

SYDNEY & NEW SOUTH WALES
Manufacturing



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New South Wales Government
Australia



MAKING OUR MARK

A quick look at the manufacturing industry in New South Wales.

Australia boasts one of the world's most resilient economies and New South Wales is the natural first choice for advanced manufacturing operations.

This highly developed and diverse sector is a strong driver of our State's prosperity, both in terms of GDP and employment. Plus, our innovative, dynamic, and growing manufacturing sector is working with our other key industries, helping to support their development and drive innovation.

Manufacturing in New South Wales (NSW) covers three levels: large powerhouse industries processing our agricultural and mineral wealth; implementers and fabricators that create consumer products and transform the outputs of primary industrial activity; and high-growth implementers of the latest science and technology.



This is an advanced sector facing high levels of competition from around the world. But with our robust knowledge infrastructure and innovation culture, as well as our strengths in design, logistics and ICT, we're staking our claim on the world stage.

DESIGNING SUCCESS

Our achievements at home, and abroad.

The manufacturing industry makes an enormous contribution to NSW.

It's the largest employer of full-time workers in the State. And, in an average year, its businesses spend more than \$6 billion dollars on new plant, machinery and equipment – and that's without taking into account spending on property and buildings. Those are some hefty figures, but what's even more impressive is the industry's diversity – with areas of expertise and strength ranging from aluminium, to iron and steel, to wine, processed meat and milk, pharmaceuticals and medical devices.

And today, we're looking outside our own borders, in keeping with the strong national focus on extending our reach to foreign shores. NSW has placed itself at the forefront of Australia's exporting program and, with a higher proportion of our exports categorised as elaborately-transformed manufactures than the national picture, it's clear this is a State that knows how to design success.

MANUFACTURING A BRIGHTER FUTURE

NSW is at the forefront of modern manufacturing.

There's never been a better time to invest in manufacturing in NSW.

Now, more than ever, our manufacturing industry is internationally connected – with supply lines reaching right across the globe, and often using electronic business-to-business communications, advanced information technologies, and lean manufacturing methods.

Add that to the fact that our manufacturers are in an excellent position to better understand, and respond quickly to, the sophisticated and changing demands of the modern global economy. Thanks to our nation's robust economy, our rapidly maturing and culturally-diverse population, and strong growth, we're able to act quickly, ensure high levels of quality, and supply the needs of global supply chains.

WE'RE ALREADY WORKING ON TOMORROW

Careers in modern NSW manufacturing and engineering are some of the most tangible and rewarding around. This is reflected in the quality of the State's tertiary education programs. We're building one of the most well-educated and highly-skilled workforces in the world, leading the charge to train the engineers of tomorrow in our world-class universities.

ENGINEERING SUCCESS

A look at some top manufacturing companies in NSW.

We're not only rich in resources. NSW has also long been an attractive place for major international manufacturing companies to base themselves. And it's part of the reason why this State is helping put Australia on the manufacturing map.

BLUESCOPE STEEL

www.bluescopesteel.com.au

BlueScope Steel is an international steel solutions company operating in 17 countries and with more than 18,000 employees worldwide. The Port Kembla Steelworks, 80 kilometres south of Sydney on the NSW South Coast, is BlueScope's largest operation with an annual manufacturing capacity of 5.3 million tonnes of raw steel and supporting 12,000 full-time equivalent jobs in the Illawarra community. Approximately half of the steelwork's annual production is ultimately sold to international customers.

The Port Kembla Hot Strip Mill provides hot rolled coil feed to the adjacent Springhill Works and the Western Sydney Service Centre for value-added cold rolling, metallic coating and painting. BlueScope's LYSAGHT® branded building products, COLORBOND® steel and ZINCALUME® steel products are distributed throughout Australia.

BlueScope Steel is NSW's largest manufacturing exporter and contributes in excess of \$A1 billion a year to the State's balance of payments.

