



Australian manufacturing has suffered a number of blows over the years, and it's the advanced segment that's bouncing back from the ropes.

STORY ADELINE TEOH

**M**anufacturing is dead. At least, that's what the media seemed to report when Pacific Brands moved their textile production offshore last year. But it seems manufacturing still has a life in Australia as the success of advanced manufacturers such as ResMed and Cochlear show, indicating that not only is manufacturing still alive in this country, it's evolving.

Traditionally, advanced manufacturing includes precision engineering, diemaking and tooling, composites, automation, and new materials, says Hayden Williams, Austrade's manager for

advanced manufacturing. "From an Austrade point of view we see it as high value-added manufacturing. We have automotive, defence, security, aerospace, marine and rail, plus enabling sectors." Medical instruments and biotechnology production also fall under the umbrella, though tend to be classified under medical exports. In addition to goods, Williams says exports include intellectual property, services, technology, and inbound and outbound investment.

Dr John Blakemore, principal of Blakemore Consulting and president of the Manufacturing Society of Australia, takes a slightly different view, separating the manufacture of advanced products from advanced manufacturing process. "Australia is not greatly renowned for any advanced manufacturing process. We have some companies that make advanced products, which is quite different, though not a lot of advanced processing is used to make them."

Advanced manufacturers innovate the process of manufacturing to make a finished product, he explains, thus the sector includes value-add resource processing in the mining industry where we have refineries with world class technology. The product may not be high-tech, but the process is, he says.

And taking the definition of manufacturing as a conversion of raw materials to an output via a series of activities, Blakemore adds film production, including computer-generated imagery (CGI) and other types of technical production, under advanced manufacturing.

## □ TRADE LINKS

**Advanced Manufacturing Australia:** [www.amaus.com.au](http://www.amaus.com.au)

**Australian Manufacturing Technology Institute Ltd:** [www.amtil.com.au](http://www.amtil.com.au)

**Manufacturing Society of Australia (a division of Engineers Australia):** [www.engineersaustralia.org.au](http://www.engineersaustralia.org.au)

**Advanced Manufacturing CRC:** [www.amcrc.com.au](http://www.amcrc.com.au)

**National Manufacturing Week:** [www.nationalmanufacturingweek.com.au](http://www.nationalmanufacturingweek.com.au)

## NEW EXPORTERS

“Australians are very good at short production runs because we have a small domestic market. Our manufacturers tend to be flexible, producing goods of high value and high quality, perhaps in quantities that other manufacturers overseas aren’t interested in doing,” says Williams, outlining some of our key advantages.

His advice to new exporters in this space is to choose an international market carefully. “If the company is export ready, we want to work with them to pick the right market. The world looks to be full of opportunity, but you have to prioritise. It also depends on the specific sector and whether the market requires them to have a presence or not.”

Governments and industry associations run workshops and missions that will give new exporters an insight into the most suitable global markets for their particular segment, he advises.

## EXISTING EXPORTERS

Looking for growth markets and growth opportunities is the key to expansion for existing exporters, says Williams. Asia and India are growing markets, particularly for automotive parts, but the space is competitive, he warns: “When the US auto market declined, a lot of Canadian and US auto companies were looking for opportunities as well.”

Blakemore recommends starting a relationship with Asian countries now if you intend doing business there, particularly China. “You have to build long-term relationships with the Chinese, so you have to start early.”

**“Most of this industry is global so the imperative is to get Australians into the global supply chain”**

Diversification across sectors has also been helpful for many businesses, according to Williams. “Once where they might have been 90 percent auto, they’re now 50 percent auto and they’ve gone into defence, marine, aerospace. Some have gone into medical instruments. One company went into artificial limbs.”

This especially helps if the nature of the sector is hard on the bottom line, such as with the “lumpy” payments experienced by suppliers to the defence and auto industries, he says. “They have to even out the lumps otherwise, when there’s a downturn, a lot of them go broke.”

## ADVANCED EXPORTERS

Austrade has developed cluster programs for more advanced exporters to develop relationships with others. Williams says clusters and missions “aim for cross-fertilisation where companies can help each other with projects” and encourage businesses to be “cooperative rather than competitive”.

## □ DUAL-USE MANUFACTURING

Advanced manufacturers of defence and dual-use goods should consider whether their products are subject to export control. **Defence goods and technologies** are those designed or adapted for use by armed forces, or that can be used in the production of defence-related goods and services. **Dual-use goods and technologies** are those that are developed to meet commercial needs, but which may be used either as military components, or in the development or production of military systems or weapons of mass destruction.

Dual-use goods controlled for export can include items such as advanced materials, chemicals, electronics, avionics, marine, aerospace and propulsion, nuclear-related technology, computers, telecommunications, information security, sensors, and lasers.

The Department of Defence is responsible for administering controls on the export of defence and dual-use goods, and the granting of authorisations to export, in the form of permits and licences. Within Defence, the Defence Export Control Office (DECO) undertakes this role.

