

**Summary:**

***A Fair Share for Australian Manufacturing:  
Manufacturing Renewal for the Post-COVID Economy***

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Since the COVID-19 pandemic began, Australians have been reminded of the importance of being able to manufacture goods domestically. International shortages of medical equipment and personal protective equipment, made worse by restrictions on exports from several countries, sparked fears Australia might run out of essential supplies. Australia's government and manufacturers scrambled to convert domestic facilities to produce medical equipment and supplies. Even supplying simple products like masks proved to be a challenge. Thankfully critical shortages did not emerge, but this crisis has reminded Australians that our ability to produce a full range of essential manufactures is a matter of national wellbeing. The health of our economy is not separable from the health of our people.

For many years the conventional wisdom has been that as a high-wage, resource-rich economy, Australia was unable to competitively manufacture — nor did it need to. Between digging up raw materials and shipping them to our trading partners (who subsequently manufactured those resources into higher-value products which they sold back to us) and our success in some service exports (like higher education for foreign students), it was argued we no longer needed to produce the

'stuff' we use. The COVID-19 pandemic has shattered that complacency. Even senior government officials, who long trumpeted the virtues of free trade and so-called 'comparative advantage' specialisation, now concede that Australia's domestic manufacturing capability has declined too far. The National COVID-19 Coordination Commission (NCCC) is investigating opportunities for revitalising manufacturing as part of Australia's post-pandemic reconstruction.

Why does manufacturing carry such disproportionate strategic importance to our overall prosperity? This paper provides some answers. It profiles the industry's current status, highlighting our unusually small value-added industries. It discusses in more detail several factors that have shaped Australia's recent manufacturing performance: including the nature of our international trade engagements, the poor state of our vocational training system, and the new developments in energy that are altering traditional cost models. It describes the broad principles of active industry policy, and then lists several specific measures that would build a stronger manufacturing sector – and ensure that Australians get a 'fair share' of the jobs and incomes generated by this vital part of our economy.

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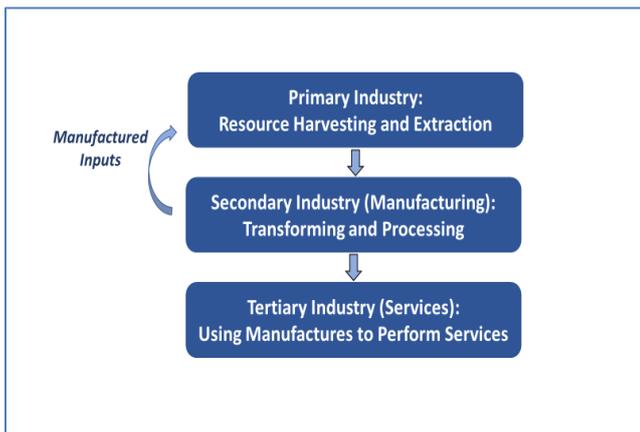
*This is a summary of an 80-page report published by the Centre for Future Work on the importance and potential of revitalising Australia's manufacturing base in the wake of the COVID-19 pandemic.*

*To see the full report (including details on statistical sources and references), please visit:*

[https://www.futurework.org.au/a\\_fair\\_share\\_for\\_australian\\_manufacturing](https://www.futurework.org.au/a_fair_share_for_australian_manufacturing).

# Why Manufacturing Matters

Manufacturing is the transformation of tangible materials harvested from the natural environment into more complex and useful products. It is impossible to imagine an economy *without* manufacturing: human beings will always have material needs and wants that can only be met through the production and transformation of material goods. Claims that we are evolving into a 'post-industrial' or 'information' economy, in which manufacturing doesn't matter, are wrong.



Manufacturing is a vital and strategic link in the chain of all value-added activity. Manufactured products are essential for extracting and harvesting resources and agricultural output. And they are also vital to the production of all services (called 'tertiary' industries). In short, there is no job in society that can be performed without the use of manufactured goods.

So manufacturing is not just 'another' sector of the economy. For several concrete reasons, manufacturing carries a strategic importance to our broader economy, society and security.

- Australians purchase and use more manufactured goods over time; and manufacturing output is growing around the world. Allowing domestic manufacturing to decline, while our use of manufactured products grows, undermines national output and trade performance.
- Manufacturing is the most innovation-intensive sector in the whole economy. No country can be an innovation leader without manufacturing.

