BUILDING INNOVATIVE CAPABILITY

REVIEW OF THE AUSTRALIAN TEXTILE, CLOTHING AND FOOTWEAR INDUSTRIES
29 August 2008

Senator the Hon Kim Carr
Minister for Innovation, Industry, Science and Research
Parliament House
CANBERRA ACT 2600

Dear Minister

I am pleased to present to you my report Building Innovative Capability, in which I review the Australian Textile, Clothing and Footwear (TCF) industries according to the terms of reference announced by you on 8 March 2008.

During the course of the Review, I was impressed by the commitment and enthusiasm of stakeholders and their willingness to make their views known and to contribute to the Review through submissions, consultations and case studies. They also provided me with opportunities to undertake site visits and observe the industries in operation first hand.

It seems clear that with goodwill, effective leadership, sound business strategy and appropriate support from government, the TCF industries have a promising future. To help realise this future, I have recommended that for the period ahead the industries should focus on achieving competitive advantage through the development of innovative capability at the enterprise level.

I would like to express my appreciation for the insights, expertise and industry knowledge provided by the TCF Review Reference Group: Mr Brian Rush – President of the Council of Textile and Fashion Industries Australia Limited, Chief Executive Officer of Australian Defence Apparel Limited; Mr Phillip Butt – President of the Footwear Manufacturers’ Association of Australia, Managing Director of J Robins & Sons; Professor Peter Forsyth – Department of Economics, Monash University; Mr Rod McKenna – representing the Technical Textiles and Nonwoven Association, Director of double-t innovations pty ltd; Ms Michele O’Neil – National Secretary, TCF Union of Australia; Mr Barry Tubner – National President, TCF Union of Australia; Dr Nigel Johnson – General Manager, CSIRO Client & Partner Relationships; and Professor Suzi Vaughan – Head of Fashion, Queensland University of Technology.

I would also like to acknowledge the important contribution to my deliberations made by the leaders of other concurrent Reviews, Dr Terry Cutler, the Hon Steve Bracks, and Mr David Mortimer AO.
Dr Phillip Toner of the Centre for Innovation Studies at the University of Western Sydney and
Associate Professor Richard Denniss of the Crawford School of Economics and Government
at the Australian National University provided invaluable support in the areas of economic and
industry analysis.

Finally, I would like to thank Cecilia Wood, Linda Drummond, Luke Murray and Rachel Searl
of the departmental Secretariat for their superb assistance during the conduct of the Review
and in compiling the report. It was a pleasure to work with people of such high calibre and
dedication.

I commend the report *Building Innovative Capability* to you.

Yours sincerely

[Signature]

Professor Roy Green
Reviewer
Review of the Australian Textile, Clothing and Footwear Industries
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I don’t want to be Prime Minister of a country which doesn’t make things anymore. I don’t want to be Prime Minister of a country that doesn’t manufacture things anymore. I want there to be a long term manufacturing industry for this nation.

Kevin Rudd
Prime Minister of Australia

There is a broad consensus that a focus on innovation is critical to the survival of manufacturing in Australia – both for revitalising mature industries and for the development of sunrise industries. Indeed, innovation is critical for competitiveness across all sectors of the economy... In the 21st century, innovation policy is industry policy.

Senator the Hon Kim Carr
Minister for Innovation, Industry, Science and Research

There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things.

Niccolo Machiavelli
EXECUTIVE SUMMARY
CONTEXT OF THE REVIEW

Australia’s TCF industries are vibrant and diverse, encompassing a range of activities from processing to manufacturing and marketing, underpinned by design and innovation. While the value of TCF output has fallen in recent years, it is still a substantial $2.8 billion with exports of $1.6 billion. These industries also employ over 48,000 workers around the country with many more in home-based employment. When TCF retailing and wholesaling are included, value add increases by a further $7.5 billion and employment by around 160,000, increasing again when growth sectors such as design and business services are counted in the total.

However, it is generally recognised that Australia’s TCF industries, as in other developed, high wage economies, face the challenges of low cost competition in high volume ‘commoditised’ market segments, pressure for constant and creative evolution of value adding fashion products and a relentless demand for new technologies and skills across the industries, especially in technical textile production and ‘smart fabrics’ where competitive advantage is increasingly driven by knowledge and innovation.

TCF industries around the world have responded to these challenges in different ways. In some countries, they have contracted to the point where the critical mass of industry linkages, capabilities and skills necessary for viable manufacturing have almost ceased to exist, whereas in others they have successfully repositioned in the context of globalisation and technological change to take advantage of new and emerging market opportunities.

Evidence to this Review demonstrates that the key success factor for the TCF industries, as for industries more generally, is the development of innovative capability at the level of the enterprise and workplace, which is driven not only by research and technology development but also by an increasing emphasis on business model transformation, market-led organisational changes and the integration of firms into collaborative networks and supply chains.

The Review maintains, contrary to the manufacturing sceptics, that Australia’s TCF industries have a promising future, but this can only be achieved through a concerted effort to differentiate their products through uniqueness, product quality and design, branding, quick response and new approaches to supply chain management, with a clear emphasis on corporate social responsibility in the application of labour and environmental standards.

Moreover, the Review recognises that there is an important role for public policy in the context of Australia’s emergent National Innovation System in bringing about such a future, and this is reflected in the following series of recommendations which are aimed at encouraging the growth of new TCF businesses as well as enabling existing ones to become more dynamic and competitive with the assistance of productivity-enhancing measures.

Productivity Commission modelling for this Review identified costs to the Australian economy associated with tariffs and industry assistance. However, when asked to undertake a ‘sensitivity analysis’ of the impact of an increase in productivity that might be assumed to result from well designed assistance measures, it found benefits to the economy that were of a similar order of magnitude to, and potentially greater than, the impact of tariff reductions. In any case, the significance of tariffs for the TCF industries was found to be marginal by comparison with the impact of exchange rate movements.

The recommendations of this Review to the Australian Government foreshadow a major change in the focus of industry policy from sector-wide structural adjustment, with generally acknowledged diminishing returns from tariff reductions, to the development of innovative and competitive capability at the enterprise level as part of a process of integrating or ‘mainstreaming’ the TCF industries into the broader policy framework.
RECOMMENDATIONS

Recommendation 1: The approach of public policy to the development of Australia’s TCF industries should take the opportunity of this Review and the wider Review of the National Innovation System to manage a shift in the organising principle of industry assistance from structural adjustment to a new focus on building innovative capability at the level of the enterprise and workplace. It is recommended that a new ‘TCF Innovation Assistance Package 2009–2015’ be introduced with a budget of $250 million.

Recommendation 2: The definition of the TCF industries, for the purpose of future public policy and greater connectivity among TCF firms and organisations, should be modified and expanded to encompass a broader range of activities in textiles, fashion and accessories in the context of a TCF Innovation System that is driven by more collaborative approaches to design, research, technology, branding and supply chain management.

Recommendation 3: The scheduled tariff reductions for the TCF industries to 2015 should be allowed to take their course, as it is widely recognised that tariff protection is a blunt instrument for the promotion of innovative and competitive capability at the enterprise level and can in any case have only marginal impact in the context of large exchange-rate movements. On the basis of evidence provided to the Review, it is recommended that the emphasis of future policy should instead be on well-designed industry assistance measures.

Recommendation 4: A TCF Innovation Council should be established, with funding of $12 million to commence in 2009, as one of the proposed sectoral innovation councils with the task of advising the Australian Government on key priorities for the TCF industries in the context of the broader National Innovation System. The TCF Innovation Council would include appropriate representation from TCF industry stakeholder groups.

Recommendation 5: A new $200 million TCF Innovation Capability Program (TCF ICP) should be introduced to support the development of innovative capability in the TCF industries at the enterprise and workplace level, with an allocation of at least $15 million for small businesses. This program would supersede current assistance measures in the final transitional period of tariff reductions—2010 to 2015—and make funding available to individual applicants or consortia on a contestable basis.

Recommendation 6: Eligibility criteria for the TCF ICP should include (1) value-adding to the Australian economy; (2) ethical production and supply chain standards; (3) additionality of program funding; (4) employee involvement in change projects; and (5) accountability for delivery of project aims, with dissemination of key learning outcomes.

Recommendation 7: Operational criteria for the TCF ICP should be developed by the Australian Government on advice from the TCF Innovation Council in the following funding categories: (1) innovation, research and design capability; (2) collaboration, networks and supply chain participation; (3) accessing global market opportunities; (4) new business models and strategic repositioning; (5) high-performance work and management systems; (6) education, skills and employment services; and (7) environmentally sustainable and ethical practices.

Recommendation 8: While decisions on funding under the TCF ICP will be made by the Department of Innovation, Industry, Science and Research, the business advisory services of Enterprise Connect should be provided with additional funding to constitute both the primary access point for TCF firms and organisations and the focus of a nationally coordinated TCF Innovation Network.

Recommendation 9: A new Australian Ethical Quality Mark should be devised, with a budget allocation of $8 million, to reflect the incorporation of defined ethical standards relating to labour conditions, animal welfare and environmental sustainability in TCF production and supply chains. This will enhance consumer choice and confer competitive advantage on firms that achieve certification.
Recommendation 10: A new Australian National Sizing Standard for clothing and footwear is long overdue and should be developed as a matter of urgency, with a funding allocation of $5 million, to meet the changing needs of customers and ensure that Australian TCF firms and organisations are not placed at a competitive disadvantage.

Recommendation 11: Australian Government procurement policy should encompass capability building for Australian TCF firms and organisations so that they are in a better position to tender successfully for contracts both individually and in broader networks. In addition, consideration of value for money in tendering should take account of labour and environmental standards, as evidenced by the Australian Ethical Quality Mark. The Review notes and supports concern expressed about the US Berry Amendment, which excludes Australian TCF firms from the US defence apparel procurement market.

Recommendation 12: The TCF ICP should have as a priority the improvement of R&D performance in Australian TCF firms, especially technical textiles, both through individual projects and through broader innovation partnerships and networks with research and educational institutions. There should also be an opportunity for TCF firms and organisations to access programs resulting from the Review of the National Innovation System.

Recommendation 13: A further priority of the TCF ICP is to provide additional targeted support to TCF firms and organisations in meeting their needs for training and skills development, where this is required over and above the expanded range of programs available through the Department of Education, Employment and Workplace Relations.

Recommendation 14: The commitment to Part 1 of TCF SAP, which provides assistance to retrenched workers in the TCF industries, should continue to 2015, with a budget allocation of $25 million, but preferably in an enhanced form to meet concerns expressed about its operation. There should be a greater role for the industry stakeholders in facilitating access by workers to employment and training services, and a feasibility study should be conducted into the potential contribution of a TCF group training company.

Recommendation 15: Better protection should be provided to workers engaged in home-based manufacture of TCF products through both legislation and industrial awards, and steps should be taken to ensure that homeworkers whose work is performed for a single customer or business are deemed to be employees for the purpose of legislative and other entitlements.
CHAPTER 1
WHY THIS REVIEW?
Throughout Australia’s history, the textile, clothing and footwear (TCF) industries have made a fundamental contribution to our economic and social development. They also have an important and continuing role to play in Australia’s economic and social future.

In an increasingly globalised world, the operating environment for industry is characterised by political, social and technological change and the growing importance of knowledge and innovation as drivers of growth. The TCF industries are not immune to these competitive pressures. They have experienced, and will continue to experience, ongoing structural change driven by intensifying global and domestic competition.

TCF in Australia now encompasses a diverse range of industries which include processing, manufacturing and marketing activities, underpinned by design and innovation. While it has declined overall in recent years, the value of TCF industry output, narrowly defined, is $2.8 billion and exports are $1.6 billion, with employment in the formal sector over 48,000 and a multiple of this number in home-based employment. When TCF retailing and wholesaling are included, value adding increases by a further $7.5 billion and employment by 158,600, and there are also many more working in design and business services related to TCF activities. Managing the economic and social impacts of structural change needs to occur in parallel with the repositioning of these industries for resilience, growth and sustainability in a rapidly changing global environment.

Successive governments have implemented plans for the TCF industries to enable them to respond to the challenges and opportunities associated with change and economic reform, including the process of tariff reductions. While these plans and support regimes are appropriate for the TCF operating contexts of their time, it is important to regularly revisit them to ensure that they reflect contemporary needs and are effective in supporting the development of vibrant, innovative and competitive industries into the future.

To this end, the Minister for Innovation, Industry, Science and Research, Senator the Hon Kim Carr, announced this comprehensive Review of the Australian Textile, Clothing and Footwear Industries. The Review was tasked, through its terms of reference, with considering the nature and needs of the industries post-2010, when tariffs are scheduled to reduce further and the current post-2005 Strategic Investment Program arrangements are due to be rescaled.

### Australian Defence Apparel’s Modular Combat Body Armour

Australian Defence Apparel (ADA) initiated research and development activities in the area of modular combat body armour to further develop its existing product mix in order to come up with a globally competitive product that will save lives.

To that end, ADA developed international linkages with DuPont and Aegis Engineering in the United Kingdom, who aided in the design and technology development of the modular combat body armour system. These linkages proved crucial in transferring the knowledge and technical skills required in the ADA’s in-house R&D team.

ADA states that the Strategic Investment Program made the vast long-term expenses required in the areas of R&D, capital equipment, IT development, process improvement and training palatable and enabled it to get the project off the ground.

