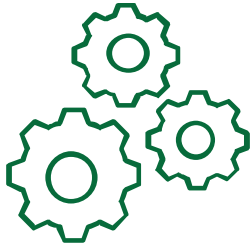


SPECIAL REPORT

Contribution of Australian manufacturing

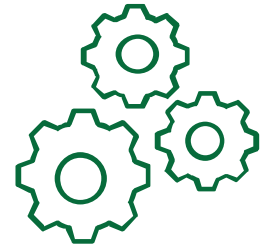


Contribution of Australian manufacturing to the economy and society



- Australia's manufacturing sector and its capabilities are diverse
- Manufacturing adds value adding to the Australian economy
- It accounts for a large proportion of Australia's international trade
- It provides a large number of skilled, high paying, full time jobs
- Manufacturing has a large footprint in outer-suburban and regional Australia
- Australian manufacturers invest in innovation, automation, and R&D

- It enables valuable skills and investments throughout value chain
- Manufacturing is an important sovereign capability
- It is an ecosystem that supports extensive linkages with other sectors
- Manufacturing supports a resilient energy system
- It closes the loop for the circular economy and benefits the environment
- Manufacturing enables high standards of environmental and consumer protection



Australia's manufacturing sector and its capabilities are diverse

Australia's manufacturing industry is highly diverse. Its outputs span the fundamental building blocks of modern society — metals, building materials, chemicals, food products and machinery — through to highly specialised and advanced products including solar cells, biomedical sensors and precision cutting tools.

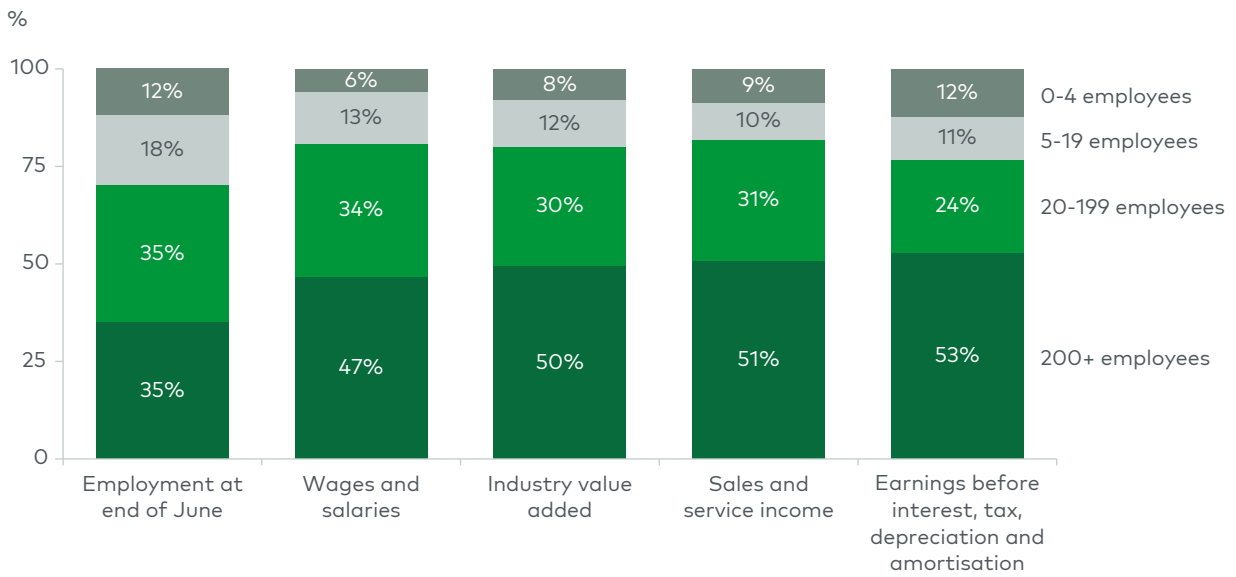
Australian manufacturers are similarly diverse, from small, owner-operated businesses to very large private or publicly listed manufacturing companies, including many of Manufacturing Australia's members. Australia's smaller manufacturing businesses are often highly specialised or important suppliers to the broader sector. Larger manufacturing businesses, although few in number, account for more than a third of jobs.

Manufacturing adds value to the Australian economy

The Australian manufacturing industry contributed c.5.6% of GDP in FY2019/2020, representing over \$108 billion of annual gross value added to the Australian economy.¹ The sector has traditionally played a key role in the Australian economy and was the largest contributor to GDP until the mid-2000s, when it was overtaken by the booming mining industry. Since then, the contribution of Australian manufacturing to real GDP has been growing; however, faster growth in other sectors of the economy means manufacturing now accounts for a smaller proportion of Australian GDP today (c.11% in 1990 vs c.6% in 2020). Over this time frame, manufacturing and mining have effectively swapped positions as the largest contributor to Australian GDP (mining

Figure 1
Manufacturing industry composition, by business size (FY2020)

Manufacturing industry composition, by business size (FY2020)