COCHLEAR

www.cochlear.com

Cochlear Limited, based in Lane Cove in Sydney, is the world leader in the manufacture and marketing of implantable hearing devices for adults and children with moderate to profound hearing loss.

The company's flagship system, the Cochlear™ Nucleus® 5, incorporates the latest innovations in implant technology and offers outstanding hearing performance, comfort and reliability. In addition, the company has developed Baha® bone conduction implants that help people with single-sided deafness and certain types of conductive or mixed hearing loss; and Hybrid™ Electroacoustic Implants uniting hearing aid and cochlear implant technology to overcome high frequency hearing loss.

Today Cochlear is a broad-based medical device company focused on hearing solutions for the hearing impaired with over 2,000 employees, direct operations in over 20 countries, and product sales in over 100 countries. Cochlear reinvests over 13 per cent of revenues on R&D.

SILEXSOLAR

www.silexsolar.com

SilexSolar Pty Ltd is located in the heart of the modern high-tech precinct of Sydney Olympic Park, some 15km from Sydney's Commercial Business District.

It operates the largest photovoltaic solar cell and panel manufacturing plant in the Southern Hemisphere. Also housed on site are R&D, engineering, sales, administration offices, and a purpose-built warehouse for raw materials and finished goods.

SilexSolar has several cutting edge technologies under development, and has entered into a collaborative research and development partnership with the University of NSW's ARC Photovoltaic Centre of Excellence and Suntech Power Holdings Co. Ltd to develop advanced technologies aimed at breakthrough improvements to the power conversion efficiencies of crystalline silicon solar cells.

The three-year collaborative research project received a A\$5 million grant from the Australian Solar Institute (ASI), the largest award given to any of the 87 grant applicants in the ASI's first competitive funding round.

SILANNA

www.silanna.com

Silanna is a vertically-integrated company located in Sydney that produces chip designs and offers semiconductor manufacturing services based on 'Silicon-on-Sapphire' process technology. For over 20 years, the team at Silanna has been assisting customers to increase the performance and functionality of products through the development of high performance silicon chips.

Silanna works with aerospace and defence organisations producing advanced designs in wireless applications such as communications, surveillance, GPS, radar, and other applications. Silanna and the CSIRO are jointly developing a complete radio receiver on a single chip measuring 5 mm x 5 mm for radio telescopes, which could eventually also find a home in other highly advanced communications technologies.

THE STATE OF THINGS TO COME

Our research institutions are set for discovery.

NSW lays claim to some incredibly innovative research institutions. And they're a great example of how industry, universities and the NSW Government are working together to advance our manufacturing capabilities, products and technologies.

THE WARREN CENTRE FOR ADVANCED ENGINEERING

www.sydne.edu.au/warrencentre

The Warren Centre's objective is to foster excellence and innovation in advanced engineering throughout Australia. It does this by stimulating the application and development of new engineering technology and providing independent comment and advice to government and industry on these and related issues.

ARC CENTRE OF EXCELLENCE FOR AUTONOMOUS SYSTEMS

www.cas.edu.au

Autonomous systems represent the next great step in the fusion of machines, computing, sensing, and software – creating intelligent systems capable of interacting with the complexities of the real world.

The Centre brings together three leading research groups:

