

Manufacturing strategies — mixing the old with the new

Range of manufactures require range of strategies

- 4.1 Traditional manufacturing industries cover a range of degrees of sophistication. Table 4.1 (p. 58) ranks them by value added as a percentage of final product. Unsurprisingly, the most value is added by sophisticated industries such as manufacturing scientific equipment while the least is done in manufacturing basic products such as petrol and flour.
- 4.2 The manufacturing sector is often divided into ‘elaborately transformed’ and ‘simply transformed’ industry, by somewhat arbitrarily dividing the industries based on the complexity of their output. Production and exports of elaborately transformed manufactures have grown much faster than the simpler products. For example, the Treasury demonstrated that export volumes have slowed across all categories since 2000 but only contracted for ‘metals’, ‘resource-intensive’, ‘agricultural-intensive’ and ‘materials’ categories.¹
- 4.3 The more basic forms of manufacturing tend to make more intensive use of low-skilled labour and are therefore much more vulnerable to competition from economies such as China with plentiful cheap labour (and lighter regulation) and economies of scale. As simpler goods have

¹ The Treasury, *Submission no. 21*, p. 3. An updated version appears as Table 2.3 in Chapter 2 of this report.

closer substitutes in world markets, and compete more on price, they are also more susceptible to the strong dollar.

- 4.4 Table 4.1 shows, however, that this analysis misses some of the transformation within the manufacturing sector. Clothing is generally regarded as a relatively simple product with relatively low value added. However, as the table shows, clothing is no longer such a product in Australia as clothing manufacturers here now specialise in high-end fashion and clothing for special purposes (e.g. fire resistant clothing).

Table 4.1 Selected manufacturing industries, ranked by value added as per cent of sales

	Value added as % of total sales and service income, 2004-05
Publishing	51
Medical and surgical equipment	44
Machine tools	43
Other electronic equipment	40
Recorded media	40
Telecommunications equipment	36
Professional and scientific equipment	36
Aircraft	36
Mining and construction machinery	35
Furniture	33
Clothing	29
Iron and steel	29
Aluminium smelting	28
Basic chemicals	26
Flour & cereal	25
Motor vehicles	20
Meat and meat products	20
Dairy products	18
Copper, silver, lead, zinc smelting and refining	18
Petroleum refining	9

Source: derived from data in ABS, *Manufacturing Industry 2004-05*, Cat. no. 8221.0, table 2.2.

- 4.5 Simple manufacturing industries are likely to survive if they are naturally protected by high transport costs. For example, the value of bricks and cement is low relative to their bulk and mass. Even if overseas manufacturers are able to produce them more cheaply, freight costs generally make imported bricks and cement uncompetitive.

- 4.6 Manufacturers of relatively basic products may survive despite higher costs if they offer exceptional service, customised products or very quick delivery of small orders.
- 4.7 Some Australian manufacturers may be able to sell goods priced higher than imported versions as the Australian goods have a better 'brand image'. For example, they may be seen as more reliable. Meeting Australian standards may give buyers more confidence in the domestic product.

Further processing of raw materials

- 4.8 A common argument is that Australia's extensive mineral resources should make it competitive in products that use these inputs intensively, or that it should at least process them further before exporting them.²
- 4.9 The committee characterised this as an issue of whether production is better located close to raw materials (or component manufacturers) or close to markets. A committee member stated:

Presumably the key factor governing the extent to which it is viable to have further processing occur in Australia is the relative economics of manufacturing close to your predominant consumer market versus manufacturing close to your predominant resource input. I would have thought that one of the problems with the latter, manufacturing close to your resource input, is that there are other inputs isn't it unrealistic to expect that we are going to become major and powerful world fabricators of aluminium window frames or something like that simply because we have the bauxite to start with?³

- 4.10 The proposition was put to Mr Don Larkin, chief executive officer of the Australasian Institute of Mining and Metallurgy, who agreed that manufacturing was generally more likely to occur close to markets rather than close to raw materials.⁴

2 This question was examined in a two-part report by the House of Representatives Standing Committee on Industry, Science and Resources, published as *Of Material Value* (March 2000) and *Getting a Better Return* (September 2001). They concluded that 'there appears to be strong potential for enhanced value-adding in Australia'.

3 Mr L Tanner MP, *Transcript*, 28 August 2006, p. 34, and 29 August 2006, p. 53.

4 A similar conclusion was reached by the Industry Statement 2007; 'there is also a trend to locate manufacturing and product development activity close to final markets – which in our region means North Asia and India', Department of Industry, Tourism and Resources (DITR), *Global Integration: Changing Markets. New Opportunities, Background papers*, no. 4, p. 7.

- 4.11 A related case is companies which need to be close to a range of suppliers of components to avoid excessive warehousing of inventories.⁵ These companies may be slower to shift their operations to an economy with lower labour costs, at least until the cheaper economy also has component suppliers. However, if they do move, then the component makers may also close.

The way forward for traditional manufacturers

- 4.12 There is now broad consensus across unions and employers that the way forward is for Australian manufacturing to adjust to face the global challenges rather than retreating behind protectionist barriers.
- 4.13 For example, Mr Nixon Apple, industry and investment policy advisor for the Australian Council of Trade Unions said:
- The thing that we need to keep in mind more than anything we have done in the past is that it is about building better manufacturing businesses. I think that with tariffs and with other things we took our eye off the ball about what is involved in building better businesses with the organisational capabilities and management systems to succeed.⁶
- 4.14 A similar view was expressed by Mr Gregory Evans, director of industry policy and innovation for the Australian Chamber of Commerce and Industry (ACCI):
- Recent difficulties faced by manufacturing should not be used as an excuse to lead governments back to old, failed policies of protectionism and intervention. The future of manufacturing does not lie in increasing government intervention, building higher tariff walls, providing greater subsidies or picking winners ... The future of Australian manufacturing lies with policies that strengthen the overall economy and support competition.⁷
- 4.15 For many traditional manufacturers, there are basically three strategies, although some firms will do more than one:
- Offsetting labour cost disadvantages in the existing product line by greatly improving productivity.

