provides most shareholders with tax-free capital gains when they sell their shares and tax-free dividends. The Company is a unique vehicle listed on ASX under the code "**SOR**" on the Australian Stock Exchange that has a dual resources and technology exposure.



100% Owned



Australian Advanced Materials is developing a revolutionary memory technology developed at the UNSW. The technology consists of tiny cube-shaped memory cells with potential to enable massive amounts of data to be stored on ultra small, fast memory chips. It targets the global USD 78 Billion memory markets.



100% Owned



- **Strategic Materials** is working to re-open a high grade NZ goldfield and has completed a comprehensive program at the 100-year-old Golden Blocks goldfield combining modern technology, targeted field programs and a wealth of lost historical data discovered buried in the archives of New Zealand. Drilling is being planned to target the Pioneer Shoot where last exploration assays returned **663.9 g/t gold** over 0.75m including **5342.5 g/t gold** over 0.25m. Multiple high grade targets in the 232km² project.



100% Owned



- **Maria Resources** and world leading geologist Dr Franco Pirajno are to hunt unexplored WA deserts for a copper model known in Poland as Kupferschiefer (PKS). The Officer Project includes 700km² of ground in the Great Gibson and Victoria deserts and over 190km of outcrop ready for low cost and effective sampling. Highly anomalous copper in several historic drill holes 8 km apart with all the hallmarks of PKS provide a clear exploration focus. 'Discovery from overseas models in WA frontiers'.



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