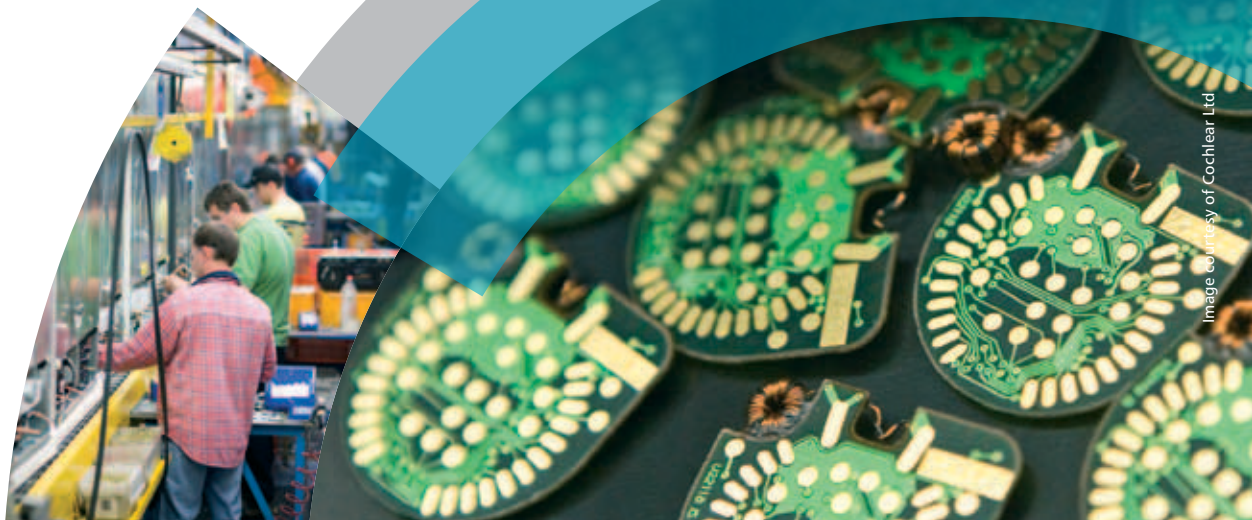
- Australian Centre for Field Robotics (ACFR) at The University of Sydney
- Artificial Intelligence and Mechatronics groups at the University of New South Wales (UNSW); and
- Mechatronics and Intelligent Systems Group at the University of Technology Sydney (UTS).

AUSTRALIAN NATIONAL FABRICATION FACILITY – NSW (MATERIALS AND OPTOFAB NODES)

www.anff.org.au

The Australian National Fabrication Facility (ANFF) links seven university-based nodes to provide researchers and industry with access to state-of-the-art fabrication facilities.

The ANFF enables users to process hard materials (metals, composites and ceramics) and soft materials (polymers and polymer-biological moieties), and transform them into structures that have application in sensors, medical devices, nanophotonics and nanoelectronics.



AUSTRALIAN MICROSCOPY AND MICROANALYSIS RESEARCH FACILITY (AMMRF)

www.ammrf.org.au

The AMMRF is Australia's leading facility for characterisation of matter on a fine scale. Headquartered at the University of Sydney, the AMMRF specialises in instrumentation, methodologies and applications of nanostructural materials characterisation using ion and electron beams, scanned probes, x-rays as well as light and laser optics.

ADVANCED MANUFACTURING COOPERATIVE RESEARCH CENTRE

www.amcrc.com.au

The Advanced Manufacturing CRC is a national, industry-led collaborative centre that develops the next generation of technology, processes, business models and human resource capabilities to support the development of the advanced manufacturing industry in Australia. AMCRC works to deliver:

- New platform technologies across industry sectors of major significance to Australia
- Education and training to support new technology development
- Commercialisation and utilisation outcomes for industry.

DEFENCE MATERIALS TECHNOLOGY CENTRE

www.dmtc.com.au

The Defence Materials Technology Centre (DMTC) develops and delivers new materials technologies and manufacturing processes. It enhances Australia's defence capability by adopting a collaborative partnership between the Department of Defence, defence industries and research agencies.

DMTC's projects deliver real solutions across defence program areas including aircraft platforms, marine platforms, armour applications and propulsion systems.

AUSTRALIAN NUCLEAR SCIENCE AND TECHNOLOGY ORGANISATION (ANSTO)

www.ansto.gov.au

ANSTO is the Australian Government's public research organisation responsible for delivering specialised advice, scientific services and products in relation to nuclear technology. ANSTO is home to the Open Pool Australian Lightwater (OPAL) reactor, a state-of-the-art 20 megawatt nuclear research reactor used for research applications including environmental, fabrication and medical imaging.