5 This is discussed in House of Representatives Standing Committee on Employment, Workplace Relations and Workforce Participation, *Shifting Gears*, December 2006, p. 16.

6 Mr N Apple, Australian Council of Trade Unions, *Transcript*, 22 November 2006, p. 20.

7 Mr G Evans, Australian Chamber of Commerce and Industry (ACCI), *Transcript*, 2 March 2007, p. 18.

- Changing the nature of the product made to a more original, sophisticated, specialised, high quality ‘niche’ or ‘boutique’ product, that possibly cannot be made with a low-skilled workforce, and looking to export.
- Moving the assembly line aspects of production of relatively simple manufactures to cheaper centres overseas, while retaining the ‘cream’ in Australia. For some companies this may mean they retain only the high value aspects such as design and marketing domestically. For some companies this could involve specialising in making one component as part of a global supply chain.

4.16 These three strategies are discussed in turn in the following sections.

Improving productivity in making existing products

4.17 There appears to be scope for Australian manufacturers to raise their productivity in their existing product range by adopting ‘world’s best practice’. Labour productivity appears less than half that in much of western Europe (Table 4.2).

Table 4.2 Labour productivity (value added per hour) in manufacturing, 2000, US = 100.

Finland	107	Japan	70
United States	100	Canada	66
Belgium	96	United Kingdom	55
Netherlands	95	Australia	39
Sweden	95	Spain	38
France	93	South Korea (1998)	36
Germany	88	Taiwan (1998)	27

Source: Groningen Growth & Development Centre, ICOP Industry Database.⁸

4.18 However, even doubling productivity—a very ambitious goal—would only make Australian manufacturers roughly competitive with European and North American producers⁹, who pay comparable wages and are

8 This database is compiled by a renowned research centre at the University of Groningen, Netherlands. The PC uses their data in *Trends in Australian Manufacturing*, August 2003. An alternative calculation estimates labour productivity in Australian manufacturing as 60 per cent of the US level in 2003 (but falling over time); Dolman, B., Parham, D. and Zheng, S. 2007, ‘Can Australia Match US Productivity Performance?’, *Productivity Commission Staff Working Paper*, Canberra, p. 28.

9 The difficulty of bridging the productivity gap with the US is discussed by Dolman, Parham and Zheng, 2007, who attribute much of the gap to ‘fundamental factors of history and geography, including Australia’s remoteness from large markets and its pattern of settlement’.

struggling themselves in many cases.¹⁰ To compete with factories in countries such as China and Vietnam, where wages are much lower than Australia, productivity would need to be increased much more.¹¹

- 4.19 As work by the Productivity Commission shows, labour productivity could be increased by investing in more capital equipment. The average amount of capital per worker in the Australian manufacturing sector increased more than fivefold between 1964–65 and 2001–02, accounting for about half the growth in labour productivity over this period.¹²
- 4.20 Australia's relatively small domestic market makes it difficult for Australian firms to achieve economies of scale and so match the productivity of European and American firms. Australian manufacturers therefore need to be exporting to achieve economies of scale. (A more cautious approach is to seek economies of scale in just one part of the production process, as discussed later in the section on global supply chains.)
- 4.21 Even without large investments, it may be possible to increase productivity by using existing workers and equipment more efficiently. This process can be assisted if critical overviews of internal capabilities are conducted. An external review may bring new ideas, and will at least lead the firm to reflect on its current procedures.
- 4.22 One management tool to improve productivity is 'benchmarking'; comparing the firm's performance at each stage of the production process to the world's best practice, so as to identify areas where improvement is needed. A number of organisations offer benchmarking services.
- 4.23 QMI Solutions Ltd is a not-for-profit company which diagnoses and benchmarks around 100 small and medium enterprise (SME) manufacturers a year.¹³ An improvement programme is designed

10 There is limited scope to reduce labour costs given the need to compete with the booming mining sector for workers. In any case, for many manufacturers labour is not the dominant cost. Labour accounts for around 10–30 per cent of the total value of production for most Australian manufactured goods, compared to over 60 per cent for many services. Labour accounts for a higher proportion in some industries such as ceramics and footwear; around 15 per cent for car manufacturers and a much lower proportion in industries such as coal, petrol, and leather products (where raw materials is overwhelmingly the major cost).

11 In 2005 the hourly wage for an Australian worker in manufacturing was almost twice that of a similar worker in South Korea, almost four times that for a worker in Taiwan, 28 times that for a worker in mainland China and over 40 times that for a worker in India. Source: IMD, *World Competitiveness Yearbook 2006*.

12 PC, *Trends in Australian Manufacturing*, August 2003, pp. 156–7.

13 It was established by the Queensland Government, CSIRO and the Queensland University of Technology as the Queensland Manufacturing Institute in 1993.

collaboratively with the company to improve performance. QMI also arranges mentoring and runs seminars.