ADA was recently awarded an $80 million contract to supply the Australian Defence Force, beating international competition from the United States, Europe and Israel.
TERMS OF REFERENCE

The Australian Government commissioned Professor Roy Green, Dean of Macquarie Graduate School of Management at Macquarie University, to undertake this comprehensive review of the Australian TCF industries, supported by an industry Reference Group.

The government’s intention outlined in the terms of reference was that the Review would be informed by the findings of the Review of the National Innovation System, would consult broadly among industry stakeholders and interested parties, and would make recommendations on the future development of innovative, globally competitive TCF firms and organisations which are well positioned to contribute to the optimal performance of the Australian economy.

The terms of reference are broad-ranging, consistent with the intended scope of this comprehensive Review. To facilitate discussions and consultations with stakeholders, the Review found it useful to categorise the coverage of these terms of reference according to five broad areas:

- **Innovation and competitiveness** covers the research and development environment, the absorptive capacity of the industries, the TCF innovation system, and the capability to move into new areas of competitiveness in the context of domestic and global economic developments in markets and supply chains.

- **Government programs and regulation** addresses the appropriateness and effectiveness of the total industry support regime in promoting innovation and productivity, and in assisting structural adjustment, as well as the domestic and international regulatory environment, including promotion of labour and environmental standards.

- **Education and skills** considers current and future skill gaps and training needs in the industries, including the availability and appropriateness of opportunities to develop workforce and management capability, both within and for the sector.

- **Climate change and environment** considers the need for the industries to address environmental challenges and respond to climate change and drought with environmentally sustainable practices.

- **Social and regional dimension** takes into account the likely impact of structural adjustment and change on TCF workers, regional Australia and the broader community with a view to the fair treatment of workers, including outworkers, and the retention of skills and talent in the TCF industries.

The terms of reference for the Review are at Appendix 1.

CONDUCT OF THE REVIEW

Since its commencement in March 2008, the Review has been conducted according to the following three guiding principles, which were communicated widely to stakeholders during the course of the Review:

- open and transparent consultation
- evidence-based analysis
- development of policy recommendations based on public interest.

The Review’s consultation processes facilitated a great deal of data-gathering through public submissions, nationwide public consultations, discussions and site visits with industry practitioners and others in the supply chain, as well as discussions with state and federal government departments and agencies. In addition to the Review’s comprehensive consultations, it was important to ensure that significant areas of analysis necessary to fully address the terms of reference were covered, and this was achieved by commissioned research.

**Consultative approach**

Throughout the consultation process, the Review was impressed by the interest, enthusiasm and willingness of stakeholders to contribute meaningfully to its work. This engagement has continued unabated.
throughout the course of the Review and stakeholders’ readiness to contribute to the future of the TCF industries is both acknowledged and appreciated.

The public submission process was an important avenue for informing the Review. Submissions were called for early, inviting interested stakeholders to place comments and information addressing the terms of reference before the Review. Stakeholders were also asked to provide supporting evidence, where available, to substantiate their views. Considerable interest was shown in contributing to the Review in this way—more than 80 submissions were received from individuals, organisations, institutions, and government departments and agencies. Consistent with the commitment to open and transparent consultation, these submissions were posted on the Review’s website at <www.innovation.gov.au/tcfreview>.

A full list of submissions is at Appendix 3.

To hear first-hand about the industry and the issues confronting it, and to provide stakeholders with an opportunity to engage directly with the Reviewer, a series of public consultations was held in Brisbane, Sydney, Melbourne, Adelaide and Perth. This provided broad national coverage, and many stakeholders made a special effort to attend. A significant amount of useful information, insights and views was placed before the Review during these public consultations.

Around 40 further consultations were held with a range of industry bodies, industry practitioners, employers, employee representatives, non-government organisations and outworkers, and elements of the TCF supply chain including research and educational institutions and retailers. These discussions provided the Review with the opportunity to explore in greater depth issues that had been raised during the public consultations, as well as other issues affecting the future of the TCF industries specific to particular groups and organisations.

Evidence-based analysis

A substantial body of data and evidence was compiled initially from desk research and from the consultation and submission processes. This formed the basis for further submissions and discussions to ensure that the information that would inform the Review’s deliberations was comprehensive, of high calibre and up-to-date.

The Review benefited greatly from the input provided by members of the Reference Group, with their first-hand knowledge of and expertise in the issues, opportunities and challenges facing the TCF industries. Members of the Reference Group were drawn from industry and union groups and the research and education community, including a senior economist. Their diversity of background and depth of understanding enabled a valuable and open exchange of views and the development of a shared vision for the industries.

Further investigation of the issues was pursued though visits to a number of establishments operating in the TCF sphere of activity. The Review heard directly from practitioners about issues affecting their design and manufacturing operations, the workforce, and firms’ capacity to innovate for a sustainable future. In addition to assisting the Review to gain insights into industry challenges and opportunities, the site visits demonstrated to the Review the resilience, adaptability and capacity for innovation of Australian TCF firms in the face of ongoing change and unremitting international competition.

Economic modelling of the economy-wide effects of future assistance options was undertaken by the Productivity Commission and released publicly to inform the Review’s examination of the industries and the public debate. As part of its modelling task, the Commission was asked to include simulations involving different assumptions about the degree of ‘pass-through’ of tariff reductions in retail prices to consumers and about the ability of displaced workers to find reemployment. A further request was to model the possible productivity improvements to the industry that are posited to result from targeted assistance. The Productivity Commission’s report is available at <www.pc.gov.au/projects/study/textile-clothing-footwear/finalreport>.
Independent studies provided the Review with new and leading-edge thinking, and with sound evidence-based analysis of the TCF industries and associated policy contexts both domestically and internationally. The commissioned studies covered the following areas of interest:

- **International political economy of the textile and clothing industries of developed countries: examples from the US, UK and Germany**, Dr Jocelyn Probert, Centre for Business Research, University of Cambridge
- **Supply chain considerations for the Australian TCF industries**, Dr John Gattorna, Gattorna Alignment Pty Ltd
- **Industry policy frameworks for a knowledge economy**, Mr Don Scott-Kemmis, Don Scott-Kemmis and Associates
- **Design and fashion in the Australian TCF industries**, Professor Suzi Vaughan, Queensland University of Technology
- **Labour adjustment—changes in employment in the Australian TCF manufacturing sector**, Professor Phillip O’Neill

A study was also commissioned to provide data and information that would assist in evaluating the effectiveness of one element of the government’s current assistance arrangements for the TCF industries—the Strategic Investment Program (SIP). This study comprised a comprehensive survey of SIP grantees and was undertaken by the Workplace Research Centre at the University of Sydney.

It was also pleasing to receive a number of case studies that highlighted the reality of industry best practice, repositioning and growth as well as the difficulties and challenges many firms and organisations face in a more intense global competitive environment. These made an important contribution to the body of information considered in the Review and on which the Review outcomes are based.

**Public interest**

While the TCF industries as a whole have experienced decline in recent years in terms of output and employment as a result of the changing global environment, they remain an integral and important part of the Australian economy, making a significant contribution to the lives of Australians as consumers of TCF products and services, members of the TCF workforce, and beneficiaries of a well-functioning and prosperous economy.

With this in mind, the approach taken in the Review focused on the way forward for the TCF industries in the context of the national public interest, especially in those areas with high potential for growth and innovation. Data were gathered, processed and analysed for application in the interests of the economy, the workforce and consumers.

In reviewing the TCF industries in this context, the Review took account of a variety of views, not just on the impact of the industry assistance and tariff reform agenda but also on the implications of the current remarkable resources boom being enjoyed by the Australian economy and consumers. It has been argued (McKissack et al. 2008) that this resources boom, unlike others before it, may result in a sustained rise in Australia’s terms of trade and exchange rate. While associated windfall gains are being enjoyed by consumers and taxpayers in this context, pressures are being felt by other sectors of the economy. In particular, the structural effects of an enduring shift in the terms of trade and exchange rate are engendering much public discussion about the future of our manufacturing industries. The nature of the path of adjustment to a higher terms of trade for both traded and non-traded Australian industries, should it be sustained, is an issue of major concern for this Review and for TCF firms themselves.

Taking a national perspective, the Review analysed and assessed the weight of evidence and arguments made on the future direction of the industries with a view to gauging where TCF firms have potential in both the domestic and global marketplaces and what is needed to realise that potential. On the basis of evidence-based analysis and an assessment of the public interest, the Review developed recommendations for a new approach to support for the TCF industries in the period post 2010 with an emphasis on the ‘mainstreaming’ of these industries into the broader framework of innovation and industry policy.
STRUCTURE OF THE REPORT

The report’s investigation begins in Chapter 2 with an account of the international competitive environment for the TCF industries, including the rise of low cost producers, global supply chains and the response of developed economies. Chapter 3 is an analysis of Australia’s TCF industries and their role in the domestic economy and international markets. It highlights both the recent decline and repositioning of the industries and the challenges they face, including training and skills acquisition, research and technology development, supply chain management and the increasing attention to labour and environmental standards.

Chapter 4 provides an evaluation of federal government programs for the TCF industries, focusing in particular on the TCF Post-2005 Assistance Package, and takes account of submissions to the Review on the government’s tariff reduction schedule and assistance measures and a commissioned survey of Strategic Investment Program (SIP) grant recipients. Chapter 5 examines the role of industry policy in modern, developed economies, with an emphasis on the shift from sector-based industry assistance to the development of innovative capability at the enterprise and workplace level, and the principles that should govern the implementation of assistance measures. Finally, Chapter 6 sets out a series of recommendations in the context of the findings of the Review.
CHAPTER 2
WORLD COMPETITIVE ENVIRONMENT
The Australian TCF industries operate in an international context. This chapter describes the development of global TCF supply chains which are both a cause and effect of intensifying competition for TCF products and services. It also highlights the different national responses of developed economies to import competition from developing countries.

The size of Australia’s TCF industries, in terms of share of manufacturing value added and employment, is around average for the world’s developed economies (Figure 2.1). It is evident that these industries represent on average only a small share of total manufacturing industry within developed economies. Australian TCF output is less than 0.5 percent of global production. In developing countries, such as China, and in developed countries with a comparatively low GDP per capita such as Hungary, TCF represents a far higher share of manufacturing activity. One interpretation of these data is that the assistance provided by government to the TCF industries in Australia has not resulted in them attracting an unusually large share of resources, at least compared to other developed OECD economies.

**Figure 2.1: TCF employment as a percentage of total manufacturing employment, 2006**

![Bar chart showing TCF employment as a percentage of total manufacturing employment, 2006](image)

Notes: Data based on textiles, textile products, leather and footwear division (ISIC Rev.3: 17–19) and total manufacturing (ISIC Rev.3: 15–37) using EMPN number engaged (total employment).

The data from Sweden, Germany, France, Spain, Korea and OECD average are from 2005. The data from the remaining countries are from 2006. OECD average is the weighted average from the countries shown on the graph (except China). China statistics are based on the sum of ‘Manufacture of textile’, ‘Manufacture of textile wearing apparel, footwear, and caps’ and ‘Manufacture of leather, fur, feather & its products’.


**RISING IMPORT SHARE IN DEVELOPED ECONOMIES**

Like all developed economies, Australia has experienced a significant rise in import share of TCF products over the last four decades (Table 2.1). Imports as a proportion of domestic Australian output increased more than threefold between 1980 and 2006, from 28 percent to 91 percent. This is nearly identical to the change in the weighted average level of import penetration across a broad range of developed economies. There is also wide variation in the level and rate of change of import penetration across countries. Over the same period other countries such as Italy and Spain continued to have a substantially lower import share.
Table 2.1: TCF imports as a share of domestic production, 1980 and 2006

<table>
<thead>
<tr>
<th>Country</th>
<th>1980*</th>
<th>2006**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>28%</td>
<td>91%</td>
</tr>
<tr>
<td>Austria</td>
<td>60%</td>
<td>156%</td>
</tr>
<tr>
<td>Belgium</td>
<td>77%</td>
<td>154%</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>22%</td>
<td>86%</td>
</tr>
<tr>
<td>Denmark</td>
<td>77%</td>
<td>301%</td>
</tr>
<tr>
<td>Finland</td>
<td>38%</td>
<td>155%</td>
</tr>
<tr>
<td>France</td>
<td>26%</td>
<td>109%</td>
</tr>
<tr>
<td>Germany</td>
<td>87%</td>
<td>132%</td>
</tr>
<tr>
<td>Hungary</td>
<td>44%</td>
<td>98%</td>
</tr>
<tr>
<td>Italy</td>
<td>9%</td>
<td>26%</td>
</tr>
<tr>
<td>Korea</td>
<td>12%</td>
<td>27%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>148%</td>
<td>254%</td>
</tr>
<tr>
<td>Norway</td>
<td>156%</td>
<td>326%</td>
</tr>
<tr>
<td>Spain</td>
<td>4%</td>
<td>59%</td>
</tr>
<tr>
<td>Sweden</td>
<td>118%</td>
<td>288%</td>
</tr>
<tr>
<td>United States</td>
<td>13%</td>
<td>130%</td>
</tr>
</tbody>
</table>

Note: Import share derived from IMPO Imports of goods at current prices / PROD Production (gross output), at current prices.