- Manufactured goods account for over two-thirds of world merchandise trade. A country that cannot successfully export manufactures will be shut out of most trade.
- Manufacturing anchors hundreds of thousands of other jobs throughout the economy, thanks to its long and complex supply chain. Billions of dollars' worth of supplies and inputs are purchased by manufacturing facilities, which support many other sectors of the economy.
- Manufacturing offers relatively high-quality jobs, more likely to provide full-time hours and above-average incomes. And thanks to strong productivity growth and the capacity to apply modern technology, manufacturing offers the prospect of rising incomes in the future.

Despite years of challenging global conditions and neglect from policy-makers, manufacturing still makes an outsized contribution to Australia's economic performance: including superior R&D investments, capital spending, and exports. We must support and expand this vital, strategic sector.

Profile of Australian Manufacturing		
	Value	Share Aus.Total
<b>Sales</b>	\$380 bil.	
<b>Value-Added</b>	\$105 bil.	5.5%
<b>Direct Employment</b>	890,000	6.9%
<b>Wages &amp; Salaries Paid</b>	\$62 bil.	7.4%
<b>Average Annual Income:</b>		
<b>All Employees</b>	\$70,000	
<b>Full-Time Employees</b>	\$81,000	
<b>Operating Profit (before tax)</b>	\$29 bil.	
<b>Exports</b>	\$95 bil.	24.5%
<b>Domestic Supply-Chain Purchases</b>	\$240 bil.	
<b>Capital Expenditure</b>	\$9.7 bil.	16.9%
<b>R&amp;D Spending</b>	\$4.6 bil.	26.4%

## Australia's Place in the World

Manufacturing is a global industry that depends critically on world trade flows. The specialised nature of most manufactured products requires firms to be able to produce their output in large quantities, and then sell that output to a range of global markets. This is particularly true of smaller economies like Australia's. Indeed, one of the strategic benefits of manufacturing is precisely that it demonstrates a higher export propensity than most other industries. Manufacturing is well-suited to international trade – and it accounts for a strong majority of all international trade. So having a strong and healthy domestic manufacturing sector automatically ensures that a country can participate more fully and successfully in international commerce.

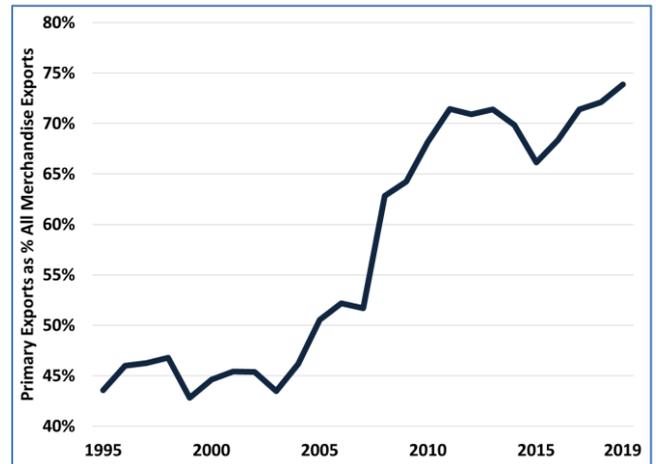
However, there is never any guarantee that those international interactions will be mutually beneficial. In Australia's case, failures of both trade policy and industrial policy have undermined domestic manufacturers' success in global markets – and have produced dangerously lopsided patterns in our international trade.

Australia's economy has always been heavily dependent on the extraction and export of natural resource products: including agricultural goods, timber, minerals, and now energy. For decades it was a goal of national economic policy to foster a more diversified presence in international trade, with a greater presence in technology-intensive value-added industries (thus diversifying our economy away from raw resource extraction).

Unfortunately, over the past generation the composition of Australia's merchandise exports has gone backwards. Government policy shifted to other priorities (like deregulation and privatisation), and domestic manufacturing began to decline (in both absolute and relative terms). Australia's export focus shifted back to the extraction and export of mostly unprocessed natural resources. Iron ore, coal, and liquified natural gas are now our largest exports, while global sales of Australian-made manufactured goods have declined. This produces a very large, chronic trade deficit in manufactured products, that undermines our international balance of payments year after year.