- 4.24 The National Manufacturing Forum was impressed by QMI and refers to its 'acknowledged success' in:

Driving continuous improvement through technology diffusion, diagnostics, benchmarking and reviews. The QMI model was seen as an effective approach to productive performance, with potential to extend cooperatively its underlying principles to other states.¹⁴

- 4.25 A specific area where benchmarking may improve results is logistics. Dr Julie Wells, director, policy and planning, RMIT University made 'a plea for greater recognition of the importance of supply chain management and logistics in the manufacturing industry'.¹⁵

- 4.26 The UK Department of Trade and Industry has a number of benchmarking initiatives. They offer an internet-based self-assessment test on aspects such as innovation.¹⁶ They also have 2000 trained advisers who can assist SMEs in conducting a more rigorous benchmarking of their performance using a database of over 150 000 companies.¹⁷

- 4.27 The UK model seems to have influenced the Australian Government's Industry Statement 2007, which announced that new Australian Industry Productivity Centres (AIPCs) would provide a:

Free diagnostic service to help businesses assess their performance against world best practice and identify opportunities for improvement. Up to 2 000 businesses a year will use this service.¹⁸

- 4.28 Following from benchmarking activities, manufacturers may then implement programmes to improve areas shown to be deficient. A number of generic management philosophies, such as 'quality assurance' and 'lean manufacturing', were popularised in the early 1990s, having originated in manufacturing in the US and Japan some sixty years prior.

- 4.29 Management strategies aiming to improve the awareness of quality in all organisational processes are broadly referred to as 'Total Quality Management'. Quality Assurance is an activity which provides evidence

14 National Manufacturing Forum, *Exhibit, no. 22*, p. 26.

15 Dr J Wells, RMIT University, *Transcript*, 28 August 2006, pp. 26-7.

16 The department also uses the results from this as a way of measuring the overall performance of the manufacturing sector.

17 Further information is available at <<http://www.benchmarkindex.com.bi>>

18 DITR, *Global Integration: Changing Markets, New Opportunities*, May 2007, p. 8.

that an organisation is applying these principles to provide adequate confidence that the product optimally fulfils customers' expectations.

- 4.30 Australian manufacturers use the International Organization for Standardization's (ISO) 9000 series of Quality System Standards.¹⁹ This standard applies to all organisations regardless of size, industry, product or service. This standard is designed to encourage continual process improvement and efficiency and meet customer satisfaction by ensuring that business process controls are in place and apply in practice.
- 4.31 In addition to building customer confidence and improving productivity, Professor Mark Dodgson, director of the Technology and Innovation Management Centre, University of Queensland – appearing before the committee in a private capacity – stated that embracing international quality assurance accreditation improves firm capability and innovativeness. He said:
- The International Organisation for Standardisation's international accreditations are again very important. My survey showed that very few firms actually had the basic ISO 9000, which is a bit of a worry because that is basic entry-level stuff.²⁰
- 4.32 Another approach to improving efficiency comes under the rubric of 'lean manufacturing' (LM). The Industry Statement 2007 refers to LM as a 'critical issue' and the AIPCs intend to disseminate information on it. TAFE courses are already being conducted on LM.
- 4.33 However, while there is much general talk about LM, understanding precisely what it means is very difficult. Articles about LM generally refer to a focus on eliminating waste and it is often associated with Toyota's manufacturing philosophy of 'continuous improvement' (or 'kaizen') and rigorous quality checks.²¹ While reducing waste seems an obviously sensible idea, it is not a revolutionary new concept.
- 4.34 The UK's Manufacturing Advisory Service, on which the AIPCs are partly modelled, claims to employ LM techniques in their approach. While it refers to LM in numerous fact sheets, it provides no tangible examples of how LM is applied in practice. This may lead to confusion over what LM processes actually involve, as outlined by Dr John Blakemore, Blakemore Consulting International:
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19 The latest is AS/NZS ISO 9001:2000 Quality Management Systems – Requirements Standard.

20 Prof M Dodgson, private capacity, *Transcript*, 19 October 2006, p. 16.

21 The committee witnessed the Toyota production line at the Altona plant. Japanese management practices in general became very fashionable in the 1990s, ironically just as the Japanese economy went from outperforming western economies to barely growing at all.

We go down the path of what is called ‘lean manufacturing’, which is not the way to go. I will be very careful here because you can argue about what these terms mean ... the American interpretation of the Japanese method is in error.²²

Moving to ‘boutique’ manufactures and exporting

4.35 Many Australian manufacturers have moved ‘up the value chain’ to high quality, original or ‘niche’ products in the face of challenges to remain competitive in traditional products.

4.36 Germany is seen as an exemplar of quality in manufacturing. Professor Dodgson remarked to the committee that:

They still have a very successful engineering and manufacturing sector ... They still export more than any other country in the world ... The quality of the companies that you see—the BMWs of the world—is just so good ... it gives them such a distinctive advantage. At a time when the car industry is going to hell in a hand basket in the United States, Germany is doing really well ... because of the quality of their manufacturing and engineering.²³

4.37 An important part of Germany’s success in maintaining this quality edge is its interest in new technologies. The Australian Manufacturing Workers’ Union (AMWU) describes Germany’s:

Single institute that has a budget of \$1 billion per year whose job it is to scour the world for world’s best technology and, if it is not already located in Germany, its job is to import it into Germany and to place it with local manufacturers.²⁴

4.38 One of Germany’s particular strengths is in production and export of capital equipment. This may be an area where Australia could excel by focusing on industries where we have extensive experience, such as mineral processing, medical and marine equipment. The question was posed during a hearing:

22 Dr J Blakemore, Blakemore Consulting International, *Transcript*, 29 August 2006, p. 47.

23 Prof M Dodgson, private capacity, *Transcript*, 19 October 2006, p. 16.

24 Mr P Conroy, Australian Manufacturing Workers’ Union (AMWU), *Transcript*, 29 August 2006, p. 71-3. QMI Solutions also emphasised the importance of adopting new technology: ‘Recognising that some 98% of the world’s innovation occurs outside Australia, an important aspect of QMI’s technology diffusion activities is the identification of technologies that are particularly relevant to Australia’s diverse manufacturing sector’; *Submission no. 10*, p.1.