** Latest data are at 2006, except Germany, Hungary, Spain, and Sweden, which are at 2005. The latest Australian production (gross output) data available at the time was from 1999—so the ratio of imports to sales and service income based on ANZSIC Subdivision 22 from 2005/06 was used instead.

Sources: OECD (2008) and ABS (2007a, 2008g).

COMPARATIVE RESEARCH AND DEVELOPMENT PERFORMANCE

However, there is one important respect in which the Australian TCF industries are significantly different from many other developed economies, in that they have a relatively low R&D intensity. (R&D intensity is private R&D expenditure as a share of value added.) Australian R&D intensity in its TCF industries is much less than that of Germany, Finland and Norway (Figure 2.2). This difference in R&D intensity is consistent with a lower R&D intensity across Australian industry more generally compared to other OECD countries. While the R&D intensity of the Australian TCF industries has increased significantly over the last three decades, it has been insufficient to redress the large ‘R&D gap’ between Australia and many other developed economies.

Figure 2.2: R&D intensity of TCF industries (value added), 2003 and 2004

Note: Data from the United States, Australia, France, and Sweden are from 2003. The data from the remaining countries are from 2004.

INTERNATIONAL SUPPORT FOR TCF INDUSTRIES

Over the last several decades, international trade in TCF products has been gradually liberalised, with an elimination of quotas and a significant reduction in subsidies, tariffs and non-tariff barriers. Most developed countries opened their markets slowly, chiefly because their TCF industries were a major employer of regional and lower skilled labour and these industries were some of the most vulnerable of all manufacturing activities to competition from developing countries.

Only a few countries, such as Australia and Canada, currently provide industry-specific budgetary assistance to firms in their TCF industries. Despite the decline in assistance to TCF industries, as represented, for example, by the expiry of the Multifibre Arrangement in 2005, various forms of protection for them remain across developed economies. Most developed countries maintain tariffs on imports of clothing at around 12 percent or less and impose a variety of non-tariff barriers. The latter include labelling requirements (specifying, for example, the type and proportion of materials and national origin), country of origin regulations (preventing, for example, re-exporting of products that disguise the original source location), environmental controls (such as excluding the use of certain insecticides on cloth) and government procurement. An example of the latter in the United States is the ‘Berry Amendment’, which requires the US Department of Defense to source footwear and apparel from local firms. Over 90 percent of the value of these products purchased by the Department is sourced domestically. The growth of bilateral, as opposed to free trade, agreements is also claimed to introduce a variety of ‘distortions’ into the international trading system. Despite the decline in industry-specific budgetary assistance to TCF firms, many developed nations also continue to support their TCF industries through scientific research into TCF products in public laboratories and/or universities.

Many developing nations also support their TCF industries. Growth of TCF industries has traditionally been a first rung on the ladder of industrialisation for developing nations. This is because TCF industries have a number of characteristics especially suited to early-stage industrial development. These include strong backward linkages to the agricultural sector (both livestock and broadacre cropping), high labour intensity of production and, at least in the initial stages of development, relatively low requirements for capital, technology and worker skills. A moderate price-to-weight ratio of output for TCF products also makes international trade in intermediate and final consumption goods feasible.
Support measures in China, for example, include import tariffs averaging 16 percent on clothing and budgetary assistance in 2006 to firms of around $325 million to improve productivity, reduce energy and water use, and shift production from coastal to inland regions. Tax rebates on income generated through exports also exist, although these have been reduced to encourage firms to shift production to lower-wage countries such as Vietnam. State and collective enterprises produced 31 percent of Chinese TCF exports in 2006 (WTO 2008). These enterprises are believed to receive subsidised inputs such as electricity and land. In addition, implicit subsidies exist via non-implementation of labour and environmental standards.

In summary, state support for TCF industries in developed and developing nations has declined significantly in recent years, although a variety of transparent and opaque support measures remain.

THE GLOBAL TCF SUPPLY CHAIN

Over the last four decades, there has been a large-scale transfer of global TCF production capacity to developing economies, in particular China. This is due to a number of factors such as growth of the massive domestic Chinese market for TCF goods in response to rising per capita incomes, the targeting of the TCF industries by the Chinese government for promotion as a key element in China’s industrial development and, associated with this, large-scale foreign investment. Most of this foreign investment has been driven by TCF producers, retailers, wholesalers and designers in developed nations seeking lower production costs. Many other developing economies have also expanded TCF production for domestic consumption and export, such as Thailand, India, Pakistan, Mexico, the Caribbean islands, Turkey and some North African countries.

The result of these changes in the geographic distribution of TCF investment has been the creation of global supply chains (see Gattorna & Ellis 2008). These are a combination of processes, functions, activities, relationships and pathways along which products, services, information and financial transactions move from original producers to end consumers. Supply chain management aims to improve links between all firms along the chain and increase the efficiency of supply to the end consumer. It does this by, for example, removing bottlenecks, minimising inventory holding time through the chain and sharing information to better match supply capacity with demand.1 A typical supply chain for clothing and textile products is shown in Figure 2.3.

Figure 2.3: Clothing and textile product supply chain

An understanding of the supply chains for TCF also requires an understanding of both the retail market and the consumer demand patterns for TCF products. The consumer buying pattern and the resultant retail demand for TCF products follow three basic patterns:

- a **baseload** of reasonably predictable demand for the same or similar lines, usually (or potentially) the subject of routine replenishment supply chain policies—in department stores these might include branded white singlets, branded black business socks or plain white sheets

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1 From the point of view of an individual firm there are four aspects of supply chain management (Fawcett & Magnan 2002). First, achieving ‘internal, cross-functional process integration’ within the firm; second, integrating backward linkages with suppliers; third, integrating forward linkages with customers; and fourth, achieving complete forward and backward integration.
a **seasonally stable** group of lines that is broadly predictable at the aggregate level—even though all details of the particular lines cannot be predicted, the level of supply chain capacity at different stages along the supply chain can be forecast reasonably well where manufacturers and retailers operate in a coordinated way.

a **dynamic** category of demand that is opportunistic, more fashion-influenced and difficult to predict—many seasonal lines still fall into this category.

The different categories of demand are important from a supply chain point of view as they drive different requirements for capital, technology and skill and create different market opportunities along the chain. In Australia, as elsewhere, the operating environment for TCF firms has never been particularly stable. Markets are constantly changing with shifts in fashion, and the large ‘discretionary’ element in consumer demand for TCF products means that even modest changes in aggregate economic activity translate into large movements in consumer buying.

**Competitive advantage in the Asian TCF supply chain**

China is the major source of global imports from the TCF sector and has been the first choice for most Australian manufacturers and brand owners sourcing offshore. The following are some of the factors that underpin the global transfer of TCF investment to China and its highly competitive position.

- **Low labour costs.** Award pay scales for Australian employees working in the clothing industry as at October 2007 ranged from $13.74 per hour up to $17.30 per hour depending on skill level, with some slight variation in conditions by state. These rates do not include loading or on-costs. By comparison, wages in China are currently estimated to range between US$1.00 and US$1.50 per hour in the coastal areas where most TCF is located. Employee on-costs in China are similar to those for Australia at approximately 30 percent. In addition to low labour costs, it is reported that many inputs into the TCF industries such as water and electricity are subsidised by the state to improve the competitive position of TCF production, generate export income and absorb surplus rural labour supply.

- **Development of the TCF capital goods sector.** China has developed a large-scale and sophisticated TCF capital goods sector. This has conferred a considerable advantage on Chinese production as firms gain access to current technologies at low cost, certainly compared to European or US capital goods. Close interaction between local capital goods and user industries has long been recognised as extremely beneficial to both in terms of generating ideas for technical improvement.

- **Rising quality.** Chinese producers are able to combine low costs with rising quality over many market segments. The Review heard from firms which not only sourced TCF products, such as fabrics, from China, but also purchased capital equipment for TCF production from Chinese heavy engineering companies, which are now competing with high end capital equipment manufacturers in Germany and Italy.

- **Seamless supply chain.** Low labour costs were important in the original attraction of foreign investment to China and they remain a key success factor, but for many years now this has been complemented by the development of a sophisticated global supply chain linking major designers, retailers, wholesalers and producers. The design intensity and quality of Chinese production has also improved markedly over recent decades. China has a fully integrated TCF system from the production of natural and synthetic fibres to final product. It has also created a large regional network involving, for example, an increased reliance on textile imports from Pakistan and India which are fabricated into apparel in China. The development of this sophisticated global TCF supply chain has been facilitated by reduced global border protection for trade in goods, deregulation of international capital flows and rapidly falling cost, and increased bandwidth of communications. The internet especially enables continuous ‘real time’ information flows from retailers and wholesalers in the United States, for example, to producers in China which can constantly adjust the level and type of output to fluctuations in demand. It also enables the instantaneous transfer and iteration of designs between producers in China and retailers or wholesalers around the globe. Higher value TCF items are even airfreighted from Asia to markets in Europe, the United States and Australia to better match supply and demand. (Box 2.1 provides a summary of one such sophisticated supply chain created by the Li & Fung Group.)
Box 2.1: Case study of a sophisticated global supply chain

The China-based Li & Fung Group, with a turnover close to US$12 billion, owns no factories but contracts with 10,000 suppliers in 40 countries. Li & Fung coordinates each process in the supply chain: raw-material sourcing, factory sourcing, manufacturing control, shipping consolidation, customs clearance and local forwarding logistics. It leverages its scale to gain huge buying advantages at each level, uses IT to maintain control, and coordinates and shifts between countries as wages change, to keep costs low. A key to success is that the company offers its customers a supply-chain competitive advantage and a complete ‘product–service package’ which includes the following elements.

Collaborative planning and forecasting
The supplier works in partnership with its customers to produce a ‘replenishment model’ based on sales data, market trends and seasonal variations. Replenishment orders are automatically generated and the automated system sends alerts to both supplier and customer when there are deviations from the replenishment model, which they collaborate to resolve.

Market sensing and speed to market
Test shipments of new products are sent to specific stores where sales data are monitored. Top sellers are then chosen for continuation and rebuy orders placed for an all-store rollout. This enables customers to shorten the cycle of new product introduction, and reduce the risk of large surplus stock that can only be disposed though price mark-down at the end of the season.

Floor-ready merchandise and cross-dock merchandise
Garments are packaged, tagged and priced to the specification of the customer before they leave the factory, reducing the time and amount of handling at the ‘high cost’ end of the supply chain.

Vendor-managed inventory
Asian suppliers use direct point-of-sale links with their customers’ stores, combined with their pack and ship-to-store systems, to deliver products direct to each store without customer intervention. This results in cost savings of up to 15 percent through reduced inventory and operational costs.

Made to measure
Consumers choose the fitting, fabric and style of garment they require, either at the store or over the Internet. Their order is sent to a factory in Asia, where the garment is made and delivered directly to the customer in the United States within three weeks.

This integration of the ‘product–service package’ clearly highlights the supply chain capability now available from sophisticated Asian suppliers. It suggests that it is not just low wages but scale, IT strength and management capabilities that are the rising threat for Australian TCF manufacturers.

Problems confronting the Asian TCF supply chain
Despite these formidable competitive advantages, the Asian TCF supply chain is facing a number of limits to growth, including the following.

- **Rising labour costs.** Wages for Chinese factory workers are increasing at 10 to 15 percent per annum, with general inflation running at 4 to 8 percent. This is driven by emerging labour shortages in the coastal areas, especially in the clothing regions of Guangdong. In response to rising worker demands, the government has introduced labour standards legislation which is, in general, being enforced. This has prompted a gradual shift of production from China to lower-labour-cost countries such as Vietnam.

- **Rising transport costs.** The sustained rise in the price of oil during 2007/08 has significantly increased the cost of ship bunker oil and aviation fuel, which in turn has significantly boosted transport costs. For China and other Asian countries, which are heavily dependent on imports of unprocessed inputs for industrial production, rising transport costs increase the price of essential raw material imports and of processed exports, especially those items sent by airfreight. For many TCF items whose success
depends on responding quickly to fashion trends and maintaining a low retail inventory level, it may not be feasible to produce in Asia and airfreight to developed economies.

- **Rising environmental costs.** Many developing economies are introducing environmental controls which, of necessity, raise the costs of production. Offsetting this is the rising cost of new environmental controls in developed economies, especially from measures to reduce carbon emissions. On the other hand, as these carbon control measures become more universally adopted, these cost disadvantages will diminish. The second supply chain impact, on consumer demand, is even more difficult to predict in TCF. Grocery channels are starting to feel pressure to minimise ‘food miles’ and to label products with the emissions accumulated in their supply chains. It is likely that similar pressure to identify ‘clothing miles’ will arise in developed economies, although, given the more fragmented clothing and footwear market, it is likely to lag behind pressure in the grocery sector.

- **Exchange rate appreciation.** Due to the rapid increase in China’s trade surplus there is a tendency for the yuan to appreciate against the currency of developed economies.

- **Declining public sector support.** Border protection is slowly reducing in China in response to World Trade Organization obligations. State-owned and collectively owned public enterprises are being gradually privatised. These enterprises were focused on objectives such as maximising employment and export growth. State and collective enterprises produced 31 percent of TCF exports in 2006 (WTO 2008). The government is also shifting support towards more technologically advanced sectors of manufacturing, including for example the TCF capital goods sector.