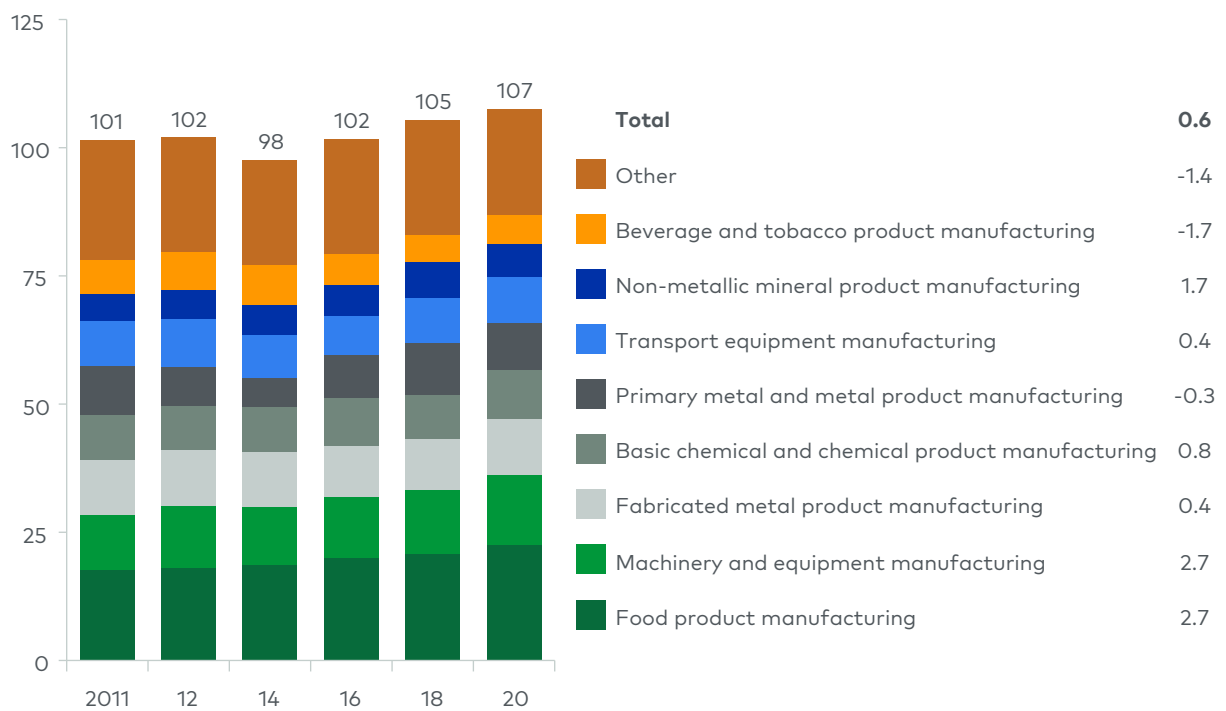
Source: Australian Bureau of Statistics, 81550DO001: Australian Industry 2019-2020

Figure 2
Gross value added by industries within the Australian manufacturing sector (2011-2020)

GVA by sectors within manufacturing (2011-2020)

Billions AUD

CAGR% (2011-2020)



Source: Australian Bureau of Statistics, 81550DO003: Australian Industry 2019-2020

accounted for c.7% in 1990 vs 10% in 2020), as shown in Figure 12.

In addition to the strong contribution to GDP, Australian manufacturing makes other important economy-wide contributions by:

- Accounting for 5% of the capital stock ² (see Figure 13)
- Paying 6% of Australian corporate tax³
- Contributing \$108 billion (or 6.1%) to the Australian economy (real gross value added in 2020, chain volume measure)
- Employing 7% of the Australian workforce (explored further below)

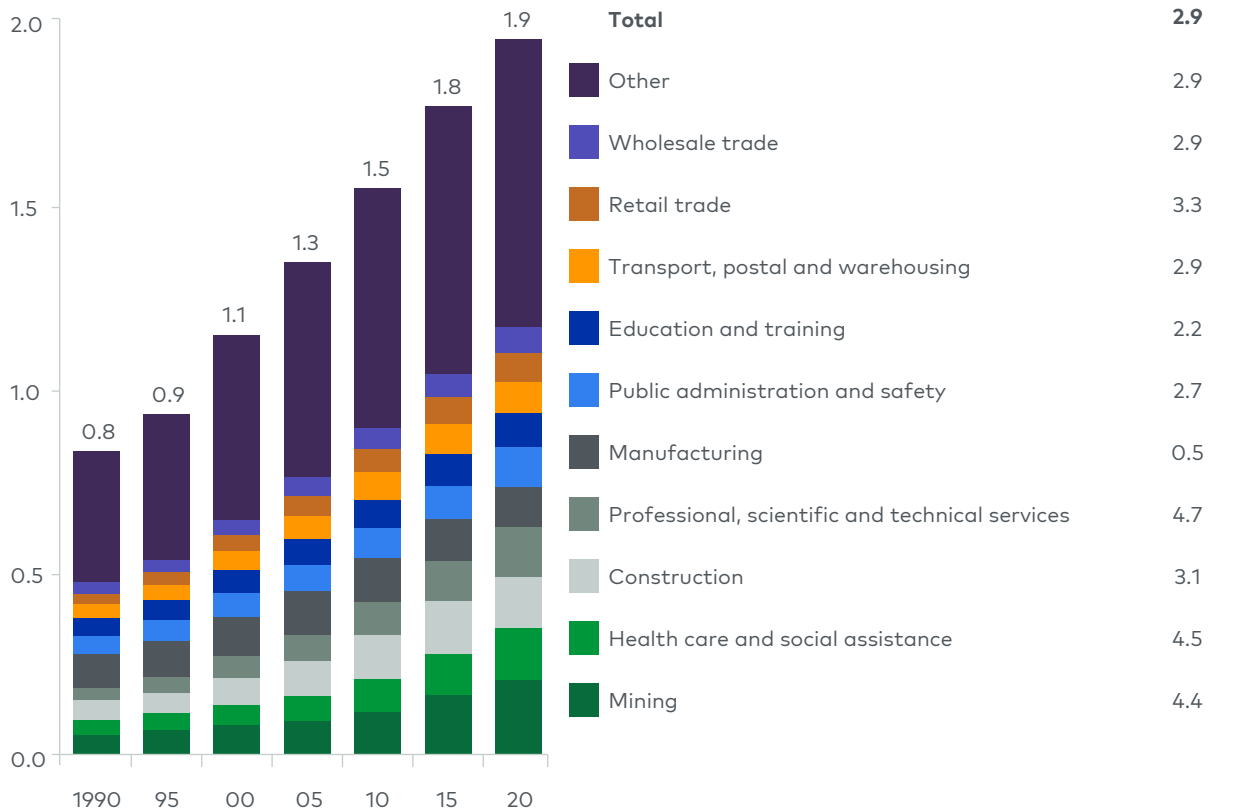
Manufacturing accounts for a large proportion of Australia’s international trade

The manufacturing sector accounted for \$83.8 billion (or c.22%) of Australia’s merchandise exports in FY2019, second only to mining, where this includes a wide range of commodities including iron ore, thermal and coking coal, oil, and gas (see Figure 14 below).

Australia’s manufacturing industry also attracted c.\$130 billion (12%) of foreign direct investment in Australia in FY2019/2020.