Can we therefore think about producing low-volume, high-value manufactured goods, including those that might be used in the production of high-volume, low-value manufactured goods in other countries—for example, machine tools? Could we become the Germany of the Far East?²⁵

4.39 Dr Wells from RMIT, replied cautiously that:

It is a very interesting question. I guess it underpins the importance of engagement with industry in the skills development process. Obviously, there has to be a viable business case around it. In general terms, I would agree.... we have to locate the education and training effort more squarely in the workplace.²⁶

4.40 Niche manufacturing tends to involve a more skilled workforce and emphasis on design and R&D. Nanotechnology applications are transferring from the pharmaceutical industry to the metal products and polymers industry and will lead to more 'niche' products of improved quality, longevity and functionality.

4.41 The Government has recognised the importance of niche manufacturing with the Industry Statement 2007 allocating \$36 million over the next four years for CSIRO to establish a National Research Flagship for Niche Manufacturing. CSIRO describes the new flagship's role as being to:

Help the Australian manufacturing industry to become more competitive in global supply chains, develop globally competitive medical products, identify next generation fabricated devices, capture value from new materials, help stimulate smart manufacturing enterprises, and consider the health, safety and environmental issues of nanotechnology research.²⁷

4.42 As, by their very nature, the domestic market for niche goods is very much smaller than that for mass market goods, it becomes even more important that manufacturers become more focused on exporting.²⁸

25 Dr C Emerson MP, *Transcript*, 28 August 2006, p. 23.

26 Dr J Wells, RMIT, *Transcript*, 28 August 2006, p. 23.

27 CSIRO media release 07/73, 1 May 2007.

28 Increased exports of manufactures is therefore desired as a sign of a more productive manufacturing sector rather than being desired in its own right for some 'mercantilist' reason. It is consistent with the view expressed in the Industry Statement 2007 that 'exports are not inherently more meritorious than goods sold on the domestic market'; Department of Industry, Tourism and Resources (DITR), *Global Integration: Changing Markets. New Opportunities, Background papers*, no. 1, p. 21.

- 4.43 Back in the 1970s, less than a tenth of Australian manufactures were exported.²⁹ Firms lacked confidence to move into overseas markets. There were therefore likely to be 'spill-over' benefits to other companies from encouraging 'trail-blazers' to set an example of exporting to their peers. New exporters help promote the 'Australian brand' as well as their own products. Furthermore, in a regulated financial market where a small number of domestic banks rationed credit, it was often hard for small and medium enterprises to obtain funding to develop new markets.
- 4.44 For this reason, the government introduced the Export Market Development Grants scheme (EMDG) in 1974 to assist emerging and current exporters to promote their product in international markets. In the new century, exporting is much more common among Australian manufacturers and the financial system is now deregulated and highly competitive so credit availability is much less of an issue, especially for larger companies. In line with this change, the amount of funding for the EMDG scheme is now less generous than it had been.
- 4.45 Currently the scheme reimburses up to 50 per cent of expenses incurred on 'eligible export marketing expenses'³⁰, above a \$15 000 threshold. The scheme provides for up to seven grants to each eligible applicant but imposes an income eligibility cap of \$30 million in the grant year (which had been reduced from \$50 million in 2003). The scheme involved around 1 300 grants, totalling \$51 million (almost 40 per cent of the total), being paid to manufacturers in 2005–06.³¹
- 4.46 However, there is still a case for supporting 'trail-blazers' as there are new emerging markets that need to be opened up for Australian manufacturers.
- 4.47 By its very nature, the EMDG scheme rewards outward-looking rather than conservative and declining companies. It also has the advantage that by bringing grant recipients into contact with the Australian Trade Commission (Austrade), it increases the chances that such companies will hear about new market opportunities.

29 J Edwards, 'Export weakness, investment strength', *CEDA Competing from Australia Project Paper*, no. 2, p. 3.

30 A variety of costs may be eligible – certain expenses incurred for an overseas representative; a marketing consultant; a marketing visit; communications; free samples; trade fairs, seminars and in-store promotions; promotional literature and advertising; and overseas buyers visits.

31 Austrade, *Submission no. 18*, p. 7.

- 4.48 The scheme was praised by the manufacturing sector, who unsurprisingly would like to continue to receive payments. ACCI's submission argued that the EMDG scheme helped participants:

Overcome the single largest barrier to engaging in exporting - namely access to the necessary operating capital to fund their export promotion work.³²

- 4.49 Some argued for the eligibility cap to be restored to the previous \$50 million or even raised beyond this.³³ The committee heard that some high-tech and advanced manufacturers would only be able to undertake international promotional activities exceeding \$15 000 per annum after their turnover exceeded the cap. However, ACCI agreed with a recent Austrade review supporting the current threshold.³⁴ The Austrade review had concluded that:

Larger firms already have more export experience, have more ability to fund export promotion from their own resources, and have lower expectations about the benefits generated by increased export promotion.³⁵

- 4.50 Since 1997, the EMDG scheme has had a limited budget for each year. Therefore, in years with high demand, successful applicants are paid only a proportion of the reimbursement for which they would normally be eligible (a process known as 'modulation') in order to keep total spending within the overall budget.
- 4.51 This process may substantially reduce the incentives to increase export marketing arising from the scheme, as it means firms have to decide on their promotional spending without knowing what proportion of the spending will be reimbursed. Both ACCI and the Austrade report suggested a 'smoothing arrangement' whereby in years of low demand the unspent commitment may be carried forward to cover high demand years.³⁶ This would reduce the frequency and extent of modulation but would still leave some uncertainty for companies about whether their spending will be fully covered.