In summary, rising cost pressures in developing economies, while potentially limiting the rate of growth of Asian TCF exports, may conversely encourage increased investment and production in Australia and other developed economies. In other words, it is possible that there may be a gradual slowing in the degree of globalisation of TCF production in favour of increased ‘localisation’. The extent to which such localisation occurs will depend on relative price movements in developing economies and—critically—on strategic decisions by firms and governments in developed economies.

### THE RESPONSE OF DEVELOPED ECONOMIES

Major retailers, wholesalers, designers and TCF producers in developed economies have been the principal agents in shifting production and investment from high-wage to low-wage locations. These firms have also responded to the resulting competitive pressures by adopting production strategies and creating market opportunities to retain production capacity in high-wage economies. A number of well-known strategies are outlined below.

**Mass customisation**

Traditional mass production was based on the manufacture of high-volume, low-cost standardised commodities employing specialised capital equipment that was engineered to perform a narrow range of functions. The development of programmable machines in the second half of the 20th century accelerated to the point where a single item of capital equipment is now capable of performing a broad range of engineering functions. Such machines permit both low-cost production over small batches and economical customisation of each batch to the requirements of particular customers. This equipment, when combined with sophisticated supply chain management, enables rapid adjustments to the level and type of output in response to market conditions. In terms of the typology outlined in Figure 2.3, ‘Clothing and textile product supply chain’, such production systems are especially suited to perform replenishment for the supply of seasonally stable apparel and the entire supply of dynamic fashion items. Another element in this mass customisation of apparel is high-level design and branding expertise.

Despite significant improvements in lead times from China, the ‘tyranny of distance’ is still a relevant factor in sourcing decisions. But distance is not the only factor in lead times out of Asia. Most Asian manufacturers still require minimum run sizes for non-stocked items, and most still demand a significant planning period prior to production. In spite of progress made at the more sophisticated end of the sourcing market by companies such as the Li & Fung Group and Hong Kong–based TAL Apparel Ltd, most firms are still not highly responsive to changing requirements and are more effective given notice, volume and planning.
Typically, under mass customisation overseas suppliers are used to produce core supply, and local production capacity is used for replenishment.

In the last few years mass customisation of TCF products, also known as ‘fast fashion’, has received considerable attention. The fashion retailer Zara is the best-known exponent, but other firms also compete in this category such as the Swedish Hennes & Mauritz, US-based Gap, Spanish chain Mango and US firm Forever 21. Some Australian clothing manufacturers in fashion sectors such as swimwear have also adopted this strategy. Fast fashion relies on capturing trends from a wide variety of sources, including the fashion shows, trend-spotting agencies and customers, and rapidly turning them into well-priced items and getting these items into stores quickly. The focus is on shipping fewer pieces, in a greater variety of styles, more often—requiring shorter lead times and high levels of flexibility. The aim is to attain higher percentages of the full price, with less need for mark-downs, and thus higher net margins on sales. These retailers also believe that rapid changeover of styles encourages customers to visit stores more often. (On average, Zara customers visit 17 times per year.) Finally, continual refreshing of product range reduces the problem of competitors copying designs and flooding the market with reproductions sourced from low-cost countries.

By combining short lead-time replenishment, produced locally, with lower cost (but longer lead time) initial orders produced in Asia, the overall cost can be held down while capturing more potential sales and improving margins.

Figure 2.4 illustrates the differences between the traditional sourcing and fast fashion supply chain approaches. The top half of the figure shows the twin risks confronting retailers relying on traditional sourcing approaches, where a single large order is placed with producers well before a fashion season commences. The twin risks are lost sales arising from underestimating demand and conversely price mark-downs arising from excess supply. The lower half of the diagram describes how these risks can be managed by better matching supply to demand through a fast fashion production and retail strategy. There are various trade-offs involved in designing the right sourcing and supply chain option. The adoption of a fast-fashion strategy by both retailers and producers requires both organisations to take a total cost approach to fully assess the risks and sales opportunities available with alternative supply chain approaches.2

2 Empirical research by Lowson (2001) found that decisions to go offshore often did not include hidden and inflexibility costs and, if factored in, these would often have reversed the decision.
Retain mass production

In some countries, such as the United Kingdom, firms have persisted with a mass production strategy focused on low- to medium-quality apparel competing largely on the basis of price. There are many reasons for the persistence of this strategy. First, relatively low levels of labour regulation have created a competitive advantage through use of low-cost domestic labour, especially outworkers. Second, the small average size of UK TCF manufacturers limits their capacity to invest in equipment, IT and, especially, to create brands that can mitigate the negative effects of competitive pressures and increase margins.

Since the 1990s in the United Kingdom the trend has been towards ‘de-listing and break-up of formerly sizeable UK companies, either by individual large investors or equity funds, or via highly leveraged management buy-outs of parts of the original company. In these circumstances reinvestment of profits occurs only once investors or creditors have received their share’ (Probert 2008: 7). In addition:

[The] impact on training and skill acquisition of these different financial models, together with national institutionalised practices of and facilities for vocational training, is significant. British managers’ capabilities and skill profiles are generally considered even by industry insiders to be of very low calibre, with education levels and specialist expertise significantly lower than found in German firms. Graduate recruitment is problematic for the UK clothing industry as a whole and designers in British firms are not rated highly on either technical or commercial understanding, although they may score well on creativity. Large retail customers usually employ their own design teams… At supervisory and operative levels, employees in British firms generally have low to non-existent qualification levels and few opportunities for formal training. There is a widespread shortage of skilled machinists and other garment assembly operatives in all areas of the UK, as well as a shortage of inexperienced recruits owing to the generally poor image of the industry and the inability of many employers to provide the necessary induction and training

(Probert 2008: 7.)

The underdevelopment of education and training in management and design occupations combined with acute shortages of skilled operatives, especially pattern makers and machinists, limits the bulk of production to ‘commodity’ status. Fourth, decline of the UK textile making industry has limited the scope for innovation in design and quality, as the ‘two industries are mutually dependent, each relying on the other for innovatory stimulation and commercial input’ (Probert 2008: 9). Finally, the major retailers have generally assumed responsibility for design and branding, largely explaining the undeveloped nature of these activities among producers. Most producers have ‘abandoned brand-building attempts in favour of the apparent security of producing for retailers’ labels in the middle to low market segment’ (Probert 2008: 8).

The long-term viability of this model is open to question due to the diminishing cost of producing equivalent quality unbranded products or ‘house brands’ in developing nations.

High skill, high quality

Firms in countries such as Germany have largely vacated the field in terms of challenging low-price commodity imports and have instead focused on traditional strengths of high skill, quality and technical competence. The majority of German TCF firms are medium-sized with the financial resources and scale to invest in branding, technical innovation and training.

German firms cater mainly to the upper-middle market, with an emphasis on quality, fit and, in many cases, brand. In international markets their competitive advantage lies in small batch production of niche products, a strategy that depends on high skill levels at the upper end of the value chain and on a high level of control over suppliers. Branding by German producers permits forward integration into retailing to counteract the power of incumbent retailers.

Largely due to their technical training, German designers appear better at integrating creativity with the requirements for efficient and high-quality manufacturing processes. In the German industry roughly one in ten employees entered via an apprenticeship (Probert 2008: 8). Technicians recruited from among their number have become the backbone of production organisation and quality monitoring in foreign production sites.
The German textile industry is noted for its successful restructuring away from fabrics for general apparel and into technical textiles (including textiles for sportswear and underwear). This segment now constitutes 40 percent of total production value and makes Germany the world's leading producer. The move to technical textiles has enabled at least part of the industry to survive the switch by German clothing firms away from German-made textiles to supplies from Turkey and South Korea (where fabric is cheaper) and Italy (where it is more stylish). The remaining apparel textile producers have moved out of the volume market into niche markets, where technical excellence and speed of delivery are crucial and there is little competition from producers in low-wage countries. The industry is supported by a strong textile machinery industry, which also exports all over the world.

As in other countries, much German TCF production has been outsourced, although the methods employed differ in important respects from those commonly used by UK and US firms. In particular, German firms exercise more thorough quality control at all stages from preproduction to final delivery and frequently station their own technical staff with the supplier. Importantly, German firms invest considerable effort in training their suppliers, render technical support and supply know-how to improve the product—practices not in evidence at either US or UK firms. Hence it would appear that production of outsourced garments in reality remains under the influence of the German coordinating firm, ensuring virtual vertical integration.

The above summary provided a brief sketch of some common strategies adopted by TCF firms in high-wage economies in response to rising competitive pressure. There are many approaches firms can use, including abandoning all production to low-cost locations and focusing on upstream activities such as design, branding and retailing. Indeed, within a single large TCF firm multiple strategies can be employed for different product lines and markets. The response of Australian firms and their competitive strengths are examined in the next chapter.
CHAPTER 3
AUSTRALIA’S TCF INDUSTRIES
The TCF industries are conventionally defined in terms of a discrete set of manufacturing activities related to the processing of raw materials, either natural or synthetic, and the further processing and fabrication of these materials into a broad range of commodities. Within the Australian and New Zealand Standard Industrial Classification (ANZSIC) (ABS 1993), the industries comprise six broad groups, which are further subdivided into 19 industrial classes (Table 3.1).

**Table 3.1: Traditional structure of TCF industries in Australia, February 2008**

<table>
<thead>
<tr>
<th>ANZSIC Subdivision 22: Textile, Clothing, Footwear and Leather Manufacturing</th>
</tr>
</thead>
<tbody>
<tr>
<td>221: Textile Fibre, Yarn and Woven Fabric Manufacturing</td>
</tr>
<tr>
<td>2211 Wool Scouring</td>
</tr>
<tr>
<td>2212 Synthetic Fibre Textile Manufacturing</td>
</tr>
<tr>
<td>2213 Cotton Textile Manufacturing</td>
</tr>
<tr>
<td>2214 Wool Textile Manufacturing</td>
</tr>
<tr>
<td>2215 Textile Finishing</td>
</tr>
<tr>
<td>Employment: 2,900 (6%)</td>
</tr>
<tr>
<td>222: Textile Product Manufacturing</td>
</tr>
<tr>
<td>2221 Made-Up Textile Product Manufacturing</td>
</tr>
<tr>
<td>2222 Textile Floor Covering Manufacturing</td>
</tr>
<tr>
<td>2223 Rope, Cordage and Twine Manufacturing</td>
</tr>
<tr>
<td>2229 Textile Product Manufacturing n.e.c.</td>
</tr>
<tr>
<td>Employment: 13,500 (26%)</td>
</tr>
<tr>
<td>223: Knitting Mills</td>
</tr>
<tr>
<td>2231 Hosiery Manufacturing</td>
</tr>
<tr>
<td>2232 Cardigan and Pullover Manufacturing</td>
</tr>
<tr>
<td>2239 Knitting Mill Product Manufacturing n.e.c.</td>
</tr>
<tr>
<td>Employment: 1,800 (3%)</td>
</tr>
<tr>
<td>224: Clothing Manufacturing</td>
</tr>
<tr>
<td>2241 Men's and Boys' Wear Manufacturing</td>
</tr>
<tr>
<td>2242 Women's and Girls' Wear Manufacturing</td>
</tr>
<tr>
<td>2243 Sleepwear, Underwear and Infant Clothing Manufacturing</td>
</tr>
<tr>
<td>2249 Clothing Manufacturing n.e.c.</td>
</tr>
<tr>
<td>Employment: 27,600 (52%)</td>
</tr>
<tr>
<td>225: Footwear Manufacturing</td>
</tr>
<tr>
<td>2250 Footwear Manufacturing</td>
</tr>
<tr>
<td>Employment: 1,500 (3%)</td>
</tr>
<tr>
<td>226: Leather and Leather Product Manufacturing</td>
</tr>
<tr>
<td>2261 Leather Tanning and Fur Dressing</td>
</tr>
<tr>
<td>2262 Leather and Leather Substitute Product Manufacturing</td>
</tr>
<tr>
<td>Employment: 2,900 (6%)</td>
</tr>
</tbody>
</table>

n.e.c. = not elsewhere classified

Note: Percentages do not add up to 100 percent due to employment in ‘Textile, clothing, footwear and leather manufacturing not further defined’ category (2,500).

Source: ABS (2008a). Note that employment numbers in this table are not comparable to employment in Table 3.2, which is based on ABS (2007a, 2007b).

The commodities produced by the TCF industries include apparel; footwear; textiles and floor-coverings for households, commercial buildings and furniture production; commodities for a wide range of industrial uses such as industrial filters; geotextiles (used, for example, to prevent soil erosion); advanced composites used in the manufacture of sails or aircraft; shade cloth; and packaging materials. The TCF industries thus produce commodities for final consumption and intermediate inputs that enter into the production of a wide range of other commodities in many industries such as retail, manufacturing, mining and agriculture.