Figure 3
Contribution to GDP by sector (1990-2020)

Contribution to GDP by industry (1990-20)
Trillions of AUD (chain volumes)

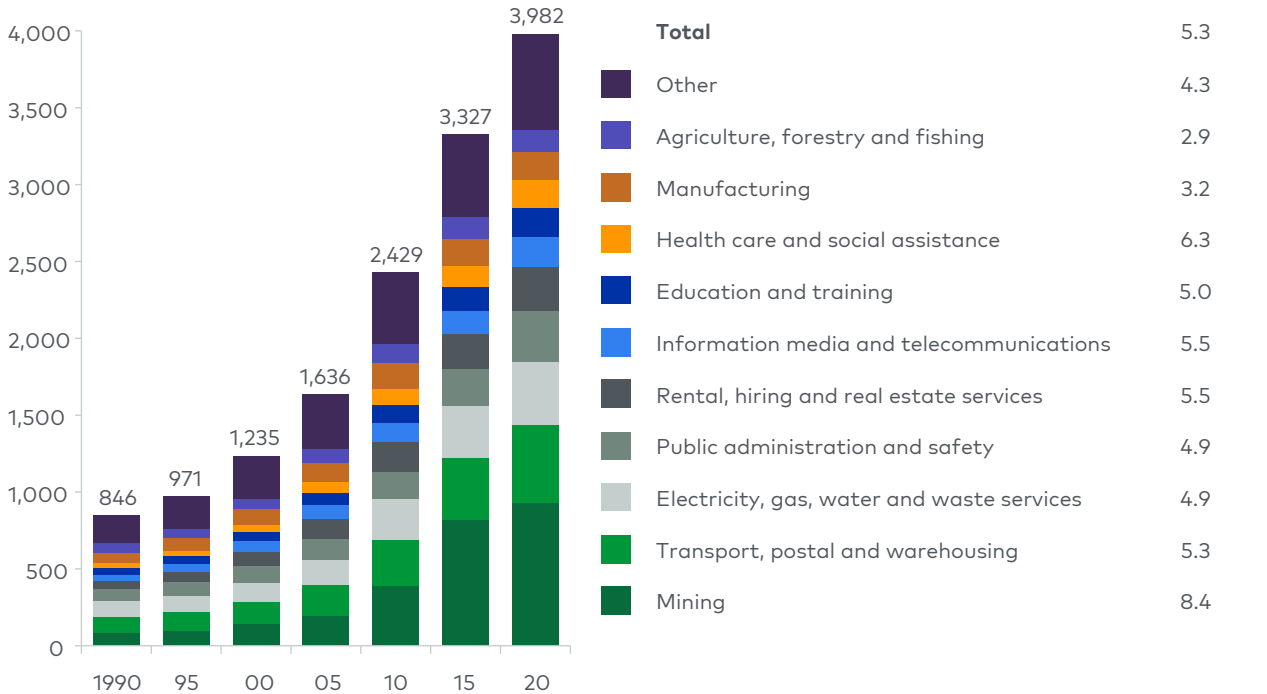


Source: Australian Bureau of Statistics, 5206.0: Australian National Accounts: National Income, Expenditure and Product

Figure 4
Capital stock by sector (1990-2020)

**Capital stock by sector
(1990-20)**

Billions of AUD (real)

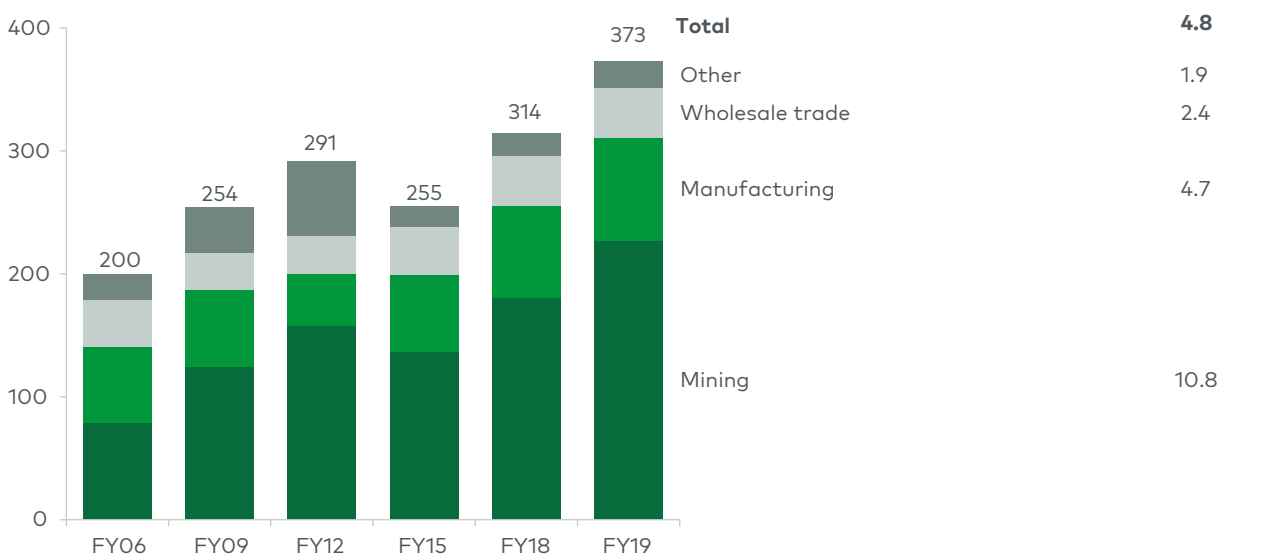


Source: Australian Bureau of Statistics, 5204.0: Australian System of National Accounts, Capital Stock, by Industry

Figure 5
Value of exported merchandise by sector (FY2006-2019)

**Value of merchandise exports by sector
(2006-19)**

Billions of AUD (real)



Note: Mining exports include oil, gas and coal exports. Manufacturing includes exports of primary metals (aluminium, steel and iron)

Source: Australian Bureau of Statistics, 5368055006: Characteristics of Australian Exporters

The strong growth in the value of manufacturing imports shows a potential opportunity to increase manufacturing to service demand that evidently exists in the Australian market, as seen in Figures 15 and 16.