32 ACCI, *Submission no. 33*, p. 25.

33 For example, the Council of Textile and Fashion Industries of Australia advocated 'raising of the EMDG cap to \$60 million to better capture medium sized businesses', *Submission no. 17*, p. 19.

34 ACCI, *Submission no. 33*, p. 25.

35 Austrade, *Review of the Export Market Development Grants Scheme, Looking at the EMDG Scheme*, June 2005, p. 26, known as the 'Jollie Review' after its facilitator, Mr Peter Jollie.

36 ACCI, *Submission no. 33*, p. 5.

- 4.52 There were also some criticisms of the burden on applicants of proving that the promotional activity undertaken actually resulted in an increase in exports, but this has subsequently been addressed.³⁷
- 4.53 Aside from marketing, another way an Australian manufacturer may win a contract over a foreign rival is by offering faster and better after-sales service such that the 'whole-of-life' cost of a domestic product is lower even when the initial purchase cost of the domestic good is higher than for an imported product. An example of offering extensive service is the Australian aluminium shipbuilder Austal, the world's largest builder of fast ferries, who provide assistance when the ferry arrives in the home port and continue to provide repairs and maintenance.

Global supply chains

- 4.54 A large proportion of world trade now takes place within, not between, industries. The Industry Statement 2007 notes that:
- Traded goods are now just as likely to be intermediate goods as finished products, often sold between affiliates of the same multinational enterprise.³⁸
- 4.55 This trend has occurred with an increase in the global concentration of manufacturing companies. The Industry Statement 2007 refers to some estimates that only 500 firms account for 70 per cent of global trade, and that 40 carmakers in the 1980s have consolidated into 14 firms now.³⁹

37 Ms Johnson from the Australian Electrical and Electronic Manufacturers' Association (AEEMA) explained: 'I am sorry, I haven't got four months to spend on trying to convince Austrade that we should get approved body status, so now we are spending money on a consultant to do it. Really, it should be that I could sit down with Austrade and say: "We did all this. I can't tell you how the exports are going to increase but could you take it on faith, as we've taken 20 companies to Taiwan and about 10 of them have got contracts".' *Transcript*, 7 December 2006, p. 16. The *EMDG Legislation Amendment Act 2006*, which comes into effect for new applicants on 1 July 2007, removes export earnings criteria from the calculation of grant entitlements.

38 DITR, *Global integration: Changing markets, new opportunities*, 2007, p. 7. The Industry Capability Network has an even higher estimate; that about two-thirds of world trade is accounted for by the global supply chains of multinational corporations; *Submission no. 6*, p.3. Professor J Houghton claims that 'across OECD countries, intra-industry trade accounted for almost 70 per cent of total manufacturing trade between 1996 and 2003', but the share of Australia's manufactures trade which is intra-industry is much lower; 'Global chains: Australia's challenge in the evolving world economy', *CEDA Competing from Australia Project Paper*, no. 1, pp. 9-10. The Industry Statement 2007 also notes that foreign-owned firms account for about a third of manufacturing output in Australia and a large proportion of exports; p. 17.

39 DITR, 2007, pp. 17-8; and its *Background Paper no. 4*, p. 6.

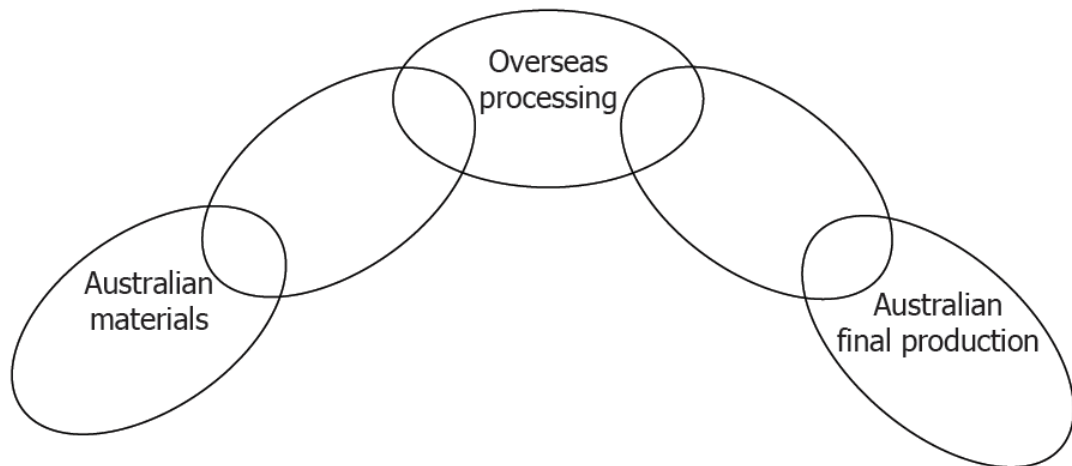
- 4.56 The Industry Minister's forward to the Industry Statement 2007 refers to 'the concentration of trade in global supply chains' as one of 'the challenges of the global market'.⁴⁰
- 4.57 The growth in global supply chains reflect a rethinking of how multinational corporations can most efficiently produce goods, driven in part by reductions in trade barriers. Whereas in the past, all stages of the production process were replicated in each economy (often to be inside tariff walls), now the production process is divided into stages, with operations in each economy specialising in the stage in which they have a comparative advantage and producing for the global market. This allows much greater economies of scale in each stage.
- 4.58 The Department of Foreign Affairs and Trade described the new process as follows:
- Companies are seeking to locate different stages of production in countries with the lowest cost structure. As a result, there is growing dispersion of production processes - with assembly operations migrating to relatively low-wage countries, and the production of components taking place in higher-wage countries.⁴¹
- 4.59 There are three ways in which Australian entities might be involved in global supply chains;
- Leading a supply chain with overseas firms contributing some links (Figure 4.1, p. 71). The committee heard an example of an Australian-controlled supply chain where Australian wool is sent to Italy for spinning and the yarn is then returned to Australia to be made into high-quality merino knitwear for sale in international markets.⁴² With Australia making up less than 1 per cent of the global economy, Australian-led global supply chains are likely to remain uncommon.