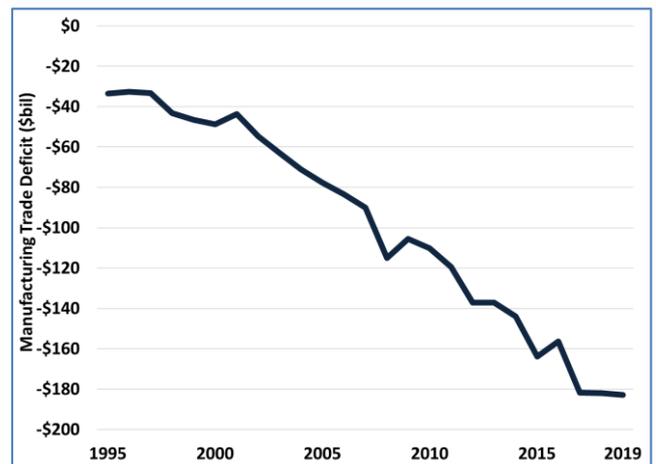
By 2019, primary products made up almost 75% of total Australian merchandise exports – the highest in decades.

*Primary Exports as Share of All Exports*



This trade deficit is concentrated in the most sophisticated and technology-intensive products. The manufacturing trade deficit has more than quadrupled since the turn of the century, and now stands at \$180 billion per year.

*Manufacturing Trade Deficit*



Australia needs to engage in international trade to be a successful manufacturing power: but our trade relationships need to become more balanced and mutually beneficial. The strategy of unilaterally removing tariffs and signing free trade deals which provide open access to Australian markets with no guarantees of manufacturing exports has contributed significantly to the decline of domestic manufacturing. Our trade policy needs to follow a different approach: one that ensures other countries buy from us, not just sell to us.

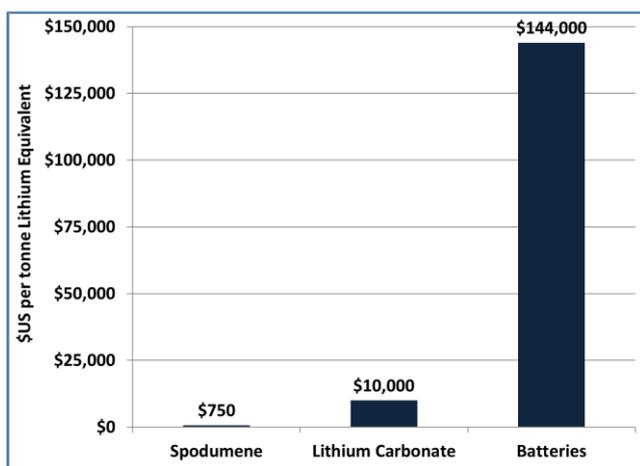
# Making the Most of Our Advantages

It is often suggested that as a remote, resource-abundant, high-wage economy, Australia is not suited to manufacturing, and there is no point trying to compete with low-wage manufacturing jurisdictions. Economic evidence strongly refutes that pessimistic assumption. Other OECD countries, with equal or even higher wages, have grown their manufacturing. And Australia possesses many strategic advantages that could contribute to stronger manufacturing for decades to come.

## Making the Most of Our Minerals

Australia is blessed with enormous mineral wealth. But rather than refining, processing, and manufacturing those minerals into value-added products, we mostly limit ourselves to the narrow role of extracting and exporting raw resources.

*Value of Lithium Products*



We continue to repeat that mistake – even with newly important minerals, such as lithium. Australia is now the world’s largest exporter of raw lithium (spodumene). But it is worth very little compared to products that are made with lithium (especially batteries and related products, like electric vehicles). Australia needs to reorient our economy to add value to resources, instead of extracting and exporting them.

## Making the Most of our People

Repairing and strengthening our vocational education and training (VET) system, damaged by years of underfunding and failed policy experimentation, is another critical challenge for manufacturing. The skills challenge facing manufacturing is increasingly acute because of the

shift of industry toward more specialised and disaggregated advanced manufacturing processes. New technologies (like Industry 4.0 and the ‘internet of things,’ additive manufacturing and 3D-printing, and application of robotics and automation) all require new skills and knowledge, which in turn need stable and generous funding from both government and industry.

We must strengthen and reorient the VET system in manufacturing, including:

- Shift the emphasis of curricula and training programs toward comprehensive and complete qualifications, rather than micro-credentials.
- Enhance the capacities of TAFE teachers in manufacturing fields, and invest in modern capital equipment for training.
- Develop and implement higher-level qualifications to reflect emerging skills and capacities in advanced manufacturing.

## Making the Most of our Energy

Renewable energy offers great potential to strengthen the energy supply base for Australian manufacturing, and foster new competitive industries and exports. The technology and economics of renewable energy has been dramatically transformed in recent years. Renewable energy is now significantly less expensive than fossil fuel generation – even allowing for the costs of energy storage. Australia has unmatched potential to supply renewable energy, given our large land mass and superior solar and wind resources.