Australian manufacturing provides a large number of skilled, high-paying, full-time jobs

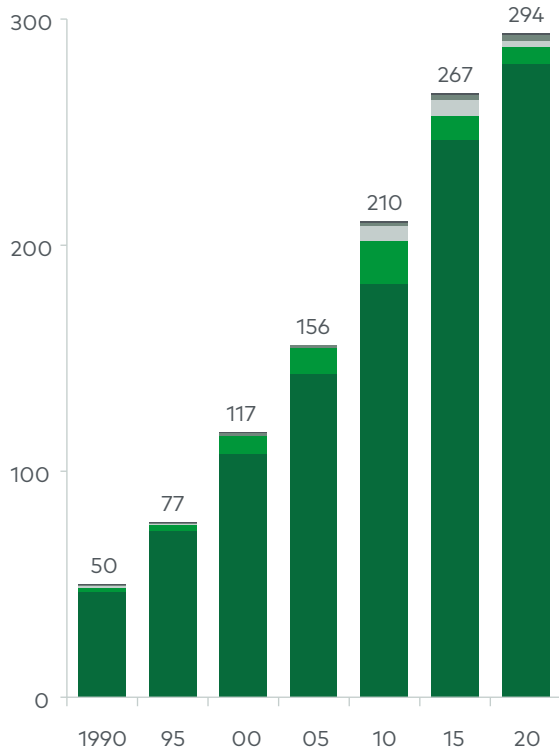
The Australian manufacturing industry is an important employer, with an estimated c.890,000 workers as of February 2021, which has been broadly steady since 2015.⁴ Manufacturing supports 1.3 million jobs, directly and indirectly, accounting for more than 10% of Australia’s workforce.⁵

Australian manufacturing jobs are also of high quality:

- Mean incomes in the manufacturing sector are \$72,100, 28% higher than the national mean income of \$56,100⁶
- Approximately 84% of manufacturing industry workers are employed on a full-time basis, which is significantly higher than the national average of c.69%
- Manufacturing workers are often highly skilled and semi-skilled operators, with a combination of vocational, tertiary and on-the-job training with skills over and above service-level jobs

Figure 6
Customs value of imports by sector (1990-2020)

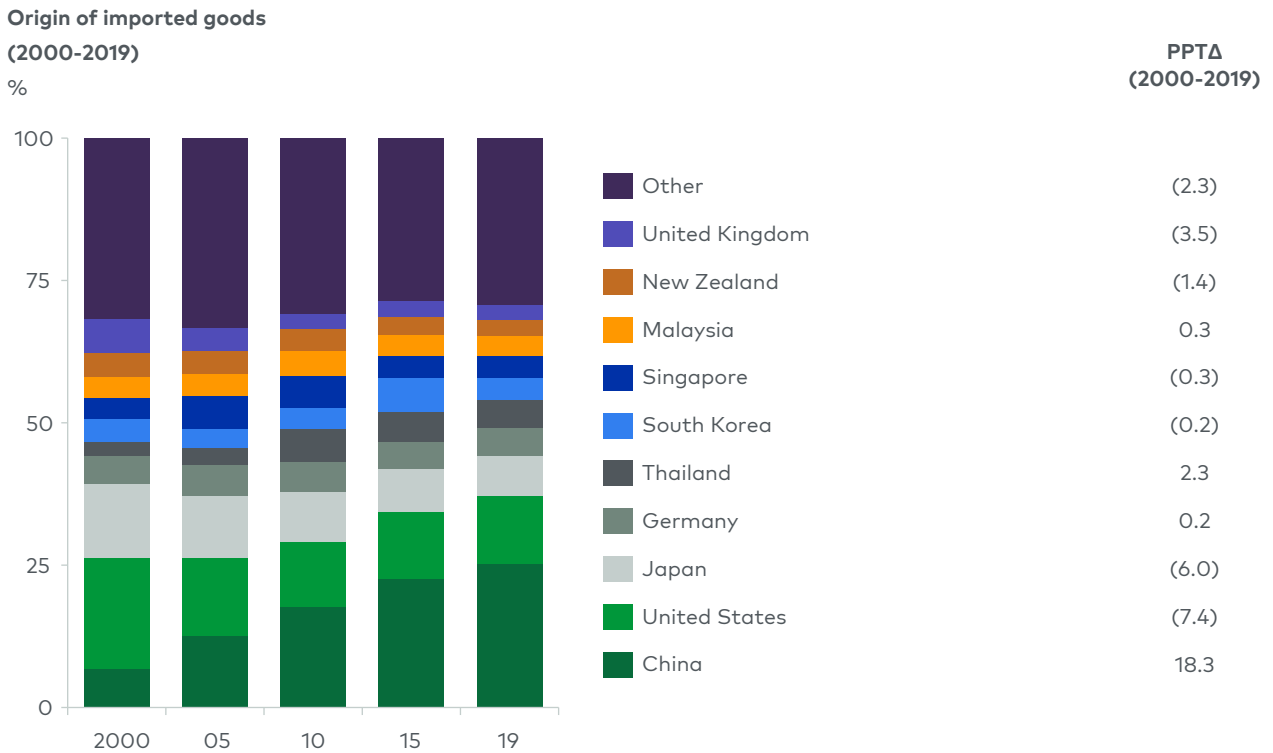
Customs value of imports by sector (1990-2020)
Billions of AUD (nominal)



	CAGR% (1990-2020)
Total	6.1
Other	12.7
Agriculture	5.4
Confidential	4.4
Mining	5.1
Manufacturing	6.1

Source: ABS - 5368.0 International Trade in Goods and Services, Australia; OECD – Australia, Annual imports historical data

Figure 7
Country of origin of imported goods (2000-2019)



Source: ABS - 5368.0 International Trade in Goods and Services, Australia; OECD – Australia, Annual imports historical data

Manufacturing has a large footprint in outer-suburban and regional Australia

The manufacturing sector is often a linchpin employer in regional areas, with many regional hubs in places like Port Kembla, Gladstone and Devonport and their surrounds benefitting from the strength of manufacturing activities to underpin employment, supporting businesses and infrastructure. Around 25%⁷ of manufacturing employment is located in areas outside capital cities, providing strong wages and economic opportunities to these communities.