Not only are the products of, and markets for, TCF industries extremely heterogeneous but the production methods are also highly differentiated across the various subindustries. For example, some sectors known as ‘technical textiles’ produce commodities that may be the product of advanced chemical engineering and are both R&D and capital intensive. The products are technically innovative and often designed for specific applications for which there are few substitutes. The firms that produce these technical textiles in Australia are typically branches of large multinational corporations. At the other extreme is fabrication of ‘commodity’ clothing, which uses standardised designs and materials and competes exclusively on price as the goods are retailed through establishments servicing low-income mass markets. The manufacture of commodity clothing has experienced significant technological change, such as the use of computer-aided design in patternmaking and computer-aided manufacture in the cutting of materials. However, the fabrication of cut cloth into commodity apparel remains a labour-intensive and relatively low-skilled activity requiring minimal capital investment. As such, the manufacture of most clothing—and also footwear, which employs similar production techniques—has relatively low barriers to entry. (These economic factors, along with a high value-to-weight ratio for many clothing commodities—which makes long distance transport of TCF items feasible—are the principal reasons for the predominance of TCF activities in the early stages of industrialisation in developing economies.)
An implication of this extreme heterogeneity of products, markets and production methods is that it is difficult to generalise about industry-level market dynamics and prospects for future growth or to design general measures that meet the particular needs of specific industries. Importantly, the conventional definition is also the basis for determining the eligibility of firms for assistance under past and present TCF plans. Accordingly, much of this chapter is concerned with charting, in broad terms, the structure and performance of these industries.

QUESTIONING THE CONVENTIONAL DEFINITION

Many submissions to the Review, academic studies and analysis undertaken by the Review strongly suggested that the traditional definition of these industries is increasingly redundant in describing the current scope of activities undertaken by firms engaged in TCF-related activities. This problem is, in part, inherent in the ANZSIC classification system (or indeed many other systems for classifying economic activity) as an individual business unit is ‘assigned an appropriate industry category on the basis of its predominant activities’ (ABS 1993: 2). The ‘predominant’ activity is identified as that which generates the largest share of a firm’s sales. Each business unit is assigned to a single industry regardless of the range of activities undertaken within the unit.1 Consider the example of a firm undertaking multiple activities such as manufacturing footwear and importing footwear for sale to retailers. These activities are classified as distinct ‘industries’—manufacturing and wholesaling, respectively. Under ANZSIC the firm would be categorised to only one of these industries on the basis of the activity that represented the predominant share of sales.

Over the last three decades many TCF firms have responded to increased competitive pressure arising from reduced border protection by greatly diversifying their range of activities. For example, some firms combine manufacture with importing or concentrate on design while outsourcing manufacture to local and/or overseas firms. Some of this manufacture is outsourced to local firms that operate in the black economy by employing outworkers. Great diversity in the range of responses to a changed environment means that the relevance of the conventional definition of these industries is increasingly problematic. As Webber and Weller (2001: 344) have noted, ‘the TCF industry includes not only manufacturers but also wholesalers, retailers, managers and designers… As firms change strategies … so they shift between statistical categories’. This change in the nature and scope of activities within the TCF industries has a number of important implications. It is probable that Australian Bureau of Statistics estimates of the level of TCF manufacturing activity, such as employment and value added, are understated. This problem is likely to affect the TCF industries differentially, with subindustries such as clothing especially affected. It has not been possible to quantify the effect of the shifting classification of TCF firms.

AN EXPANDED VIEW OF THE TCF INDUSTRIES

The restructuring that has occurred in the TCF industries, particularly as a result of firms complementing their manufacturing activities with a range of service activities, suggests that the conventional view of the TCF industries needs to be modified. An expanded view of the industries, which accommodates the increased porosity across industrial boundaries that has occurred over recent decades, is provided in Table 3.2. This includes fashion design (part of the business services industry) and TCF wholesaling and retailing. (Wholesaling also encompasses related importing activities.) The Centre of Excellence for Creative Industries estimated that there were around 2,600 fashion designers employed in 2006 based on ABS Census data (Higgs 2008). TCF wholesaling employed 27,990 people and generated $2.5 billion in value added. TCF retailing employed 130,600 people and generated $4.97 billion in value added. In total, wholesaling and retailing employed 158,600 people—more than three times the number employed in TCF manufacturing—and these two service industries generated a total of $7.5 billion, nearly three times the amount generated by TCF manufacturing.

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1 This is a particular problem for small and medium-sized businesses that undertake activities across more than one industry classification but do not keep separate tax accounts for these activities.
### Table 3.2: Expanded view of TCF industries

<table>
<thead>
<tr>
<th>ANZSIC Subdivision 22: Textile, Clothing, Footwear and Leather Manufacturing</th>
<th>ANZSIC Class 7869: Business Services n.e.c.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment: 48,200</td>
<td>Auction rooms operation; auctioning service; business service n.e.c.; collection agency service; consumer credit reporting service; credit bureau or agency service; debt collecting service; fashion design service; interior decorating service n.e.c.; interpreting service; mercantile credit reporting service; microfiche production service; telephone answering service; translation service; valuation service</td>
</tr>
<tr>
<td>Industry value added: $2.7 billion</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ANZSIC Group 472: Textile, Clothing and Footwear Wholesaling</th>
<th>TCF Retailing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Textile product wholesaling</td>
<td>Floor coverings retailing</td>
</tr>
<tr>
<td>Employment: 6,236</td>
<td>Employment: 7,131</td>
</tr>
<tr>
<td>Industry value added: $0.5 billion</td>
<td>Industry value added: $0.5 billion</td>
</tr>
<tr>
<td>Clothing and footwear wholesaling</td>
<td>Manchester and other textile goods retailing</td>
</tr>
<tr>
<td>Employment: 21,754</td>
<td>Employment: 12,586</td>
</tr>
<tr>
<td>Industry value added: $2 billion</td>
<td>Industry value added: $0.5 billion</td>
</tr>
</tbody>
</table>

#### TRENDS IN OUTPUT, EMPLOYMENT AND LABOUR PRODUCTIVITY

The TCF industries in aggregate have experienced a sustained decline in real output and employment over the last three decades (Figure 3.1). Employment has fallen by 55 percent from 115,700 in 1989 to 51,500\(^2\) in 2007. The real value of industry output has fallen by close to 62 percent from $7.4 billion to $2.8 billion over the same period. To put this performance in perspective, total real manufacturing output over the same period increased by around 25 percent and employment declined by only 11 percent.

**Figure 3.1: Long-run trends in real value added and employment in Australian TCF industries, 1984 to 2007**

---

\(^2\) Total employment at November 2007 was 51,500. Average total employment over the last four-quarters to May 2008 is 48,500 (ABS 2008c).
Because the great bulk of total TCF output is consumed by households, overall demand for this output is a function of population growth and growth in real household income. Although total sales of TCF products are increasing, the rate of growth is dampened by the fact that household expenditure on TCF products as a share of total household expenditure is deceasing over time. In 1959/60, spending on TCF consumed 9.6 percent of total household expenditure; by 2000/01 it accounted for just 4.0 percent (DISR 2001). This decline is a function of reduction in the real price of TCF products (the same item costs less over time) and the propensity for households to reduce the proportion of their income spent on manufactures and increase their spending on services. (The latter also reflects real price increases in services, such as education, health, child care and aged care, due to factors such as the absence of international competition, oligopoly, industry structure and lower scope for labour-displacing technological change.)

The aggregate trends do, however, conceal the large variation in performance within the TCF sector: some industry groups have experienced either above-average rates of decline or increases in real value added (Table 3.3).3 The following changes occurred over the 11 years between 1995/96 and 2005/06.

- **Textile fibre, yarn and woven fabric manufacturing:** Real value added fell by 53.1 percent, employment declined by 60.2 percent and the industry’s share of total TCF real output fell from 25.2 percent to 15.0 percent. It made the largest contribution to the fall in total TCF real value added over the period.

- **Textile product manufacturing:** Real value added increased by 41.7 percent, employment increased by 25.9 percent and the industry’s share of total TCF real output rose from 17.4 percent to 31.1 percent.

- **Knitting mills:** Real value added fell by 60.9 percent, employment declined by 65.6 percent and the industry’s share of total TCF real output fell from 7.8 percent to 3.8 percent. It made the third largest contribution to the fall in real value added over the period.

- **Clothing manufacturing:** Real value added fell by 21.6 percent, employment declined by 38.7 percent and the industry’s share of total TCF real output remained fairly constant at around 38.0 percent as the rate of decline in this subindustry’s value added matched the rate for the TCF industries as a whole. It made the second largest contribution to the fall in real value added over the period.

- **Footwear manufacturing:** Real value added fell by 23.7 percent, employment declined by 54.5 percent and the industry’s share of total TCF real output, as with clothing, remained fairly constant, at around 6.0 percent. It made the fourth largest contribution to the fall in real value added over the period.

- **Leather and leather product manufacturing:** Real value added fell by 6.1 percent and employment declined by 6.9 percent. Because the industry’s value added fell at a much slower rate than for TCF as a whole, its share of total real output increased over the period from 4.7 to 5.6 percent. Of all the industries whose output fell over the period, it made the smallest contribution to the fall in total TCF real value added over the period.

It is clear from the above that there are substantial differences in the rate of labour productivity growth across these industry groups (Table 3.4).

---

3. An examination of the producer price indexes for the TCF industry groups and classes reveals large differences in output prices, with some having large increases and others declines in their nominal unit prices over time. In comparing the rate of output increase over time for these industries it would therefore be misleading to use current price data or a single industry-level deflator. The current price output data was therefore deflated using disaggregated producer price indexes.
Table 3.3: Change in employment and real value added between 1995/96 and 2005/06

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>221</td>
<td>Textile fibre, yarn and woven fabric manufacturing</td>
<td>13.3 5.3 -60.2% 701 329 25.2% 15.0% -53.1% -63.7%</td>
<td></td>
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<tr>
<td>2211</td>
<td>Wool scouring</td>
<td>1.6 0.4 -75.0% 127 31 4.6% 1.4% -75.6% -16.4%</td>
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<tr>
<td>2212</td>
<td>Synthetic fibre textile manufacturing</td>
<td>4.1 1.8 -56.1% 215 129 7.7% 5.9% -40.0% -14.7%</td>
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<tr>
<td>2213</td>
<td>Cotton textile manufacturing</td>
<td>3.1 1.4 -54.8% 154 89 5.6% 4.0% -42.2% -11.2%</td>
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<tr>
<td>2214</td>
<td>Wool textile manufacturing</td>
<td>2.5 0.8 -68.0% 74 39 2.7% 1.8% -47.3% -6.1%</td>
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<tr>
<td>2215</td>
<td>Textile finishing</td>
<td>2.0 1.0 -50.0% 117 59 4.2% 2.7% -49.6% -10.1%</td>
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<tr>
<td>222</td>
<td>Textile product manufacturing</td>
<td>11.6 14.6 25.9% 482 683 17.4% 31.1% 41.7% 34.3%</td>
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<tr>
<td>2221</td>
<td>Made-up textile product manufacturing</td>
<td>5.7 7.9 38.6% 164 252 5.9% 11.5% 53.7% 15.2%</td>
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<tr>
<td>2222</td>
<td>Textile floor covering manufacturing</td>
<td>2.7 3.2 18.5% 206 226 7.4% 10.3% 9.7% 3.4%</td>
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<tr>
<td>2223</td>
<td>Rope, cordage and twine manufacturing</td>
<td>0.6 0.5 -16.7% 30 28 1.1% 1.3% -6.7% -0.3%</td>
<td></td>
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<tr>
<td>2229</td>
<td>Textile product manufacturing n.e.c.</td>
<td>2.4 2.9 20.8% 92 146 3.3% 6.7% 58.7% 9.3%</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>223</td>
<td>Knitting mills</td>
<td>6.1 2.1 -65.6% 215 84 7.8% 3.8% -60.9% -22.5%</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2231</td>
<td>Hosiery manufacturing</td>
<td>2.5 0.9* -64.0% 78 36 2.8% 1.6% -53.8% -7.2%</td>
<td></td>
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</tr>
<tr>
<td>2232</td>
<td>Cardigan and pullover manufacturing</td>
<td>1.8 0.4 -77.8% 41 14 1.5% 0.6% -65.9% -4.7%</td>
<td></td>
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<tr>
<td>2239</td>
<td>Knitting mill product manufacturing n.e.c.</td>
<td>2.0 0.8 -60.0% 99 33 3.6% 1.5% -66.7% -11.3%</td>
<td></td>
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</tr>
<tr>
<td>224</td>
<td>Clothing manufacturing</td>
<td>33.6 20.6 -38.7% 1,077 844 38.8% 38.5% -21.6% -39.9%</td>
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<td></td>
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</tr>
<tr>
<td>2241</td>
<td>Men’s and boys’ wear manufacturing</td>
<td>8.7 2.1 -75.9% 259 91 9.3% 4.2% -64.9% -28.7%</td>
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<td></td>
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</tr>
<tr>
<td>2242</td>
<td>Women’s and girls’ wear manufacturing</td>
<td>11.1 3.9 -64.9% 411 156 14.8% 7.1% -62.0% -43.7%</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2243</td>
<td>Sleepwear, underwear and infant clothing manufacturing</td>
<td>4.8 1.5 -68.8% 160 101 5.8% 4.6% -36.9% -10.1%</td>
<td></td>
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</tr>
<tr>
<td>2249</td>
<td>Clothing manufacturing n.e.c.</td>
<td>9.1 13.1 44.0% 235 544 8.5% 24.8% 131.5% 53.0%</td>
<td></td>
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</tr>
<tr>
<td>225</td>
<td>Footwear manufacturing</td>
<td>5.5 2.5 -54.5% 169 129 6.1% 5.9% -23.7% -6.8%</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>226</td>
<td>Leather and leather product manufacturing</td>
<td>4.1 3.1 6.3% 131 123 4.7% 5.6% -6.1% -1.4%</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2261</td>
<td>Leather tanning and fur dressing</td>
<td>1.2 1.9* 58.3% 113 76 4.1% 3.5% -32.7% -6.3%</td>
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<tr>
<td>2262</td>
<td>Leather and leather substitute product manufacturing</td>
<td>2.9 1.2 -70.7% 18 48 0.6% 2.2% 166.7% 5.2%</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Textile, clothing, footwear and leather manufacturing</td>
<td>73.9 48.2 -34.8% 2,776 2,192 2.7% 100% -21.0% 100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Notes to Table 3.3

n.e.c. = not elsewhere classified

* ABS note: Estimate has a relative standard error of 10 percent to less than 25 percent and should be used with caution.