Possibly the most exciting opportunities to leverage renewable energy to support domestic manufacturing involve a virtuous cycle of using our renewable resources to manufacture products and equipment, that in turn are used as inputs in the further development of our renewable energy industries. By connecting manufacturing investments with renewable energy developments, Australia has the possibility to simultaneously accelerate the roll-out of renewable energy systems (with great economic and environmental benefits), while expanding Australian manufactured inputs to those projects.

## A Fair Share of Manufacturing for Australia

Globally, manufacturing is growing, not shrinking. The idea that we are moving to a 'post-industrial' economy, in which manufacturing no longer matters, is false. In fact, Australians consume more manufactured goods every year. Our total use of manufactured goods is about \$565 billion per year. The problem is that we produce much less, in aggregate, than we use.

<b>Australian Manufacturing Self-Reliance (2017-18, \$billion)</b>	
<b>Domestic Output</b>	381.8
<b>Exports</b>	85.5
<b>Imports</b>	267.4
<b>Apparent Consumption</b>	563.7
<b>Domestic Output as Share Consumption</b>	68%

An indication of the disproportionately small footprint of our domestic manufacturing base is provided in the table above. In aggregate, Australia now produces only about two-thirds (68%) as much manufactured output as we use.

It is reasonable and realistic to set a goal of rebuilding domestic manufacturing so that its aggregate output is broadly proportional to our national use of manufactured products. On this basis, we define a 'fair share' as being a level of total manufacturing output that broadly matches (in aggregate value) Australian use of manufactured products. In 2017-18 we produced just over two-thirds as much manufactured output as we consume. Our domestic output would thus need to expand by almost half to match Australia's collective purchases of manufactures.

Because manufactured products are specialised, participation in two-way international trade is essential to the viability of most manufacturing activity. The goal of a 'fair share' strategy is not to isolate ourselves from world trade: we should never try to produce *everything* we use (although in some nationally strategic products, like defence, energy, and health, it is essential that Australia be able to produce necessary machinery and supplies).

Instead, a more reasonable goal is to build a domestic manufacturing sector that is broadly proportionate to the size of our purchases of manufactured products. Our exports would reflect the success of particular sub-sectors where Australian firms have notable advantages (in technology, cost, or other attributes). And our imports would reflect a lack of domestic presence or capability in certain sub-sectors. Mutual and balanced two-way trade in manufactures would facilitate this specialisation. But across the entire portfolio of manufactured products, Australia would retain a level of manufacturing output and employment that was broadly proportional to the scale of our national needs.

With pro-active policies (such as those discussed below), we could expand Australian manufacturing to obtain a 'fair share' of the resulting work, income, and innovation. This would generate enormous economic and social benefits through all parts of the national economy:

- \$180 billion per year in new manufacturing output
- \$50 billion per year in new manufacturing value-added
- Over 400,000 new direct jobs in manufacturing
- \$115 billion in new purchases from suppliers in other industries
- 265,000 new jobs throughout the manufacturing supply chain
- At least \$40 billion per year in additional manufactured exports
- Tens of billions of dollars in additional tax revenue for governments at all levels

It is an ambitious, long-term goal, to be sure, to return to a situation where Australia produces as much manufacturing output as we consume. But it is reasonable to expect that Australians should be able to share fairly in the benefits of this strategic, most innovation-intensive sector in the global economy. And government possesses powerful policy tools and levers to begin to move us toward that 'fair share.'