Manufacturers make significant contributions to their regional communities – two examples from the Manufacturing Australia membership are:

- BlueScope’s steelworks at Port Kembla – in New South Wales’ (NSW) Illawarra region – is the largest steel production facility in Australia, supporting 3,000 jobs directly and 10,000 contractors, suppliers and other service providers within the Illawarra region⁸
- Tomago directly and indirectly engages over 1,800 people in NSW Hunter region, including a significant number of local contractors, and contributes in excess of \$800 million in gross regional product⁹

Australian manufacturers invest in innovation, automation and R&D

Successful Australian manufacturers are adopting and incorporating advanced technology and automation within their production processes.

The sector’s focus on innovation, automation and R&D is seen through:

- Australian manufacturers spending the greatest proportion of GDP contribution on R&D out of any sector in 2018 (see Figure 17 for top 5 sectors by percentage spend)
- Australian manufacturing businesses spending approximately \$4.5 billion on R&D in FY2018, representing c.27% of Australia’s total R&D spend, and employing c.19,000 full time equivalent staff engaged in research (representing c.26% of these employees in Australia)¹⁰
- Manufacturing Australia’s members being awarded 643 patents since 2010 (more than 2% of all patents awarded in Australia during the period)¹¹

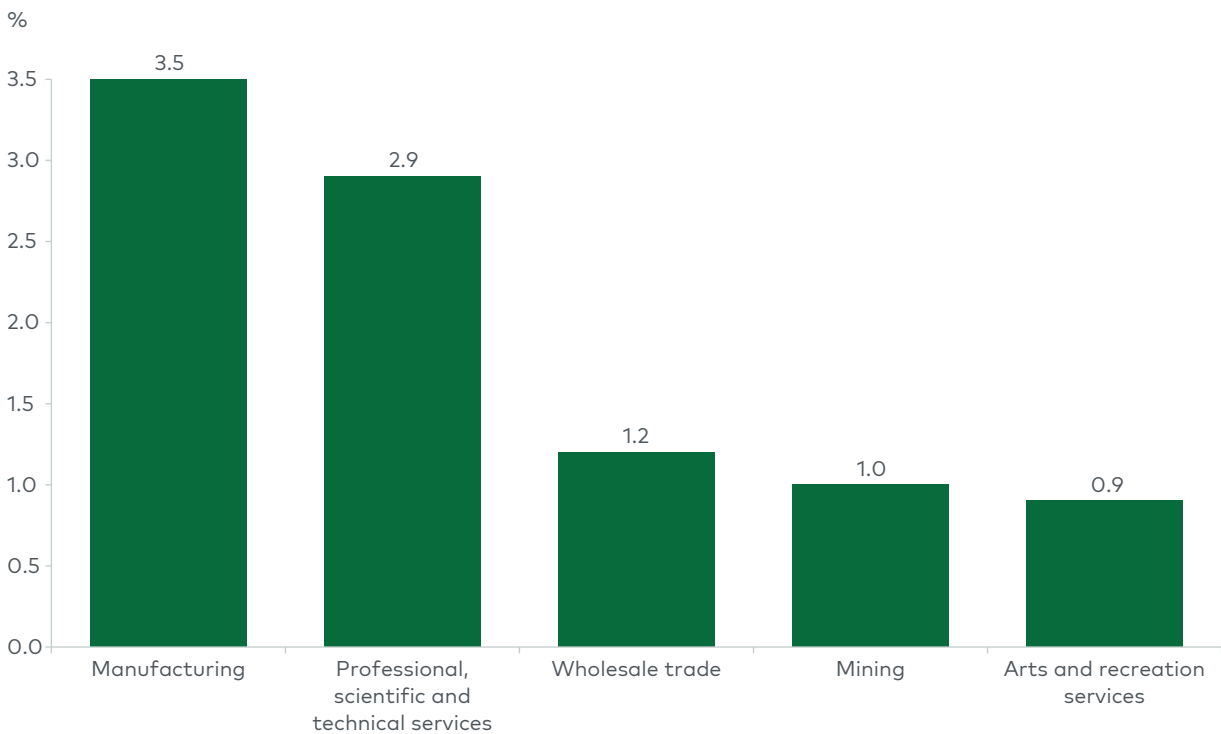
Australian manufacturers have a strong focus on applying technologies in our local context to achieve high levels of efficiency and productivity, alongside benefits of greater customisation and ‘servitisation’ of manufacturing. These applications are often early in the life cycle and used by global equipment suppliers to showcase their capabilities for deployments in larger markets.

The below case studies demonstrate Australian manufacturers incorporating advanced production technologies when investing in new plants and plant upgrades (see breakout box for case studies).

Figure 8

BERD spend as a percentage of sector GDP (2018)

BERD spend as a percentage of sector GDP (2018)



Source: Australian Bureau of Statistics, 81040DO002: Research and Experimental Development, Businesses, Australia, 2017-2018

Case studies of advanced Australian manufacturing technologies

DuluxGroup Merrifield

DuluxGroup completed its new Merrifield plant in 2017, investing approximately \$165 million and working in partnership with a number of local and global suppliers including Siemens, Dromont, CET, Keisel, Foodmach and Vaughan to apply global best-in-class paint manufacturing capabilities in Victoria.

Paint manufacturing is traditionally a labour-intensive process, due to its being batch-made, requiring 150+ raw materials to produce 800+ SKUs. The new plant embraces automation, with the number of manual raw material additions reducing from 75,000 p.a. at the previous factory to zero at Merrifield.

Using global 'best of breed' technology, combined with novel factory design, DuluxGroup has fully automated while retaining its broad raw material and product formulation range, and also increasing batch size flexibility (with a range from 500 to 30,000 litres), which is a global first for the paint industry.

Using advanced technology, and Industry 4.0 design principles, the factory is very agile, with production time per batch reducing by up to 87.5% and twice as many batches being made per volume alongside the increased batch size

flexibility. The complete supply chain information flow and control system is digital. This technology and design approach has also allowed 'new ways of working' where all operators are being multi-skill trained to do all operations jobs on the site.

DuluxGroup's Merrifield factory and Industry 4.0 credentials were showcased by Siemens at the 2018 Hannover Fair — the biggest stand at Hannover, and the first time Siemens had showcased an Australian project.