Notes: Nominal value added was deflated to real value added using ABS (2008d). The producer price indexes were applied at a three- and four-digit level. In 1995/96 and 2005/06 net industry output was measured via ‘industry gross product’ and ‘industry value added’, respectively. These concepts are not strictly comparable, but the data are suitable for determining broad changes in the intraindustry distribution of net output.


Table 3.4: Annual labour productivity growth across TCF industries, 1995/95 to 2005/06

<table>
<thead>
<tr>
<th>ANZSIC Code</th>
<th>Industry</th>
<th>Annual labour productivity growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>221</td>
<td>Textile fibre, yarn and woven fabric manufacturing</td>
<td>1.6</td>
</tr>
<tr>
<td>222</td>
<td>Textile product manufacturing</td>
<td>1.2</td>
</tr>
<tr>
<td>223</td>
<td>Knitting mills</td>
<td>1.3</td>
</tr>
<tr>
<td>224</td>
<td>Clothing manufacturing</td>
<td>2.5</td>
</tr>
<tr>
<td>225</td>
<td>Footwear manufacturing</td>
<td>5.3</td>
</tr>
<tr>
<td>226</td>
<td>Leather and leather product manufacturing</td>
<td>-1.3</td>
</tr>
<tr>
<td>22</td>
<td>Textile, clothing, footwear and leather manufacturing</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Source: Derived from Table 3.3.

It should also be noted that compared with manufacturing generally, the TCF industries have a much higher share of employment (and value added) generated by small firms (Table 3.5).

Table 3.5: Distribution of employment by firm size in Australian TCF industries and total manufacturing, 2005/06

<table>
<thead>
<tr>
<th>Firm size (persons)</th>
<th>TCF industries %</th>
<th>Total manufacturing %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–4</td>
<td>24.5</td>
<td>10.9</td>
</tr>
<tr>
<td>5–9</td>
<td>9.1</td>
<td>7.3</td>
</tr>
<tr>
<td>10–19</td>
<td>12.9</td>
<td>9.8</td>
</tr>
<tr>
<td>20–49</td>
<td>17.2</td>
<td>14.0</td>
</tr>
<tr>
<td>50–99</td>
<td>10.8</td>
<td>9.4</td>
</tr>
<tr>
<td>100 or more</td>
<td>25.7</td>
<td>48.6</td>
</tr>
</tbody>
</table>


One-quarter of total TCF employment in 2005/06 was in firms with zero to four employees compared to just over one in ten people in total manufacturing industry. At the other end of the firm-size scale, one-quarter of people employed in TCF industries were in firms with more than 100 employees compared to nearly half of total employment across all manufacturing industries.

INNOVATION PERFORMANCE OF THE TCF INDUSTRIES

The firm-size distribution of an industry is important: it is one of the principal factors determining the propensity of firms to spend on innovation, and the intensity of these expenditures.4 (Propensity is the proportion of firms in a given firm-size category that undertake innovation expenditures; intensity is the level of these expenditures as a proportion of a firm’s value added.)

It is well established across most industries and developed countries that larger firms have a much higher propensity to innovate and a lower intensity of innovation expenditure compared to smaller firms (ABS 2008a: 25–7). This is due to factors such as the capacity of larger firms to spread the risk of investing in innovation across larger cash flows; the lower cost of raising funds for innovation; and the greater scope for division of labour within the firm, enabling employment of specialist scientific and R&D management.

---

4 The other major factors are industry-specific variables such as the scope for technical change and the reliance of an industry on other industries for generating inputs to innovation, such as new capital goods, rather than developing these inputs internally.
personnel. Smaller firms have a substantially lower propensity and intensity of investment in workforce training, R&D and product and process innovation.

The substantially smaller average firm size in TCF is arguably a key factor in explaining why the R&D intensity of the TCF industries is substantially lower than for manufacturing as a whole. In 2005/06, R&D expenditure for TCF as a share of TCF value added was 1.4 percent compared to 3.9 percent for manufacturing as a whole (ABS 2007c, 1997). Investment by TCF in R&D is thus only around 36 percent of the rate for manufacturing as a whole. It is important to note, however, that TCF R&D expenditure has increased substantially over time and at a faster rate than for manufacturing as a whole. In 1992/93, the R&D investment rate was just 0.4 percent compared to 2.4 percent for manufacturing.

This line of reasoning was confirmed by the CSIRO in its submission to the Review:

The main barrier is that industrial innovation is very high risk, particularly radical innovation. Most Australian TCF companies are SMEs [small to medium-sized enterprises] and therefore, individually, lack financial, technical and managerial resources to take on and manage the risks associated with radical innovation. To overcome this, groups of companies and researchers need to come together in innovation clusters to identify and develop technology platforms which will provide the basis for a range of globally competitive products in particular market segments where Australia can have comparative advantage. One way to facilitate this may be to provide incentives that go some way in reducing the risks associated with radical innovation for industry and researchers alike.

Another factor in the low R&D performance of the sector is that internationally it has been found to be especially dependent on innovation undertaken in other industries that supply it with a variety of inputs. The New South Wales Business Chamber commented on the level of R&D intensity in general in its submission:

The OECD … observes that ‘the R&D intensities of textiles and clothing industries is quite low throughout the OECD area’. Based on an analysis of textiles and clothing industries in 16 advanced economies, the OECD concludes that ‘there is no significant correlation between the increase in R&D and trade performance’. This is because most technological innovations in textiles and clothing originate in other industries. Consequently, ‘the technological competitiveness of producers of textiles and clothing largely depends on their ability to adopt new products and processes developed elsewhere’.

TCF firms are also less likely to invest in product, process or organisational innovation than the average manufacturing firm. Just 30 percent of all TCF firms undertook some form of innovation in 2002/03 compared to 40 percent of total manufacturing firms. However, as with R&D, TCF firms have increased their rate of innovation faster than for all manufacturing firms. In 2004/05 the rate of TCF firms undertaking innovation had increased to 38 percent compared to 42 percent of total manufacturing firms (ABS 2006a).

As noted above, the comparatively small scale of most local TCF firms is also a barrier not just to achieving scale economies in capital-intensive processes such as natural and synthetic textile manufacture but also to investing in efficient supply chains and branding (Gattorna & Ellis 2008: 21).

INPUT–OUTPUT STRUCTURE OF THE TCF INDUSTRIES

Input–output data describe the value of flows of products and services from other industries to TCF industries (inter-industry linkages) and also within the TCF industries themselves (intra-industry linkages). Flows of goods and services are ‘current’ inputs if they are used within the firm in the production process within 12 months of purchase, and are generally known as intermediate inputs or flows. (Intermediate flows do not include capital goods, which are classified as investment.) The data also show the contribution to production of ‘primary inputs’ (labour), in the form of wages, and capital, in the form of gross profits.

The latest input-output data for the economy (Table 3.6) indicate that the total supply of TCF products in 2001/02 in Australia at basic prices was $18.7 billion. (Basic prices are the amount received by the producer plus government subsidies minus taxes and ex-factory transport costs.) Of this total supply, $10.5 billion (56 percent) was defined as Australian production. The industries used $5.6 billion of domestic intermediate inputs and another $1.7 billion of imported intermediate inputs. Wages for workers employed
in the TCF industries and gross profits contributed $2.88 billion to local production. Another $8.2 billion of imported made-up TCF product was used.

TCF firms draw on many other industries for their intermediate inputs. As in other manufacturing sectors, the value of these inputs greatly exceeds the industries’ own value added. For every $1 of value added in the TCF industries, another $1.90 of intermediate inputs was purchased from other domestic industries. Table 3.7 indicates the source of the principal intermediate inputs to the six TCF industry groups. Again, as is typical of manufacturing activity, the sector’s output is often a major input into TCF production. For example, the largest domestic intermediate input into the textile products and clothing sector is from the textiles and knitting products sector.

A surprisingly large value of intermediate inputs is derived from scientific research and technical and computer services industries. In 2001/02 well over $200 million was spent by TCF firms on these services. This is consistent with the view that one response of the TCF industries to increased competitive pressure has been to seek product and process improvements through investment in knowledge-based activities.

However, with the decline in the real value of production in the TCF industries over time, their use of these domestic intermediate inputs and labour and capital has declined markedly. The TCF industries exemplify the problems for competitiveness that flow from the vicious circle engendered by a continuous decline in industry output, which weakens the supply chain and further diminishes competitiveness. For example, the decline of clothing manufacture in Australia has led directly to a decline in demand from those parts of the TCF industries (such as textile products) that supplied a large part of their output to the clothing industry.

These problems resulting from the ‘hollowing out’ of the input–output structure of the TCF industries were prominent in the public consultations, submissions to the Review and research commissioned for the Review. For example, it is increasingly difficult for remaining firms to competitively source specialist suppliers of materials, machinery or chemicals, specialists engaged in the maintenance of TCF equipment, or other skilled labour pools and specialist training providers. As one footwear producer noted:

As the industry has contracted we found it more and more difficult and time consuming to source skilled footwear labour, skilled footwear trade mechanics, a satisfactory range and quality of materials e.g. leather, soles, heels, trims etc.

(WRC 2008: 13.)

It has also been suggested that the decline in local textile production reduces the capacity for clothing designers and manufacturers to exploit the competitive advantages of rapid turnaround in fashion items (Gattorna & Ellis 2008: 21). A larger local textile capacity could improve the availability of fashionable materials and reduce the high costs of holding imported textiles that are currently experienced by textile wholesalers and clothing manufacturers. More generally, a number of factors tend to reinforce an initial decline in output such that industries enter a vicious circle of declining output and competitiveness.

First, scale economies at an individual firm level, whereby average cost declines as output increases, are important in the production of many goods and services. Scale economies are arguably becoming more important as lower global transport costs (at least until recently), reduced communications costs and computerisation of production processes enable larger and more complex processes to be managed. The diminution of Australian TCF output weakens the capacity of the industries to exploit scale economies and retain production locally.

Second, ‘user–producer interaction’—the flow of ideas between the users of capital goods and intermediate inputs and the producer of these inputs (Von Hippel 2005; Rosenberg 1982)—is a key source of incremental improvements in the performance of these inputs and is greatly enhanced by physical proximity between users and producers. This source of productivity growth is lost when the suppliers of inputs either shift their production offshore and/or cease production and import, or simply cease supply altogether.

Third, as industries grow there is a progressive intensification of the division of labour both within the industries themselves and across their myriad suppliers of goods and services. This division of labour is a
critical source of more productive specialist inputs and new technologies, which in turn are a crucial source of productivity growth for industry (Romer 1994). Growth in the size of the market is a major stimulus to invention as market opportunities open and the ‘animal spirits’ of entrepreneurs are uplifted. This source of productivity growth, which has been confirmed for many centuries, is lost when an industry’s output declines or stagnates. It was noted earlier that China has benefited from the simultaneous development of both its TCF industries and the capital goods producers who supply the wide range of specialised production equipment to textile, footwear and apparel manufacturers.