## Manufacturing Self-Sufficiency, OECD Countries, 2015

	Manufacturing Output (\$US b)	Ratio of Mfctg. Imports/Exports	Manufacturing Trade Bal. (\$US b)	Self-Sufficiency Ratio
Ireland	\$215.4	0.30	\$109.4	203.2%
Germany	\$2,013.9	0.61	\$347.1	120.8%
Luxembourg	\$12.6	0.73	\$2.1	119.7%
Netherlands	\$329.5	0.67	\$51.5	118.5%
Korea	\$1,467.0	0.55	\$227.4	118.3%
Switzerland	\$334.4	0.78	\$40.5	113.8%
Hungary	\$99.9	0.84	\$10.9	112.2%
Sweden	\$203.0	0.78	\$21.8	112.0%
Finland	\$117.1	0.77	\$11.3	110.7%
Czech Rep.	\$169.4	0.83	\$16.1	110.5%
Slovenia	\$26.3	0.86	\$2.3	109.8%
Italy	\$995.5	0.75	\$85.4	109.4%
Austria	\$194.3	0.85	\$15.2	108.5%
Slovak Rep.	\$79.9	0.88	\$6.0	108.2%
Denmark	\$100.5	0.87	\$7.1	107.6%
Iceland	\$6.6	0.88	\$0.5	107.5%
Belgium	\$236.3	0.88	\$15.0	106.8%
Japan	\$2,616.5	0.77	\$115.8	104.6%
Lithuania	\$21.3	0.94	\$0.6	103.1%
Israel	\$110.4	0.93	\$2.9	102.7%
Portugal	\$90.4	0.95	\$2.1	102.3%
Spain	\$613.7	0.97	\$6.2	101.0%
Poland	\$302.7	1.00	-\$0.5	99.8%
France	\$802.4	1.07	-\$23.0	97.2%
Estonia	\$12.3	1.06	-\$0.4	96.6%
Mexico	\$699.7	1.11	-\$30.2	95.9%
New Zealand	\$64.1	1.16	-\$3.5	94.8%
Turkey	\$483.8	1.32	-\$38.2	92.7%
U.S.	\$5,744.5	1.77	-\$711.4	89.0%
Canada	\$596.0	1.35	-\$74.4	88.9%
Greece	\$57.9	1.55	-\$10.2	85.0%
U.K.	\$744.3	1.59	-\$149.8	83.2%
Latvia	\$9.2	1.46	-\$2.0	82.2%
Norway	\$100.1	2.08	-\$30.8	76.5%
Chile	\$83.5	2.33	-\$27.5	75.2%
<b>Australia</b>	<b>\$269.2</b>	<b>2.76</b>	<b>-\$107.2</b>	<b>71.5%</b>

This table reports comparable measures of manufacturing self-sufficiency for all 36 member countries in the Organization for Economic Co-operation and Development (OECD). The idea that rich, high-wage economies cannot be successful manufacturers is clearly refuted by this evidence. In fact, most OECD countries produce *more* manufactured output than they consume: including Germany, Netherlands, Korea, Sweden, and Japan.

About one-third of the countries listed produce less manufactured output than they use (with self-sufficiency ratios less than 100%). Sadly, Australia holds the record for the *smallest* domestic manufacturing sector, relative to domestic use of manufactures, of any industrial country. We are a clear outlier relative to other industrial countries. Decades of taking manufacturing for granted, and assuming that resource extraction alone could support a prosperous economy forever, have produced a shrunken, undersized industrial base.

Urgent, sustained action is required to rebuild manufacturing to a size proportionate to our overall needs as a country. And the benefits of doing so – for jobs, for incomes, for innovation, and for exports – will be immense.

# A Well-Stocked Toolbox: Modern Policies to Revitalise Manufacturing

Manufacturing has a strategic importance that extends throughout the economy: anchoring innovation, productivity, and exports. But Australia's economic history confirms we cannot assume global markets and private business decisions alone will achieve a proportional footprint in this vital sector. Rather, pro-active policy attention and dedicated resources are required to nurture a viable and successful manufacturing sector, and achieve a 'fair share' of the resulting jobs, output, and benefits.

There are several policy tools that can be wielded in a comprehensive strategy to ensure manufacturing grows and thrives in decades to come:

## ***Sector Strategies***

Government needs to identify manufacturing sub-sectors with the right criteria and best chances for success, and then co-ordinate interventions with other sector stakeholders for maximum impact on investment and growth.

## ***Domestic Content in Public Procurement***

Australian governments are massive purchasers of manufactured goods. An obvious way to support domestic manufacturing is to direct those expenditures to domestic production with strong Buy Australia policies.

## ***Networks, Eco-Systems, and Clusters***

Successful modern industrial policy relies centrally on connections and collaboration among different firms, agencies, and stakeholders. Spillovers and knowledge-sharing among diverse sector participants are crucial to achieving a 'critical mass' in any high-tech industry.

## ***Innovation***

No sector is more directly connected to the practical innovation process than manufacturing. We need better systems for linking public innovation activity with commercial applications, and more effective fiscal supports for industrial innovation efforts that reward Australian research and commercialisation.

## ***Targeted Fiscal Supports for Investment***

No-strings-attached company income tax cuts do not stimulate new investment, innovation, or employment. Rather, fiscal incentives are more effective when they are linked directly to investment: like accelerated depreciation measures and investment tax credits.