Orora investment in best-in-class technology

Orora has invested \$200 million in its beverage manufacturing Gawler facility in the past five years, including the G2 furnace rebuild, capacity expansions, mould insourcing, system upgrades and an on-site, automated warehouse capacity.

Orora completed the \$35 million warehouse in December 2020 to reduce on-site inventory requirements and reduce off-site pallet storage and transport costs.

Orora has also invested in laser-guided vehicles, providing benefits of delivering optimal storage capacity, greater efficiency and accuracy, and enhanced safety.

(Continued)

Furthermore, a stand-alone embossing

and printing machine was purchased and installed by Orora at the Closures Dudley Park site in South Australia. This addition improves production speed by three times over the prior model. Furthermore, the machine is equipped with a high-resolution camera that can automatically detect and reject closures that do not meet Orora's high quality standards.

CSR's Hebel plant

Hebel is a strong, versatile, high-performance building product made from Autoclaved Aerated Concrete (AAC). CSR Hebel officially launched its new AAC manufacturing facility at Somersby, NSW, on Friday, 11 October 2019. This \$75 million investment took over four years to build, doubling current capacity and providing new capability to service the growing demand of the Australian housing market for innovative, quality building products such as Hebel.

The focus of Hebel's new plant included supporting the local economy and minimising the company's carbon footprint. This has underpinned the decision to work with local suppliers, manufacturers and products sourced in the region where possible. As a result, much of the \$75 million spend has been spent locally in Australia, and once the plant is running at full capacity, 45 new jobs will have been created for the local community on the NSW Central Coast.

- Of all material produced through

Hebel's manufacturing process, 98.5% is recycled by a third-party waste management company with plans to recycle in the plant.

- On-site water catchment captures rainwater which is reused in Hebel's manufacturing process to produce steam for autoclaving.
- Condensate produced during the autoclave process is now captured, and a proportion of this is reused in the manufacturing process. Additionally, condensate heat is reused to reduce gas consumption in the generation of steam, and sophisticated control also allows steam to be shared across autoclaves.

Available in blocks and panels, Hebel is easy to handle, quick to build with and better to live in. Hebel panels contain anti-corrosion steel reinforcement for added strength and are available in a range of lengths for applications including walls, floors and external cladding.

CSR began production of Hebel in Australia over 30 years ago, and still remains the only local manufacturer of AAC in Australia and New Zealand. This is testament to the fact that Hebel continues to deliver innovative, high-quality products and systems that have gained rapid adoption for their fast install times without compromising on quality, and energy-efficient buildings that are design-led and achieve on-trend looks.

Manufacturing enables skills and investments throughout the value chain

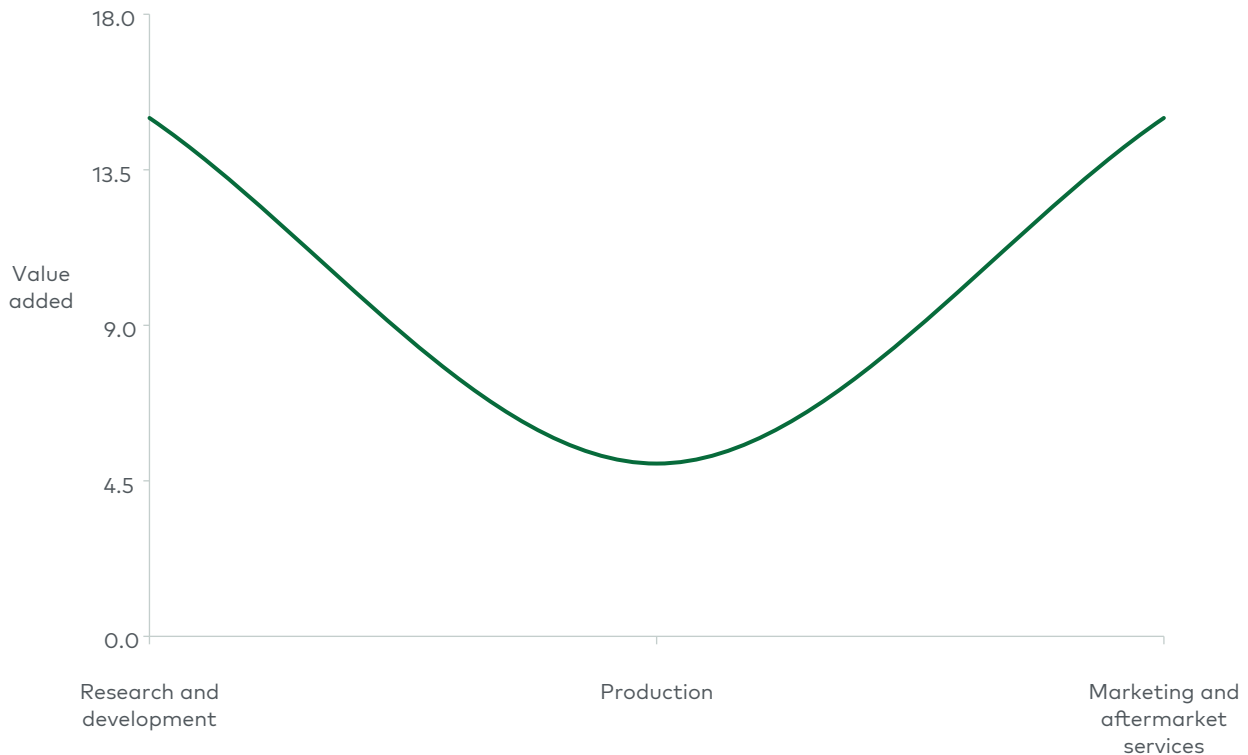
A strong manufacturing sector provides the enabling foundation for further value-add from investing in and developing important skills throughout the value chain, from R&D to marketing and digital. Research has shown that investments in R&D activities and marketing alone can result in lower value creation across the entire value chain, often referred to as the 'smile curve' shown in Figure 18. This concept partly explains why many developed economies have experienced offshoring of low-value and basic manufacturing activities to economies with low labour costs.¹²

Companies maximise value and can earn superior returns where they can develop interdependencies across the value chain – in particular, the ability to identify customer needs, develop innovative solutions, and then deliver products and services that meet customer needs using flexible and responsive manufacturing capabilities. In an economy like Australia with high wages and a high standard of living, this typically means that the integrated manufacturer needs to maintain both a competitive manufacturing cost position and strong R&D and marketing capabilities.