Table 3.6: Input–output structure of Australian TCF industries, 2001/02

<table>
<thead>
<tr>
<th>Type of input to TCF industries</th>
<th>Textile fibres, yarns and woven fabrics ($m)</th>
<th>Textile products ($m)</th>
<th>Knitting mill products ($m)</th>
<th>Clothing ($m)</th>
<th>Footwear ($m)</th>
<th>Leather and leather products ($m)</th>
<th>Total TCF ($m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total domestic intermediate inputs</td>
<td>1,747</td>
<td>1,293</td>
<td>214</td>
<td>1,308</td>
<td>156</td>
<td>885</td>
<td>5,604</td>
</tr>
<tr>
<td>Total imported intermediate inputs</td>
<td>123</td>
<td>567</td>
<td>79</td>
<td>709</td>
<td>68</td>
<td>170</td>
<td>1,716</td>
</tr>
<tr>
<td>T1 Total intermediate inputs</td>
<td>1,870</td>
<td>1,860</td>
<td>293</td>
<td>2,018</td>
<td>225</td>
<td>1,055</td>
<td>7,320</td>
</tr>
<tr>
<td>P1 Compensation of employees</td>
<td>451</td>
<td>542</td>
<td>123</td>
<td>734</td>
<td>160</td>
<td>115</td>
<td>2,125</td>
</tr>
<tr>
<td>P2 Gross operating surplus and mixed income</td>
<td>47</td>
<td>197</td>
<td>36</td>
<td>287</td>
<td>2</td>
<td>182</td>
<td>750</td>
</tr>
<tr>
<td>P3 Taxes less subsidies on products</td>
<td>90</td>
<td>26</td>
<td>2</td>
<td>60</td>
<td>3</td>
<td>14</td>
<td>195</td>
</tr>
<tr>
<td>P4 Other taxes less subsidies on production</td>
<td>25</td>
<td>20</td>
<td>13</td>
<td>24</td>
<td>7</td>
<td>5</td>
<td>94</td>
</tr>
<tr>
<td>T2 Gross value added (P1+P2+P4)</td>
<td>523</td>
<td>759</td>
<td>172</td>
<td>1,045</td>
<td>169</td>
<td>302</td>
<td>2,970</td>
</tr>
<tr>
<td>T3 Australian production (T1+T2+P3)</td>
<td>2,484</td>
<td>2,645</td>
<td>467</td>
<td>3,122</td>
<td>396</td>
<td>1,370</td>
<td>10,484</td>
</tr>
<tr>
<td>T4 Imported final product</td>
<td>1,613</td>
<td>1,125</td>
<td>520</td>
<td>3,196</td>
<td>1,024</td>
<td>728</td>
<td>8,205</td>
</tr>
<tr>
<td>T5 Total Australian supply (T3+T4)</td>
<td>4,096</td>
<td>3,770</td>
<td>988</td>
<td>6,318</td>
<td>1,420</td>
<td>2,097</td>
<td>18,689</td>
</tr>
</tbody>
</table>

Source: ABS (2006b: Tables 5 & 8). Data on items T1 to T3 are derived from Table 5 and items T4 and T5 from Table 8.

Table 3.7: Principal domestic intermediate inputs to Australian TCF industries, 2001/02

<table>
<thead>
<tr>
<th>Textile fibres, yarns and woven fabrics</th>
<th>$m</th>
<th>Textile products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal domestic intermediate inputs</td>
<td>$m</td>
<td>Principal domestic intermediate inputs</td>
</tr>
<tr>
<td>Sheep</td>
<td>953</td>
<td>Textiles and knitting products</td>
</tr>
<tr>
<td>Services to agriculture</td>
<td>265</td>
<td>Chemicals and plastics</td>
</tr>
<tr>
<td>Textiles and knitting products</td>
<td>87</td>
<td>Wholesale, retail and repairs</td>
</tr>
<tr>
<td>Transport and communication</td>
<td>42</td>
<td>Transport and communication</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Scientific research and technical computer services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Legal, accounting, marketing and business management services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other business services</td>
</tr>
<tr>
<td>Total domestic intermediate inputs</td>
<td>1,747</td>
<td>Total domestic intermediate inputs</td>
</tr>
</tbody>
</table>
Fourth, it is also well established that ‘learning by doing’ is both a major source of productivity growth for firms and a direct function of cumulative experience with production processes (Arrow 1962). Because learning and incremental improvement within a given firm in the efficiency of labour and the design of products and production processes are a function of experience with production, it follows that any decline in the rate of output growth will slow the rate of learning and productivity. All of these dynamic economies are greatly diminished when an industry experiences sustained declines in output (McCombie, Soro & Pugno (eds) 2002).

INCREASED IMPORT COMPETITION

The largest contributor by far to the decline in overall industry output and employment has been the rising share of imports in total Australian sales of TCF products. The share of domestically produced TCF products in total Australian sales of TCF products has been falling consistently for several decades (Table 3.8).5

Table 3.8: Australian domestic market share by TCF industry, 1975/76 and 2005/06

<table>
<thead>
<tr>
<th>1975/76</th>
<th>2005/06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Textile fibres, yarns and woven fabrics</td>
<td>53.6%</td>
</tr>
<tr>
<td>Other textile products</td>
<td>77.5%</td>
</tr>
<tr>
<td>Knitting mills</td>
<td>78.3%</td>
</tr>
<tr>
<td>Clothing</td>
<td>80.4%</td>
</tr>
<tr>
<td>Footwear</td>
<td>76.0%</td>
</tr>
<tr>
<td>Leather and leather products</td>
<td>70.6%</td>
</tr>
</tbody>
</table>

5 Local market share is defined as:

\[ \text{LMS} = \frac{(S - X)}{(S - X) + (M + D)} \times 100 \]

where: \( S \) = sales of locally produced goods; \( X \) = exports; \( M \) = imports and \( D \) = duty paid.

The principal driver of the rising import share is the dramatic decline in the price of imported TCF products, especially those emanating from China. For example, the landed price of Chinese footwear in Australia has remained relatively constant in nominal dollars for the past 13 years, averaging $8.59 per pair (Table 3.9). (The landed price excludes tariffs or other Australian taxes.) This implies that there has been a large decline in the real landed price of imports. Given that the quality of Chinese imports almost certainly improved during this time, this would result in an even larger real price reduction in the landed unit price over the period.

Table 3.9: Landed unit price of TCF items, 1995/96 to 2007/08

|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Clothing—Articles of apparel and clothing accessories of leather or of composition leather
| China   | $7.0    | $7.1    | $8.0    | $8.9    | $8.6    | $10.2   | $10.7   | $9.8    | $8.2    | $8.3    | $8.6    | $8.6    | $7.7    |
| Italy   | $31.6   | $33.4   | $31.1   | $35.6   | $36.3   | $40.9   | $44.0   | $51.9   | $57.3   | $59.4   | $56.2   | $68.5   | $75.6   |
| Clothing—Knitted clothing
| China   | $1.9    | $1.8    | $2.2    | $1.8    | $2.5    | $2.6    | $2.3    | $2.0    | $2.2    | $2.2    | $2.4    | $2.6    | $2.6    |
| Italy   | $24.0   | $20.3   | $23.7   | $29.9   | $29.3   | $43.3   | $40.8   | $60.4   | $48.9   | $49.5   | $53.8   | $49.1   | $66.7   |
| Clothing—Non-knitted clothing
| China   | $2.3    | $2.3    | $2.7    | $2.7    | $3.1    | $2.9    | $2.5    | $2.2    | $2.3    | $2.6    | $2.6    | $2.5    | $2.5    |
| Italy   | $7.0    | $10.2   | $7.5    | $5.9    | $7.1    | $10.7   | $9.5    | $7.2    | $8.0    | $8.7    | $8.5    | $7.9    | $6.4    |

Notes: The landed unit price is derived by dividing total value of imports of a particular commodity by the number of imports of that commodity.

The data for 2007/08 are based on three quarters of data up to end March 2008.

The average unit price of knitted clothing is often much lower than that of non-knitted clothing as it is driven down by increased imports of low-cost knitted items (e.g. socks).


The result has been a dramatic increase in the share of footwear imports from China, which went from 14.2 percent of total TCF imports in 1988/89 to 67.7 percent in 2007/08 (Figure 3.2). The share of clothing imports from China increased from 34.6 percent to 77.3 percent over the same period.

It is clear that a combination of a large decline in the real unit price of total TCF imports and a large rise in the share of such imports in domestic supply have caused a ‘deflationary shock’ for local producers. This has been felt in the TCF industries across all developed economies. Local TCF producers have simply been unable to increase productivity sufficiently fast and/or improve product attributes (such as quality and branding) to offset the low cost of overseas production or to offset rising prices of domestic inputs to match declining real import prices.6

6 It is interesting to note that, while the landed unit price of Chinese and total footwear imports remained flat, the CPI for footwear also remained unchanged over the period. This has been taken to support the view that there is full or near full pass-through of changes in import prices into consumer prices. Indeed, the index number for total footwear was 98 in March 1996 and 96 in March 2008. (The CPI has a base of 100 indexed to 1989/90 prices.) However, over the same period there were a number of changes which should have contributed to a much larger reduction in either the landed price or the CPI for footwear. Between 2001 and mid-2008 the Australian dollar appreciated against the US dollar by 88 percent. The Chinese currency maintains close parity with US dollars. Given this very significant appreciation, the landed price would be expected to reflect this near-doubling in the purchasing power of the Australian dollar. The failure of the landed price to reflect exchange rate movements is consistent with the well-established finding that there is low ‘pass-through’ of exchange rate movements into domestic import prices (Froot & Klemperer 1989). Gagnon and Ihrig (2004) found that, over the period 1971 to 2003 across 20 industrial countries, the coefficient of average long run rate of pass-through of exchange rate change into consumer prices is just 0.23. In other words, a 10 percent change in exchange rates leads to a 2.3 percent change in consumer prices. Moreover, they found that, since the early 1990s, this coefficient has declined to 0.05. A 10 percent change in exchange rates leads to a 0.5 percent change in consumer prices. This low rate of pass-through is attributed to macroeconomic variables, such as more stringent inflation targeting, and microeconomic variables, such as strategic pricing on the part of exporters and retailers. The tariff on footwear fell from 30 percent in 1995 to 10 percent in 2005. If the exchange rate appreciation and the tariff had been fully passed through to consumer prices over the period, there should have been a very large reduction in the footwear CPI. This did not occur. A study by the Prices Surveillance Authority (1988), the precursor to the Australian Competition and Consumer Commission, found that exchange rate and tariff reductions were not fully passed through by retailers to consumers.
It is also the case, however, that some countries have been able to significantly increase the landed unit price of their TCF products in Australia. The quantity of imported Italian footwear remained constant over the period but the unit price increased by 140 percent. The quantity of Spanish footwear increased nearly threefold over the period and the unit price nearly doubled. The landed unit price of Spanish shoes was over seven times that of Chinese footwear. The quantity of German footwear increased more than fourfold and the unit price remained relatively constant. (The constant unit price probably reflects the fact that, for much of the period, German unit prices were higher than those for Italian and Spanish footwear.) The unit landed price of German footwear is over six times that of Chinese footwear.

Similar results apply for clothing. The landed unit price of Italian leather clothes and accessories increased threefold over the period, and in 2006/07 was around 26 times greater than for Chinese goods. These trends also apply to Italian non-knitted clothing imports, but not to knitted clothing. The value of Italian non-knitted clothing imports to Australia is more than double that of Italian knitted imports. These results reflect the well-established fact that the consumer market for TCF is highly segmented, in terms of quality and price. Some consumers are highly price-sensitive and others much less so. The market for high-quality, high-price footwear (defined as footwear imports from Italy, Spain and Germany) represents around 10 to 11 percent of the total landed value of footwear in Australia. The total value of imported footwear in 2006/07 was $1.2 billion, implying that the value of high-quality footwear imports was around $120 million.

These results also have important implications for the domestic TCF industries. They indicate that high production costs are not necessarily a barrier to competitiveness in developed economies, and that quality and branding do provide a sustainable basis for TCF industries. Furthermore, the size of the market for such TCF goods is quite large. On the other hand, branding and quality do not represent an insuperable barrier to entry. It must be recognised that, as the quality of imports from developing nations improves, consumers are likely to be less prepared to pay a high premium for branded products made in developed economies. This strongly suggests that innovation in products, processes and marketing are central to the sustainability of TCF manufacture in developed nations.

**OTHER COMPETITIVE PRESSURES**

The rising share of imports in the TCF industries can be attributed primarily to the deflationary shock from developing country imports, combined with a reduction in border protection over several decades. A number of other competitive pressures have been identified in the literature (some of which have also arisen indirectly from the removal of border protection), including the increased market power of major retailers; changes in the procurement strategies of major non-retail consumers of TCF products; and, related to this, the difficulties of small and medium-sized enterprises participating in global supply chains.
Increased concentration of major retailers

Aside from import competition, TCF manufacturers have been adversely affected by consolidation in the Australian retail sector. In particular, Australian TCF retailing “has become more concentrated with the larger department store operators … accounting for an increasing share of home textile, clothing and footwear sales” (Productivity Commission 2003: 10). The market power of the large retailers has enabled them to squeeze the margins of local manufacturers and to impose other costs on them, such as investment in warehousing and inventory control to enable just-in-time delivery of products to stores. In the past, retailers had their own warehousing and distribution facilities.

Over the last two to three decades the retail sector has shifted from being a passive purchaser and on-seller of TCF products to having more active involvement in design, branding and management of TCF production. Retailers also have sophisticated in-house quality assurance mechanisms for house brands and generic products. By developing their own house brands, retailers are able to absorb that part of the manufacturers’ margin derived from design, branding and wholesaling. House brands also enable them to differentiate their products from those of other retailers and to achieve higher margins, as these house brands are typically priced at a level between generic products and independent brands.

This shift from consumer to production coordinator on the part of the major retailers has greatly increased competitive pressure on local TCF manufacturers. As retailers improve their knowledge of TCF sourcing, production processes, production costs and manufacturing suppliers, this knowledge is used to increase competitive pricing pressure on producers. For example, by designing their own products, retailers can create competition between local and overseas producers to ensure the lowest production costs. These findings are confirmed by the results of a large-scale survey undertaken for the Review of TCF firms in receipt of federal government assistance. When asked to identify sources of competitive pressure, the firms noted that retailers have increased pressure on price and quality (WRC 2008: 13).