40 DITR, 2007, p. 3. Another term for making use of a global supply chain is 'off-shoring', but this has a more pejorative connotation. It is generally used about relatively unskilled activities being transferred away from the domestic economy (but the expression 'on-shoring' is not often used when activities are moving to the domestic economy). It is often associated with another disparaging term 'hollowing out', referring to a reduction in the scope of manufacturing operations within an economy. The Industry Statement 2007 also noted that 'feedback from industry through submissions and consultations indicated that access to global supply chains was necessary to capitalise on emerging opportunities and to access current knowledge and technologies'; p. 18.

41 Department of Foreign Affairs and Trade, *Submission no. 38*, p. 17.

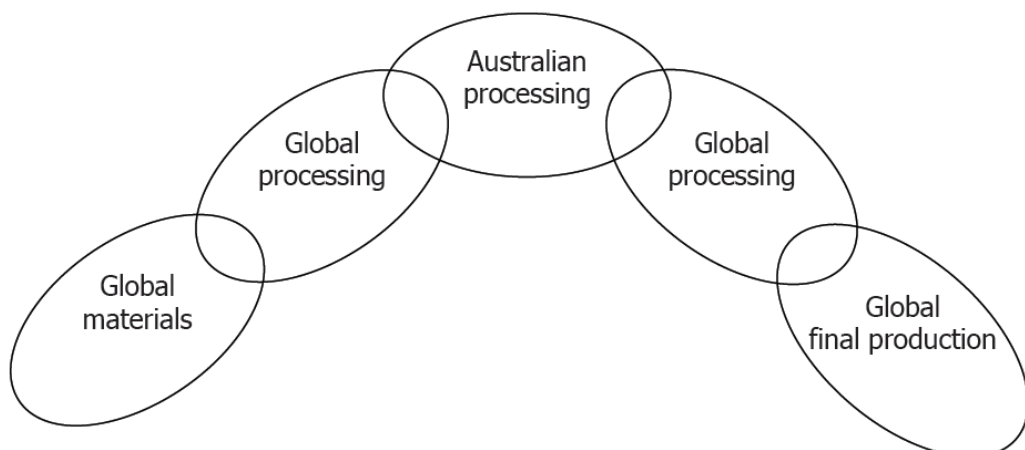
42 Ms C Hawkins, Cinnabar Designs, *Transcript*, 8 February 2007, p. 3.

Figure 4.1 Australian supply chain



- As part of one multinational company's global operations (Figure 4.2). For example, a global manufacturer might have one component of its global products made in its Australian subsidiary. An example is NEC, whose Australian operations are one of five R&D centres in NEC's global network, and produce the digital subscriber line (DSL) product for sale around the world.⁴³ Australian manufacturers are more likely to participate if we have a skilled, well-educated workforce and efficient work practices.

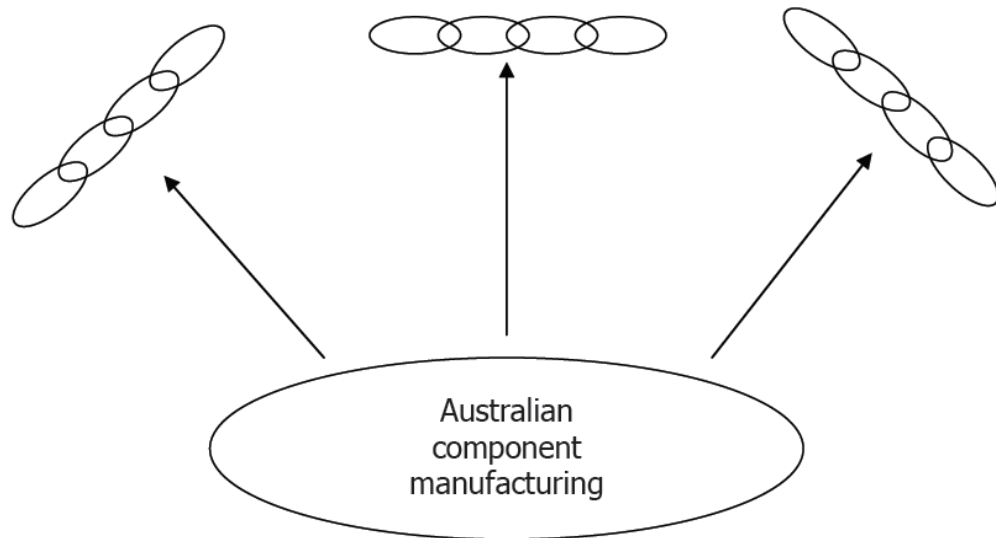
Figure 4.2 Link in global supply chain



43 Mr B McManus, NEC, *Transcript*, 15 March 2007, p. 19.

- As a supplier of a component to the supply chains of a number of international supply chains (Figure 4.3).

Figure 4.3 Supplier to global supply chains



4.60 The committee heard of a Newcastle problem-solving company for engineering and manufacturing, CCI Pope, which solved a problem for the Rolls Royce jet engine manufacture and has now embedded itself in a huge global chain.⁴⁴ This third aspect is the focus of the rest of this section.