## ***Industrial Infrastructure***

Government investments in public capital assets of all kinds can foster manufacturing growth. Infrastructure investments can help to offset the sustained weakness of private investment, and to repair weak macroeconomic conditions.

## ***Mobilising Capital***

Medium-sized companies in Australia's manufacturing sector have suffered the biggest decline over the past decade; their constrained access to sources of long-term, 'patient' capital is a key factor in their inability to survive and grow. Public finance vehicles (like national investment funds) can be used to support manufacturing investment; industry super funds could play a larger role, too.

## ***Leveraging Energy***

Manufacturing facilities have always been located to take advantage of accessible energy sources. What has changed is the source and geography of energy. Thanks to Australia's superabundance of renewable resources, and rapid declines in cost, renewable energy will be a powerful lever for attracting manufacturing investment.

## ***Skills and Training***

Consistent funding for skills training at all levels is essential, as are efforts to more closely link training programs with future workforce needs in strategic sectors. A plan to reconstruct Australia's crisis-ridden vocational training system must start with major investments to restore and upgrade the physical infrastructure and teaching capabilities of the TAFE system.

## ***Trade that Goes Both Ways***

International trade is essential to manufacturing, due to the importance of economies of scale in production and the specialised nature of both products and markets. But we need trade arrangements that make access to Australian markets conditional on comparable purchases of Australian-made output, and other measures to stimulate Australian exports of manufactured products.

A thriving manufacturing sector generates important benefits across the whole economy. This catalogue of policy tools confirms that governments have the power to strengthen Australian manufacturing, and support the growth of a domestic manufacturing base that is proportionate to our needs.

## Getting Started

This is the moment to launch a comprehensive effort to revitalise Australian manufacturing:

- There is new public awareness of the strategic importance of domestic manufacturing.
- Global supply chains have been disrupted, forcing us to re-learn how to produce more things at home.
- The COVID-19 pandemic requires an ambitious strategy to re-start national production and employment, and manufacturing will be vital.
- Lower resource prices and a lower exchange rate of the Australian dollar have enhanced domestic cost-competitiveness.
- Our abundant resources of renewable energy have become a new source of competitive advantage for Australian manufacturing.

In short, the prospects for revitalising domestic manufacturing are brighter than at any time in recent decades.

Of course, every major change has to start with incremental steps. To provide a start to this larger, long-lasting reorientation of manufacturing policy, we identify here six of the most important, incremental measures to make an immediate difference to the prospects of domestic manufacturing. This short-list constitutes a 'down payment' on the bigger, broader efforts required to achieve a 'fair share' for our domestic manufacturing sector:

1. Establish a network of Advanced Manufacturing Sector Councils, supported by a broad infrastructure and secretariat at the Department of Industry, Science, Energy and Resources, to:
  - a. Identify the most promising sub-sectors
  - b. Engage all stakeholders
  - c. Develop investment & innovation plans
  - d. Oversee implementation of these plans.
2. Capitalise a new Advanced Manufacturing Investment Fund, with \$1 billion in initial Commonwealth share capital, to make strategic equity investments in new projects identified and developed through the Sector Councils, with a special focus on access to finance for medium-sized manufacturing enterprises.
3. Establish a Manufacturing VET Policy Board, with leadership level executives from manufacturers, trade unions, TAFEs, federal and state governments, and other relevant stakeholders, to develop a more coherent and constructive framework for manufacturing VET.
4. Implement an Australian-Made Medical Equipment Strategy, to designate essential medical equipment and supplies as being of strategic importance to national security, and enhance domestic production capacity.
5. Establish a Buy Australian Infrastructure Council, with representatives from the federal and state governments, supported by Infrastructure Australia, that would:
  - a. Compile catalogues of publicly-funded infrastructure projects
  - b. Work with project sponsors to develop timetables for purchases of manufactured inputs
  - c. Set targets for domestic Australian content
  - d. Work with project sponsors to monitor and report on domestic procurement.
6. Implement accelerated depreciation provisions in the federal corporate income tax code, to foster investment spending by Australian-based manufacturing firms, including:
  - a. 100% depreciation rate for intellectual property and advanced manufacturing machinery
  - b. 50% depreciation rate for other machinery and equipment.

These six measures could not, on their own, achieve the transformation of Australian manufacturing envisioned above. But this short-list of immediate, practical steps would constitute an important step in the right direction. They would quickly stimulate more investment, innovation, output, and employment. And perhaps most importantly, they would help to develop a new sense of multi-partite commitment and cooperation, that will be essential for ultimately achieving a 'fair share' for Australian manufacturing.