ANSTO's Institute of Materials Engineering is a major centre of materials engineering and expertise which aims to develop, manufacture, characterise, model and ultimately utilise materials in support of the advanced nuclear fuel cycle and next generation power systems.

UNIVERSITIES

NSW boasts some outstanding universities. And several of them have a particular strength in advanced manufacturing research and development in a variety of different industries.

Take a look:

- **University of Sydney**

The University of Sydney is Australia's oldest university and one of the largest. The University conducts cutting edge research in areas such as aeronautics, robotic engineering, biotechnology and life sciences and ICT.

- **University of New South Wales (UNSW)**

UNSW conducts research in fields as diverse as quantum computing, molecular engineering, photovoltaics, robotics, the built environment, biomedical research and renewable energy. UNSW's Faculty of Engineering is consistently ranked a top Australian performer.

- **University of Newcastle**

The University of Newcastle is a progressive, dynamic institution with strong manufacturing and engineering research credentials in areas such as defence, mining, biotechnology, renewable energy, architecture, geotechnics and electrical engineering.

- **University of Technology, Sydney**

Founded as a university in 1988 and the only university located in Sydney's CBD, the University of Technology, Sydney (UTS) specialises in research in architecture, design, engineering and ICT.

- **University of Western Sydney**

The University of Western Sydney (UWS) is located within Greater Western Sydney, a global centre for manufacturing, trade, innovation and learning and collectively one of the largest economies in Australia. UWS has a specific focus on research into advanced nanomaterials, urban research, hearing, complementary medicine and climate change.

- **University of Wollongong**

The University of Wollongong (UOW) conducts research and development in areas such as electromaterials science, computer engineering, engineering, materials and fabrication development, defence, transport innovation and metallurgy.



BACKING THE FUTURE

How we're supporting innovation in NSW.

We know that great discoveries and brilliant ideas don't just happen. They need support, and a government that appreciates the importance of forging new ground.

That's why we work so closely with industry and research institutions to aid their productivity, and help them focus on innovation across their operations. Here are some of the exciting programs underway now:

INNOVATION PATHWAYS

The Innovation Pathways Program accelerates the growth of NSW organisations seeking to commercialise innovative technologies. It's been designed to complement Australian Government commercialisation initiatives (including the R&D Tax Credit and Commercialisation Australia) and the Australian Technology Showcase (ATS) program, as part of a whole-of-government approach to the commercialisation of innovative technologies.

TECHVOUCHERS

TechVouchers aims to help small to medium NSW businesses tap into the wealth of world-leading research and knowledge that our universities and research organisations hold. It also assists in research institutes' efforts to build partnerships with business, connect research with end users, and tap into new avenues of financial support. The end result is a more innovative NSW industry sector and stronger, more connected knowledge sector.

TechVouchers provides two funding streams to support business and research collaboration in NSW:

- Up to \$15,000 for business to access technical research, infrastructure and expertise for building more clever, innovative and efficient practices.
- Financial support for public research organisation to employ 'connectors' to better meet the research requirements of industry.

INDUSTRY CAPABILITY NETWORK (ICN)

ICN helps champion and match Australian manufacturing capabilities to local and overseas projects through a network of 24 Australian offices.

This national network is managed by industry and sponsored by state governments, to achieve beneficial outcomes for the local industry and economy.

**INDUSTRY & INVESTMENT NSW,
A DEPARTMENT OF THE
NEW SOUTH WALES GOVERNMENT**

Level 47, MLC Centre, 19 Martin Place, Sydney, NSW 2000
GPO Box 5477, Sydney NSW 2001, Australia
Phone: +61 2 9338 6600 Fax: +61 2 9338 6950
Email: manufacturing@business.nsw.gov.au
www.business.nsw.gov.au

**FOR FURTHER INFORMATION AND
INTERNATIONAL OFFICE LOCATIONS
VISIT WWW.SYDNEYAUSTRALIA.COM**



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