4.61 A number of submissions, from both industry and trade unions, referred to the need for Australian companies to integrate into global supply chains. The Australian Industry Group (Ai Group) and AMWU respectively wrote:

The fate of many firms will depend on securing a place in international supply chains. Trade is increasingly concentrated around a relatively small number of international supply chains.⁴⁵

A major outcome from this process must be... Australian firms becoming part of the new supply chains ... in this region.⁴⁶

4.62 The Treasury was comfortable about Australian manufacturing moving from autonomous manufacturing to a role within a global supply chain:

44 Ms S Grierson MP, *Transcript*, 2 March 2007, p. 16. An example of an Australian company which has long adopted this approach is Borg-Warner (now Dana) which in 1963 started manufacturing two generic rear axle assemblies which would suit a wide range of Australian made cars, and went on to export them around the world.

45 Australian Industry Group (Ai Group), *Submission no. 31*, p. 12.

46 AMWU, *Submission no. 34*, p. 61.

In global manufacturing there is a move towards greater specialisation. So maybe, instead of Australia trying to produce a whole range of cars which are sold in Australia, the automotive industry could concentrate on producing one model which is sold around the world. It might not even be a whole car; it might be that we concentrate on producing transmissions or something ... It might be that Australia's input is to be the design centre.⁴⁷

4.63 Ford Australia gave an example of just this process, describing its:

Enhanced role as an engineering and design 'centre of excellence' for the Asia Pacific and Africa region Ford Motor Company recently awarded this significantly expanded team the lead role for the design and engineering of a new global light commercial vehicle to be sold in more than 80 markets worldwide.⁴⁸

4.64 The motor vehicle industry offers scope for many Australian firms to enter global supply chains. Austrade estimates that there are approximately 200 Australian companies that supply components to the four Australian vehicle producers for their export models.⁴⁹

4.65 While many witnesses stressed the importance of involvement in global supply chains, Australian firms have so far not been extensively involved in them. The Industry Capability Network (ICN) estimates that of the world's largest 500 companies:

Less than 20 ... use Australia as a significant product development, technical or production centre for a global business operation.⁵⁰

4.66 Professor Dodgson outlined the supply chain innovation challenge:

There are now many mechanisms that these firms use to advertise and to promote the access of those firms into their supply chains and they can do that. But the challenge is to continue to innovate, to continue to be ahead of the other potential supply chains, which could be in Brazil, South Africa or wherever. That is where the links and the improvements in managerial capability – the more strategic approach – would help.⁵¹

47 Mr J Hawkins, the Treasury, *Transcript*, 1 December 2006.

48 Ford Australia, *Submission no. 4*, p. 2.

49 Austrade, *Submission no. 18*, p. 4.

50 ICN, *Submission no. 6*, p. 5. Similarly, the Industry Statement 2007 notes that an international business survey ranks Australia only 99th of 125 economies for its presence in global supply chains; *Global integration: Changing markets, new opportunities Background paper no 4*, p. 8.

51 Prof M Dodgson, private capacity, *Transcript*, 19 October 2006, p. 16.

- 4.67 The AMWU was very sceptical about the model of Australian manufacturers supplying to global chains:

This supply chain argument about simply offshoring it is doomed to failure. In our view, you cannot keep the cream of manufacturing, you cannot do the R&D and the prototyping here and hope that you can keep it here.⁵²

We need critical mass to maintain supply chains, build clusters, innovate successfully, win export markets and enjoy a balanced economy.⁵³

It is extremely hard to export a single automotive component in the absence of a supply chain here. It is much easier to get into the Toyota supply chain if you are already in the domestic supply chain of Toyota here and you have the aggressive backing of Toyota.⁵⁴

- 4.68 The AMWU also highlighted its concern that many companies running global supply chains are not Australian-owned:

The decisions about where the investment goes and where the economies of scale are being taken by companies in Detroit, Tokyo and elsewhere ... When the boards sit down in Tokyo and Detroit, they will make decisions based on the government support and investment climate in the country.⁵⁵

- 4.69 A number of agencies (see Appendix H) help involve Australian entities in global supply chains through various programmes, including Austrade, the ICN and Invest Australia.

- 4.70 Austrade supports exporters in general, including those exporting components to global supply chains. The committee heard mixed views on the effectiveness of Austrade's operations. Ai Group could not fault them,⁵⁶ while the AMWU called for a review of the agency because it did

52 Mr D Cameron, AMWU, *Transcript*, 29 August 2006, p. 72. Similar concerns were expressed in a study by Cambridge University's Institute for Manufacturing, which warned 'the common assumption that the intellectual high ground of design and development can be retained locally, in the absence of a local production capability, may not be valid'. Professor M Gregory et al, University of Cambridge Institute of Manufacturing, 'Making the Most of Production,' *Exhibit no. 20*, p. 9.

53 AMWU, *Submission no. 34*, p. iii.

54 Mr P Conroy, AMWU, *Transcript*, 29 August 2006, p. 81.

55 Mr D Cameron, AMWU, *Transcript*, 29 August 2006, p. 81.

56 Dr P Burn, Ai Group, *Transcript*, 29 August 2006, p. 8.

not think Austrade was concentrating enough on helping Australian firms become involved in big, international procurement programmes.⁵⁷

4.71 Austrade does not see its role as organising major project teams. They act as an export facilitator and an international project 'spotter', which they can do with relative ease given their international market presence.⁵⁸

4.72 In contrast, the Global Opportunities programme announced in the Industry Statement 2007 will apparently pro-actively form consortia of Australian businesses for large international projects. This programme will 'target more than 30 large international projects each year, with a combined value of at least \$16 billion'.⁵⁹ Project teams will be drawn from DITR, Austrade and the ICN to identify the most promising projects. The Industry Statement 2007 states:

Consortia of Australian businesses will be formed to pursue these opportunities, giving SMEs the chance to forge new links with Australian and international businesses.⁶⁰

4.73 The ICN, a non-government organisation, has a more specific focus on business partnerships for accessing global supply chains.⁶¹ ICN may be approached by international companies working on major projects, or be informed of them by Austrade. The ICN diagnoses the technical needs of the project and then scan their 'capability register'⁶² seeking those that meet project requirements. Although the ICN informs manufacturers of bidding opportunities, neither it nor Austrade are involved in assembling a bid for a project.

