

**Company:** Oventus

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**Page:** <http://manmonthly.com.au/news/getting-new-smarts/>

## Manufacturers' MONTHLY

### Getting new smarts

🕒 June 17, 2016   📁 News   👤 Alan Johnson

Much is written about the benefits of technology transfers, but very little on 'how-to'. Alan Johnson highlights some options.

Most Australian manufacturers incorporate a high level of technology into the products they produce, plus in the processes they use to produce these products. And like it or not, this trend is only going to increase as industry becomes even more competitive and global.

Traditionally manufacturers have developed their technologies in-house, which can be very effective, but often timely and lacking in scope.

Instead of trying to do it all themselves, manufacturers are increasingly turning to research organisations, such as the CSIRO and technology focused Australian universities, to work with them to develop new technologies.

Dr Keith McLean, CSIRO's director of manufacturing, says there are far more alternatives for developing new technologies available than what many manufacturers might expect.

"For example, we run a portfolio approach here with a number of options once a company comes to us and asks us to help them with a project.

"Our response might include doing it as a project; purely as a piece of contract research where we charge the client for our time. That way the client owns everything we do and can do what they like with the research findings," he told *Manufacturers' Monthly*.

Another option, says Dr McLean, is the possibility of co-investing. "In this scenario, we might not charge our full costs, but in return for that we get an up-side.

"For instance, the project could be in aerospace and we would agree that the client has all the rights for anything we develop in that market. However we are allowed to exploit the technology into other markets, which could be defence or energy for example.

"With this scenario, if we took that technology to market with a different partner, the original partner would still get a share in any up-side such as royalties or licencing fees."



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Dr McLean says the organisation is also increasingly happy to take equity in small and start-up companies.

"We might say a piece of research is going to cost this much, but because they don't have that sort of cash flow we might agree to some cash and some equity in return for the research work we do."

Dr McLean says there are any number of ways the CSIRO can come to an agreement on carrying out the research.

"We try to be as flexible as we can be. For example, if it's a small company, we have staff here funded through the Department of Industry's Innovations Connections program, plus people here that can assist in organising Government assistance to help them do the project. We can do things like that for companies."

And not just small companies, Dr McLean says the CSIRO has several long term strategic relationships with large companies as well.

"For example, we have been working with Boeing for 27 years and is a company we are happy to work with and often co-invest in."

As well the CSIRO invests in its own R&D.

"In this case, after we have developed a process or intellectual property, we look at how that can be exploited. When we develop technology, we either look for a partner to exploit that or we might set up a spin off company.

"Today we make sure there is market for everything we produce before we actually start."

He says all the above options are all widely used, with no standout method, but says the one common factor is flexibility and working with clients in a way that most suits their needs and their business.

CSIRO focuses on four key areas, one being bio-medical manufacturing which includes medical devices, material for implantations and pharma.

"We also have a program that works in chemical manufacturing and carbon fibre. We do a lot of work in this area, developing new smart, clean processes for chemical production and carbon fibre processing and materials."

Another area is what the CSIRO call Industrial Innovation, which is a mixed bag of activities including defence and energy.

"That's where we interface with our colleagues in the data area, looking at robotics and automation of manufacturing processes as well."

The organisation also works in high performance metals looking to develop new materials for additive manufacturing.

"We are trying to build the whole value train from the extraction of ore in Australia to developing continuous processes for use in additive manufacturing. "

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According to Dr McLean, the CSIRO is doing a lot of work in additive manufacturing, and is now an important area for the organisation.

"About a year ago we set up an additive manufacturing capability here, and invested in a number of machines.

"Our model is to introduce Australian companies to the potential of additive manufacturing and are partnering with companies who can either do a project with us or they can come in here and we can show them how to use the equipment and they can do their own prototyping. This is proving very popular.

"We actually have company setting up here, Oventus, who has leased some real estate and will manufacture on site here."

The CSIRO helped the company develop the original product; a 3D printed personalised mouth guard for people with sleep apnoea.

"They have just got FDA approval for selling it in the US and is a very exciting project. And because they are on site, our scientists will interact with their team and help develop new products as well.

"With sites in Sydney, Geelong and here in Melbourne, we are encouraging companies to come along and share space with us, and see how we can work together."

He says the CSIRO works a lot with SMEs and is looking into how the organisation can help them in a meaningful way that will help grow their business.

"Our goal to do whatever we can to help high-tech Australian businesses create jobs and create growth and exports."

He says through networking and direct contact, the CSIRO is very keen to talk to manufacturers.

"They shouldn't be afraid to approach us, because we are here to help companies grow and we have the willingness to be challenged and be open."

While not a new technology, in terms of a new widget or process, Dr McLean says there is a real opportunity around the digitisation of manufacturing and Industry 4.0.

"As a country, we need to get on board as it's a real opportunity," he concluded.

Readers should also be aware that most universities in Australia provide similar research opportunities.

For example the University of Queensland's main commercialisation company, UniQuest specialises in industry-university collaborations, global technology transfer, and provides access to UQ's intellectual property and facilities.

## Commercialisation

One recent CSIRO commercialisation project involved a technology transfer agreement between the organisation and Melbourne-based fine chemical manufacturer Boron Molecular.

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Under the agreement Boron Molecular, which is a CSIRO spin-out, will be able to access and license CSIRO technologies, while drawing on the science agency's research and development expertise.

The manufacturer will then develop these technologies into commercial products that can be scaled, mass-produced and marketed globally, with CSIRO receiving a royalty on all sales.

According to CSIRO research scientist Dr John Tsanaktsidis, the agreement will simplify the commercialisation process and allow the two organisations to more rapidly bring home-grown products to market.

"This agreement will allow CSIRO and Boron Molecular to come together and commercialise high-end products and processes in a much more seamless way," Dr Tsanaktsidis said.

Technologies that fall under the agreement are wide-ranging, including polymers used in the biomedical industry and specialist fine chemicals for polymer manufacture.

According to Boron Molecular Director Zoran Manev, the two organisations have complementary skills and capabilities that will benefit Australian industry.

"By applying our specialist chemical manufacturing expertise to CSIRO's portfolio of technologies we'll be able to deliver products to industry far more quickly, completing the value chain," Manev said.

"We'll be developing products that can be used for a range of applications, from electronics and specialist polymers, to key components for boronic acid building blocks used in the pharmaceutical industry."

Dr Tsanaktsidis said the deal was an example of how research and business could work together to boost Australia's innovation in high-end chemical manufacturing.

"By closing the gap between industry and the science and research sector, we have the potential to revitalise Australia's chemical manufacturing industry," he said.

"Ultimately it's collaborations like this that will lead to the creation of new jobs, new infrastructure and increased capacity for export."

The agreement builds on a strong track-record of cooperation between the two organisations, which started when Boron Molecular was spun out from CSIRO in 2001.

More recently, the organisations signed a licensing agreement which gave Boron Molecular the right to mass-manufacture and sell RAFT chain transfer agents to the global polymer industry.