Manufacturing is an important sovereign

Figure 9
The 'smile curve'

The Smile Curve



Source: Department of Industry, Science, Energy and Resources – Industry Insights, Globalising Australia; Baldwin R, Ito T, and Sato H (2014), Portrait of Factory Asia: Production network in Asia and its implication for growth – the 'smile curve', Institute of Developing Economies Japan External Trade Organization

capability

The COVID-19 pandemic has demonstrated the importance of Australia's possessing critical sovereign capabilities in a time of crisis. The existence of a domestic manufacturing sector and associated skill

base meant Australia was able to reduce its reliance on international supply chains in the face of disruptions from COVID-19 and provided the flexibility and responsiveness to rapidly create domestic production capacity in the face of critical shortages.

Case studies of the importance of sovereign Australian manufacturing capabilities: DuluxGroup, Med-Con and ResMed

With assistance from DuluxGroup, Foodmach and the Australian Defence Force (ADF), Med-Con was able to respond to Australia's need for medical masks during the COVID-19 pandemic. Before the pandemic, Med-Con was producing two million masks per year. In response to the COVID-19 pandemic, with support from industry and federal and state governments, Med-Con's mask production increased to manufacture up to 50 million masks every six months.

DuluxGroup assisted Med-Con in scaling up so that it could transition from the ADF temporarily operating the plant (the Australian government deployed 14 ADF personnel to the Med-Con factory to support the on-ground production capability) to taking full control. DuluxGroup also worked with Foodmach, the manufacturer of the needed additional mask machines, to shorten the lead time for manufacturing and installing the additional mask making machines, and directly assisted the identification

of needed ancillary machinery suppliers, factory validation and procurement in China on behalf of Med-Con.

At the same time, Australian med-tech manufacturer ResMed's local production of ventilators was sufficiently strong that Australia became a net exporter of ventilators. ResMed provided 5,500 ventilators to the Australian federal government, meeting national manufacturing targets. ResMed was also able to supply the United States Federal Emergency Management Agency (FEMA) with 2,550 units when traditional global supply chains could not service the significant increase in demand.

Australian Defence Force personnel supporting Med-Con's mask production



Coronavirus fires up production at Australia's only medical mask factory.
Source: ABC.net

There are specific sectors where a domestic manufacturing capability is of strategic importance to maintain:

- **Ammonia** is a critical input into fertilisers for food production, as well as explosives
- **Cement** is a critical material for construction of the infrastructure required for a modern economy
- **Steel** and **aluminium** are also important materials to enable construction and manufacturing of other goods

Manufacturing is an ecosystem that supports extensive linkages with other sectors

Large-scale manufacturing depends on an ecosystem of supporting businesses and skilled jobs surrounding manufacturing facilities and provides economic benefits in the local communities of the manufacturers. Manufacturing Australia's 12 members have over 25,000 downstream suppliers combined who pay wages to their staff and support further suppliers.

Large manufacturers also support a broader industrial base that provides benefits across other parts of the economy. As an example, steel production creates excess oxygen that can be supplied to hospitals for use in ventilators, which have been critical throughout the COVID-19 pandemic. For example, Port Kembla Steelworks provides oxygen to Coregas, which collects and supplies oxygen to hospitals throughout NSW.

Manufacturing supports a resilient Australian energy system

Manufacturers are large industrial users of energy, providing stable demand along with flexibility to quickly reduce load to provide stability to national power grids during periods of high demand.

Tomago Aluminium is Australia's largest electricity consumer, accounting for c.10% of NSW's electricity demand. Tomago has the ability to reduce its load in part during peaking demand or in full during an emergency, helping the Australian Energy Market Operator (AEMO) to alleviate pressure and balance supply and demand on the grid, and keep the lights on for the rest of the market.

As the largest interruptible electricity load in the country, this makes Tomago critical to the stability of the national electricity grid.¹³ If NSW did not have an operational smelter, it would be significantly more difficult to reduce demand load when system events compromise the electricity grid.

In January 2020, the NSW grid lost c.2,000MW of power when bushfires disrupted transmission from Snowy Hydro. The AEMO requested that Tomago Aluminium pause operations of two potlines, releasing a significant amount of supply back into the grid, helping to avoid state-wide blackouts.¹⁴ Additionally, in January 2019, Tomago Aluminium put 600MW¹⁵ of electricity back into the power grid due to enormous pressure on NSW's electricity supply caused by record summer

temperatures, catastrophic bushfires and air conditioning units working overtime.

"New South Wales would be hit with large-scale blackouts if the smelter didn't help the market operator control loads over the hot summer months."

Matt Howell, CEO of Tomago Aluminium

While Tomago is proud of the contribution it makes to grid resilience, it is more frequently being asked to reduce its load when prices and demand are high beyond what was intended when the facility was built and energy contracts entered, with almost 11 hours of power interruptions to its potlines in January 2021 alone.¹⁶

Australian manufacturing closes the loop for the circular economy

Australian manufacturers play a key role in 'closing the loop' for the circular economy, enabling improved material and by-product recovery and reuse through innovative manufacturing approaches. This combines to achieve benefits both for diversion of waste from landfill and reducing carbon emissions embedded in products. Manufacturing Australia members provide large-scale opportunities for processing by-

products in one sector to become valuable inputs in other sectors — for example:

- Cement and concrete producers utilise fly ash, a by-product from coal-fired power generation, and blast furnace slag, a by-product from iron and steelmaking, to increase the strength and durability of concrete and supplement virgin clinker in cement
- Cement producers also utilise alternative fuels derived from recycled tyres, oils and other forms of waste to reduce their reliance on energy from fossil fuels
- Clinker kilns can also destroy hazardous wastes through combustion at high temperatures — for example, per- and polyfluoroalkyl substances (PFAS) do not fully break down naturally and there is a need to decontaminate sites (such as where PFAS was used for airport firefighting purposes) that can be met as a result of the existence of Australian manufacturing
- Ammonia producers capture carbon dioxide, which is utilised by the food and beverage industry and the medical sector
- Urea manufacturers produce the key ingredient for the emissions control additive known as AdBlue, which is essential to the continued operation of Australia's diesel truck and vehicle fleet

Future development of the circular economy will require the vibrant manufacturing sector and investment in R&D to create approaches for recycling/utilisation of waste streams that are not viable or have not been tested today in the Australian context. Partnerships

between waste collectors, processors, manufacturers and users to create circular economy loops are becoming more common, but the economy is only starting its journey towards being truly circular.