4.74 The ICN also administers the Supplier Access to Major Projects (SAMP) grants programme, which provides funds for specialist consultants to work with project developers in identifying supply opportunities for capable and competitive Australian companies. Funding is provided for major projects of national or regional economic significance and has recently been expanded to participation in major projects overseas.⁶³

4.75 ICN's submission (the only specific evidence received on SAMP) stated:

57 Mr Conroy, AMWU, *Transcript*, 29 August 2006, p. 79.

58 Austrade have forged Australian links into international projects including the rebuilding of New Orleans post Hurricane Katrina.

59 DITR, *Global integration: Changing markets, new opportunities*, 2007, p. 25.

60 DITR, *Global integration: Changing markets, new opportunities*, 2007, p. 25.

61 ICN, *Submission no. 6*, p. 2.

62 The ICN holds a nation-wide database of Australian industry capability, volunteered by firms.

63 SAMP Global.

ICNL estimates that under SAMP, Australian companies have won contracts worth around \$1.6 billion for work that might otherwise have gone to overseas competitors.⁶⁴

- 4.76 The Global Opportunities programme will include the existing SAMP Global programme, and supplement it with a new co-operative programme providing \$254 million over ten years. It appears the new programme will use more resources than the ICN's capability network database, including conducting regional fora seeking capability and interest in joining in joint bids for large overseas projects.
- 4.77 Invest Australia encourages foreign companies to invest in Australia. The benefits of foreign investment are likely to be maximised when foreign investment takes the form of direct investment in 'greenfield' sites.⁶⁵ This is most likely to involve technology transfer and training for Australian workers and offers the most prospect of the Australian operation being part of a global supply chain.⁶⁶ It appears that Invest Australia now has a more targeted approach to foreign direct investment attraction with the bulk of promotion activities occurring in the high and medium high technology exports.⁶⁷

Conclusions

- 4.78 The committee notes that Australian manufacturers are adopting varying strategies, depending on the nature of the goods they produce, to adjust to a global marketplace where proximity to raw materials is of less importance. Some Australian manufacturers are naturally protected by transport costs and others are staying competitive by slashing costs, raising productivity, achieving economies of scale by entering export markets, increasing quality and/or offering superior service. Mass low-value manufacturing is moving offshore or being replaced by more innovative 'niche' manufacturing.
- 4.79 The committee supports 'benchmarking' and the use of diagnostic audits and various management tools to improve business weaknesses identified

64 ICN, *Submission no. 6*, p. 7.

65 Refers to a new manufacturing installation; not a purchase of share or of an existing facility.

66 This argument was put, for example, by the AMWU, who argued that Invest Australia should have a sharper focus on greenfield investment; *Submission no. 34*, p. 12. Such a focus was an important element in the Irish success; Professor R Green, private capacity, *Transcript*, 14 November 2006, p. 19.

67 Mr B Jones, Invest Australia, *Transcript (Services inquiry)*, 1 December 2006, p. 34.

through it. Firms analysing their deficiencies is a positive step towards productivity and efficiency gains. The committee therefore endorses the diagnostic analysis that the AIPCs are proposing to offer and hopes that the SMEs will be exposed to well-founded manufacturing-based methodologies suitable for their business type.

- 4.80 Australian manufacturers have adopted a greater focus on exporting. The main government support for exporting is the Export Market Development Grants scheme. The committee heard proposals to increase the cost of this scheme by raising the eligible turnover cap of \$30 million. However, the committee supports the recent decision of the Government to lower this cap to ensure that the main beneficiaries of the scheme are the smaller firms less able to bear the costs of marketing themselves.
- 4.81 A problem with the EMDG scheme is that even applicants with strong applications are not sure how much they will be reimbursed when they are deciding on promotion spending, which limits the incentive the scheme provides to undertake additional marketing. The suggestion to allow a smoothing arrangement whereby unspent scheme monies could be carried over into future years would reduce this uncertainty. Increasing the budgeted amount for the scheme would reduce the uncertainty further, by increasing the probability that eligible applicants would receive their reimbursement even in years with high demand.
- 4.82 Participating in global supply chains is increasingly important as a means for manufacturing to remain viable and a number of government programmes are designed to facilitate this. However, complementary policies must be adopted to link newly arrived foreign multi-nationals to domestic producers, to gain true economic benefit from this strategy.
- 4.83 After the following chapter on 'new' manufacturers, there are further recommendations applying to all manufacturers covering engagement with researchers, innovation and government assistance packages.

Recommendation 5

- 4.84 **The committee regards benchmarking as a vital activity of the nascent Australian Industry Productivity Centres and recommends that the Government ensure the Centres are adequately resourced to provide this service to a wide range of companies across Australia.**

Recommendation 6

- 4.85 **The committee recommends that the Government increase the amount budgeted for the Export Market Development Grants programme each year and, in line with a recent Austrade review, allow the carry forward of any unspent budgeted funding to be used in future programme years of high applicant demand.**