Manufacturers, exporters and distributors of defence and dual-use goods are encouraged to seek advice from DECO on the control status of their products. DECO provides information packs and free training on export controls to industry. For further information, go to [www.defence.gov.au/strategy/deco](http://www.defence.gov.au/strategy/deco) or call 1800 66 10 66.

Using a supply chain model will allow Australian businesses to focus on our strengths, says Blakemore. “We have a well educated workforce. We can do all the design work for products that could be manufactured anywhere.”

This is an objective of the Federal Government, says Williams. “Most of this industry is global so the imperative is to get Australians into the global supply chain. We have a skilled workforce and we’re interested in keeping the R&D and operations in Australia. If that’s not viable, Australian companies might go offshore to manufacture part of the product, or we look into foreign direct investment.”

## NON-MANUFACTURING EXPORTERS

Science and technology are close cousins to advanced manufacturing, most obviously in sectors such as medicine and biotechnology. Education and R&D also go hand-in-hand, and support industries such as software, and even repair and maintenance services, play roles in the sector.

Any industry that requires advanced tools or products to derive efficiencies or secure a competitive advantage, from mining and agriculture, to construction and sport, could leverage Australia’s prowess in this space. And as Blakemore notes, the entertainment industry is one that’s often overlooked.

## BARRIERS

Manufacturing can be a contentious sector, especially in emerging countries where governments might be protective of its nascent



## CASE STUDY

## COLAN AUSTRALIA

Fifty years ago, the technical textile market was small, focused on markets such as the marine industry. Uses now range from transport and aerospace components, to safety gear and decorative items—including fibreglass palm trees.

Colan Australia is one of few technical textile manufacturers left in Australia, says chief executive Genelle Coghlan, but is ready for the renewed interest. “We started in the 1950s, struggling with a business that wasn’t really accepted. Now, because of economics and environment, it has become really important.”

- ▶ industry. Williams says the Federal Government has worked to eliminate tariffs via free trade agreements (FTA), as well as non-tariff barriers. There are, however, still restrictions such as the USA’s local-only defence procurement policy, which was not covered by the Australia-USA FTA. “FTAs change flow of trade and investments, so in the industries we work in we have to examine that closely,” he adds.

For Blakemore, Australia’s lack of process innovation in the sector is a barrier. “Most of the government programs I see at the moment are for relatively small companies that need a lot of help because they have growing pains; there’s nothing for process improvement.”

## THE FUTURE

Despite the dearth of process innovation, Blakemore is optimistic about the industry’s ability to find its competitive advantage. He notes the sustainability movement will help in various ways. “There’ll be a big surge in electric cars; we have a lot of the materials to make batteries. There’s no reason why we couldn’t be world leaders in photovoltaics, wind farming, and solar technology,” he suggests.

Advanced food technology and hi-tech mineral processing are easy extensions of already mature sectors, and we’ll continue to excel in the entertainment industry by working in the digital economy, he believes: “We’re extremely good with films, CGI, entertainment, games.”

The Department for Innovation, Industry, Science and Research’s Technology Roadmap is a “good start” for advanced manufacturers interested in the future, says Williams, otherwise he sees the growth in service and IP exports and situations “where companies set up offshore and the dividends come back”.

The Federal Government is keen to provide direct R&D and investment into emerging products and services within those industries, and “where there are gaps in the industry we try and seek foreign direct investment for those areas,” he adds. **DB**

In the 1970s, the composites producer started exporting woven rovings to Japan and surfboard material to Hawaii, USA; they sponsored Australian Bernard ‘Midget’ Farrelly when he became World Surfing Champion in 1964. Their range has since broadened to supply material such as ballistics for defence, components for refrigerated transportation and uniforms for the fire brigade and army.

“Australia was always a small market,” says Coghlan, adding that although they’ve exported everywhere over the years, their current focus is Asia and the Middle East. “A lot of the big surfboard manufacturers are in Asia and we export into Asia not only for composites but for insulation glass. The Middle East use our products quite widely, like for radomes, and their pipes are mostly made of fibreglass, and things like the roof of the Abu Dhabi airport is all fibreglass. The palm trees at Dubai Airport are made out of fibreglass.”

While their lean, flexible approach and ability to do small production runs appeals to smaller buyers, Colan targets large users such as pipe manufacturers. While this means bigger contracts, cash flow has tightened as payments usually come in the form of lump sums after 90 days. Another challenge is currency fluctuations; although they have a natural hedge as they buy materials and sell product in US dollars, the high Australian dollar and the weaker export market during the latest economic downturn affected earnings.

Dumping during this period was also a threat, though Coghlan says agility allowed them to compete outside price: “If a market has been undercut and it’s not worth it, we’ll just find another, whatever we can manufacture; we have a wide range of new machines for it.”

And being Australian has helped, she notes. “We sell ourselves as Colan Australia and we do that very deliberately, because Australia has such a good reputation as a quality provider and we have a reputation as a quality provider.”

With an experienced, multilingual team behind her, Coghlan is confident of the future. New material, Innegra, is being trialled for various uses, and sectors such as wind energy now require technical fabrics; “We’re on the verge of great things because every week someone finds a use for our product.”