Australian manufacturing enables high standards of environmental and consumer protection

Australian manufacturers are committed to serving the Australian market and protecting consumers and the environment. The substantial fixed capital investments that are required for manufacturing demonstrate the commitment of Australian manufacturers to serve the market and signal an assurance of meeting legal requirements and societal expectations in Australia.

The actions of Manufacturing Australia members demonstrate the commitment of manufacturers to consumers and the environment:

- **CSR** has demonstrated to the building industry and consumers how innovative design and application of building materials can deliver an eight-star energy-efficient home that accounts for 85% less emissions than a standard house.
- **DuluxGroup** has reduced the environmental impact of its products by partnering with several large construction companies to collect and recycle their used water-based paint and paint drums, and is a founding member

of Paintback, an industry initiative to treat waste painting products, diverting waste paint and packaging from landfill.

- **Rheem** has developed the Solahart PowerStore water heater, which connects to a network of smart products and uses data to assess when excess electricity is generated from rooftop solar panels, redirecting this to heat water. Through aligning product development to Australian data communication protocols and governments providing clear and consistent responses to well-articulated public policy outcomes, innovative products like PowerStore water heaters have the potential to drive down water heating costs, improve grid supply and stability, and deliver environmental outcomes.

In contrast, imported products can in some instances present issues for compliance with Australian standards and consumer protection measures, as demonstrated by the need for schemes like Victoria's Statewide Cladding Audit. This scheme was created to reduce fire safety risks from combustible cladding that was installed in buildings despite not meeting National Construction Code requirements.

Warranties and other consumer rights can also be challenging to enforce in practice for imported products where the manufacturer has limited or no presence in Australia.

Snapshot of Australian manufacturing and its social and economic contribution

Case study of Brickworks lowering emissions using the circular economy and advanced technology

Brickworks has a successful track record of implementing bioenergy and low carbon fuel projects.

At its Austral Bricks Horsley Park plant, Brickworks has used landfill gas in two kilns since 2013/14, substituting up to one third of the kiln's natural gas requirements. The combustion of landfill gas emits 10 times less carbon than natural gas, taking into account emission that would have occurred otherwise. Horsley Park used 223,597 GJ of landfill gas throughout FY20, offsetting approximately 10,442 tonnes of carbon, equivalent to the energy used in 1,200 homes for one year.

Brickworks is also demonstrating efficiencies through leading manufacturing excellence with its Horsley Park Plant 22 Upgrade that will upgrade the site into a state-of-the-art brick

manufacturing facility. At the heart of the new Plant 22 operation will be a JC Steele 120 extruder, a world first, exclusively built for Brickworks. The new kiln will push the limits of brick production efficiency to deliver best in its class fuel efficiency and product quality, setting a new standard for brick manufacturing.

Looking to the future, Brickworks is actively developing its long-term lower carbon energy pathway, with focused investment areas including:

- Brickworks Biogas Circular Economy Investigation Study to explore the feasibility of biogas from anaerobic digestion of organic material
- Brickworks Hydrogen Feasibility Study, in partnership with Murdoch University, to explore the potential for hydrogen to be used as kiln fuel in the manufacture of clay bricks
- Review of renewable electricity commercial viability for all new plants

Source: Brickworks Low Emission Technology Statement

Manufacturing Australia (MA) is a CEO-led coalition of Australia's largest manufacturers.

Manufacturing in Australia Snapshot



Australia's manufacturing sector includes a diverse range of businesses that produce outputs including metals, building materials, chemicals, textiles, food products and machinery



\$108 billion contributed to the national economy by the manufacturing sector, representing **5.6% of GDP** in FY20



\$83 billion worth of manufacturing merchandise exported in FY19-22% of all Australian exports – and attracted \$130 billion of foreign investment in Australia



1.1% p.a. reduction in the emissions intensity of Australian manufacturing since 1990, delivering almost **30% less CO2e per dollar** of real GDP contributions over this period



\$4.5 billion on R&D was spent by the manufacturing industry in FY18, 27% of Australia's total R&D spend. It employs **19,000** full-time equivalent staff engaged in research



c.2% of all Australian patents between 2010-21 were awarded to Manufacturing Australia's members



890,000 jobs are supported by the manufacturing industry, of which **84%** are employed on a full time basis, **69% higher** than the national average

About Manufacturing Australia

MA works with governments to help Australia's manufacturing sector realise its potential. MA proposes and supports practical policy measures to ensure that Australian manufacturing remains internationally competitive.

MA does not support protectionism and believes that manufacturers should be wholly accountable for their own performance. Having overcome a myriad of external economic challenges in recent years, MA members continue to operate at scale because they are efficient, well-managed and innovative businesses that have restructured and retooled to improve productivity and remain competitive.

Manufacturing is the value-adding lifeblood of a balanced Australian economy. Through downstream wealth creation, research and development, import replacement, and maximising the value of our natural resources, manufacturing delivers a substantial economic, social and cultural return to the nation.

Almost one million Australians work in manufacturing. Competitive manufacturing brings with it skilled direct and indirect employment, innovation, and thriving local communities.

Manufacturing Australia's priorities

Manufacturing Australia works to secure

the next generation of manufacturing employment and investment in Australia by focusing on four priority areas for cooperation between industry and government. These are:

- Encouraging better regulations that help keep Australian manufacturing safe, sustainable, productive and high quality
- Increasing productivity through innovation, research and development, and modern and flexible workplaces
- Ensuring that free trade is also fair trade
- Regaining Australia's competitive advantage of reliable, affordable and sustainable energy resources, and ensuring that Australia meets its international emissions obligations while remaining globally competitive in trade-exposed industries

Manufacturing Australia's members include:

- Adbri
- Alumina
- BlueScope
- Brickworks
- Capral
- Cement Australia
- CSR
- DuluxGroup
- Incitec Pivot
- Orora
- Rheem
- Tomago Aluminium

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