Prime vendor procurement

Major competitive pressure has arisen from changes in the procurement functions of large consumers of TCF products. In the past, large-volume purchasers typically had their own specialist procurement officers whose job it was to source individual TCF items, on the basis of value for money, from individual suppliers. These large-volume consumers also had their own warehousing and logistics facilities to stock and distribute products as required. It was reported to the Review that, over the last few decades, these internal purchasing functions have been outsourced to single suppliers under what is referred to as ‘prime vendor procurement’. Large consumers of TCF products can potentially reap cost savings by outsourcing the procurement transaction costs involved in contracting with a multiplicity of suppliers, warehousing and distribution. It was reported that this has occurred in government entities such as the Department of Defence, prisons, customs, police, public works departments and large private-sector consumers of corporate apparel, such as banks and transport companies. The TCF products these large consumers procure can cover an extraordinary range of apparel, including underwear, socks, ties, varieties of shirts, shorts, pants, coats, rainwear, shoes, boots and hats. Many of these items also have to suit a variety of climates (due to a widely dispersed population) and changing seasons.

In public consultations and submissions, it was argued that this change in procurement practice adversely affects local TCF producers. Local suppliers may be competitive on a value-for-money basis in the supply of their particular commodity; however, they may not be of sufficient scale to operate as prime vendors, which would require the management capacity to identify, evaluate and contract with sources of supply, as well as the possession of suitable warehousing and logistics facilities. Prime vendors may not directly produce all—or even most—of the items they are contracted to supply, but may source from other manufacturers or wholesale suppliers. Just as there are transaction cost savings for large consumers who outsource procurement to prime vendors, so there are savings for prime vendors in contracting with the smallest number of potential suppliers. This situation favours prime vendors contracting with large suppliers who are capable of supplying the broadest range of commodities. If these transaction cost savings exceed the price differential between a small, competitive, local supplier of an individual TCF item and an overseas supplier (who may not even be competitive on the same item), it may be rational for the prime vendor to choose the latter. It was suggested to the Review that this situation is common, in that smaller local suppliers are not
asked to tender to prime vendors, who prefer instead to deal with large overseas firms that can supply the bulk of their needs. In addition, for large overseas firms that make or supply a wide variety of TCF products, it may be rational to price some items at a loss, to undercut a local competitive supplier, if the overall supply contract remains profitable.7

The problem for smaller local producers that arises from prime vendor procurement is in part a consequence of the hollowing out of the Australian TCF supply chain. There are arguably higher transaction costs in dealing with a multiplicity of smaller local producers, who are capable of supplying only a part of a large consumer’s requirements, than a bigger overseas-based firm who can source from an integrated supply chain.

Copyright protection and product labelling

It was suggested to the Review that many local fashion designers and manufacturers are adversely affected by their designs being copied by department stores, other fashion retailers and wholesalers who arrange for production to be undertaken locally or offshore and then sold with no recompense or acknowledgement to the original designer. In this way retailers and wholesalers can capture part of the rent accruing from the temporary monopoly created by a fashion design. This copying arises in part because of the expense in registering or copyrighting designs and the relative ease of circumventing design protection—for example, by small changes in the pattern or fabric. In addition, even if copyright on a design is sought and granted, legal action to defend intellectual property is expensive and the outcome of such action uncertain. At the public consultations for the Review it was commented that ‘there are inherent difficulties in protecting intellectual property (IP) on fashion design lines (e.g. because designs are ephemeral and highly visible)’ and ‘IP protection can be too expensive and onerous and still ineffective in stopping copyright infringement’.8

In addition, it was claimed that a source of ‘unfair’ competitive advantage was the failure of some wholesalers and retailers to ensure that products were labelled correctly. Examples were provided of imported goods labelled as being made from pure wool, which were subsequently found to be manufactured from synthetic materials. Criticism was made in particular of the Australian Customs Service, state consumer affairs departments and the Australian Competition and Consumer Commission for not being sufficiently active in investigating the veracity of product labelling or pursuing complaints from local producers. It is difficult and expensive for local manufacturers to monitor the veracity of statements made on competitors’ labels about matters such as place of manufacture and material composition.

Small and medium-sized enterprises and global supply chains

The problems identified above, arising from copyright infringement and prime vendor procurement, are instances of the more general issues confronting the integration of SMEs into global supply chains. Global production is subject to increasing vertical disintegration (Milberg 2004). This means that the different intermediate inputs and production processes involved in the manufacture of a given commodity come from plants in different geographic locations. Increasingly these plants are not owned by the lead contractor but operate at arm’s length as independent subcontractors. These are often very large firms in their own right that can provide specialist inputs and services to a number of lead contractors. Increasingly, the role of lead firms is to supply key intellectual property, such as R&D, design, branding and marketing, and to coordinate the activities of a multiplicity of subcontractors. Entry into these global supply chains, whose lead contractors are manufacturers, wholesalers or retailers, is thus vital to the viability of many TCF firms. A comprehensive statement of the problems confronting SMEs seeking entry to these global supply chains and/or maintaining their participation in these chains has been recently issued by the OECD (2007: 1):

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7 It has also been observed that it may be rational for overseas firms to supply into the Australian market on the basis of short-run marginal variable cost pricing. (This only covers the costs of variable inputs, such as materials and labour, and does not include the cost of capital or profits. For pricing to be sustainable, it must cover both variable and fixed costs—this is known as average cost pricing.) Marginal variable cost pricing is a form of ‘dumping’ and may be undertaken for a variety of reasons. In continuous process production systems it may be rational to supply at below-average cost for a short period, in order to keep a plant operating, due to the high costs of plant shut-down. For large firms, a temporary unforeseen reduction in orders is dealt with by building up inventory, which may be disposed of at marginal variable cost. Dumping may also serve a strategic predatory purpose of removing a competitor from a market. Finally, it has even been argued that the tilt of the Earth as it revolves around the Sun and the vagaries of fashion are a factor! Premium fashion items produced for a northern hemisphere winter that remain unsold can be disposed of in Australia later at marginal cost once they are no longer fashionable (Webber & Weller 2001: 38). From a conventional economic viewpoint such dumping is highly market distorting as it sends the ‘wrong’ price signal to Australian manufacturers because such trade is not based on the principle of comparative advantage but a form of strategic pricing.

8 Public consultation, Sydney, 14 May 2008.
However, SMEs’ involvement in value chains usually entails greater demands on their managerial and financial resources, and pressures on their ability to upgrade, to innovate and to protect in-house technology. SMEs may be limited by their inability to undertake R&D activities and training of personnel, and to comply with the growing number of requirements of product quality standards demanded by others in the [global value chain]. Insufficient working capital can also be a barrier to SME participation in global value chains, in terms of their ability to upgrade technologies and services. Cash-flow can also be affected adversely through delayed payments from international partners. Moreover, in order to upgrade its position in the value chain, a small firm may need to take on a larger and more complex set of tasks: for example, in addition to manufacturing a product or providing a service, it may involve contributing to the product development, organising and monitoring a network of sub-suppliers, implementing internal systems of quality control and assuring compliance to an increasing set of standards, and ensuring delivery and quality at competitive costs.

The OECD report argues that addressing these problems requires ‘governments, multinational enterprises, business associations and international institutions … [to] play a significantly greater role in assisting SMEs to enter and to rise to the challenges of active participation in global value chains’ (OECD 2007: 2). The difficulties of integrating the Australian TCF industries into global supply chains are particularly acute given their disproportionate share of small firms and the declining scale of TCF output.

RESPONSE OF FIRMS TO COMPETITIVE PRESSURES

The previous section examined the sources of rising competitive pressure and quantified the scale of this pressure in terms of declining market share of local producers. This section briefly examines the great variety of responses to these competitive challenges. Summarised below are a number of increasingly common strategies employed by firms. It is important to emphasise that these strategies are not mutually exclusive as firms can adapt by using multiple strategies. These responses mirror the great range of adaptations that occurred in other developed countries identified in Chapter 2.

Outsourcing production

In clothing and footwear and other labour-intensive parts of the TCF industries, without a major technical breakthrough there is limited scope for continued mechanisation. This has led those parts of the TCF industries engaged in the production of low-value commodity products to outsource all or part of their labour-intensive production to either low-labour-cost offshore locations or local outworkers. From the mid-1980s, larger Australian firms were world leaders in the movement of production facilities to China. Many large and successful Australian clothing and accessory brands have adopted the strategy of focusing their Australian activities on design and marketing and outsourcing overseas all or a large share of their production.

There are major cost savings in the use of domestic clothing outworkers. These arise from the fact that much outwork is home-based and so does not incur the capital costs of buildings and commercial rates and utilities. Outworkers, whether home- or factory-based, are frequently engaged as subcontractors, not as employees, working on a piece-rate basis. This means that their ‘employers’ can avoid paying award rates and on-costs such as superannuation, workers compensation insurance and holiday pay, and adherence to occupational health and safety requirements. Some outworkers and the entrepreneurs who engage them operate in the ‘black economy’ and so gain a cost advantage through tax avoidance.

The number of people engaged as outworkers is considerable, although estimates are fraught with methodological problems arising from respondent bias (unwillingness to identify oneself as an outworker due, for example, to involvement in tax avoidance or welfare fraud); language difficulties (as many outworkers are recent migrants) and self-identification (some with multiple jobs may not identify themselves as outworkers). There are similar problems in estimating the value of outworker production, as there may be little correspondence between the labour cost involved and the wholesale or retail price of the product. One conservative estimate concluded that ‘outworker employment is now around 40 per cent of total

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9 This section draws heavily on the work of Webber and Weller (2001) and the WRC (2008) survey of Australian TCF firms in describing how these firms adapted to a more competitive environment.
factory based employment across the whole TCF sector and exceeds factory based clothing manufacturing employment by about 25 per cent’ (Productivity Commission 2003: 182).

Outsourcing is not restricted to clothing and footwear. In all other elements of the TCF industries, be it carpets, textiles or shoes, firms continually assess whether to ‘make or buy’ all, or parts, of their product range.

**Moving into other activities**

To avoid the market power of major department stores and fashion retailers, some firms have established their own retail outlets. These take a variety of forms, such as up-market retail shops, direct sales to the public from the factory or setting up a retail ‘presence’ within a larger department store. The survey of TCF firms in receipt of government assistance found that 14 percent of clothing producers sold directly to the public (WRC 2008: 5). Others supplement income derived from manufacturing and/or retailing with wholesaling.

Another common response is to abandon both manufacture and design in favour of simply importing and wholesaling foreign TCF goods. A small number of firms have used their extensive knowledge of the industry to establish consultancy services to assist local producers, wholesalers and retailers with sourcing, design and branding.

**Shifting up-market**

Given the declining competitiveness of local TCF ‘commodity’ production, many firms seek to find a competitive niche by exploiting the temporary monopolies and ‘first-mover advantages’ generated by fashion. For clothing, footwear and accessories producers, the upper end of the fashion market may be lucrative but, if exports are not pursued, it is also limited, given the small local demand for high-end fashion. In the past, the small size of the market and seasonal nature of fashion clothing items in Australia meant that manufacturers supplemented their income by supplying the local commodity clothing market. With the loss of this market to overseas low-cost producers, there is no longer the level of demand to enable these local manufacturers to maintain year-round production capacity (Webber & Weller 2001: 142).

Other firms engaged in, for example, the production of defence or corporate apparel, carpets, shade cloth and geo-textiles have sought to gain a competitive edge by improving the quality and technical attributes of their products and by working more closely with major clients to customise products to their specific needs. The survey of TCF firms in receipt of government assistance found that 38 percent of TCF firms have responded to intensifying competitive pressure by ‘developing new products’ and 25 percent were ‘offering a product with unique features’ (WRC 2008: 9). As noted earlier, the rate of increase of R&D intensity in TCF over the last two decades was much faster than for manufacturing as a whole, although the level of R&D expenditure as a share of value added is much lower than for manufacturing as a whole. It was also noted that the proportion of TCF firms investing in product, process and organisational innovation has increased at a much faster rate over the last few years than for manufacturing as a whole.

A further strategy is to change manufacturing production methods to improve productivity and reduce set-up costs and turnaround times from order to delivery, often in conjunction with a view to new market segments. The survey of TCF firms conducted for the Review found that, in response to increased competitive pressures:

- 40 percent of firms increased customisation to the needs of buyers
- 27 percent changed their production systems to enable short and flexible production runs
- 24 percent offered a high level of customer service
- 22 percent changed their production systems to minimise delivery times.

(WRC 2008: 9.)
CHANGE IN OCCUPATIONAL STRUCTURE OF THE TCF INDUSTRIES

The impact of competitive pressures and the various strategic responses by firms have dramatically altered
the type of skills demanded in the TCF industries. This is reflected in long-run changes in the occupational
structure of the industries (Tables 3.10 and 3.11). The key changes in the total TCF workforce between
1986 and 2006 are as follows:

- the proportion of managers almost doubled, from 7.7 percent to 14 percent
- the proportion of professionals more than doubled, from 2.7 percent to 7 percent
- there was a small rise in the share of tradespersons, from 13.1 percent to 17.3 percent
- the proportion of operatives and machine operators (labourers, intermediate production and transport
  workers) declined dramatically, from 63.3 percent to 43.5 percent.

These trends are in line with the restructuring that has occurred in other manufacturing industries. The most
important difference in the occupational structure between TCF and the rest of manufacturing is that the
former continues to have a very high share of machine operators, who comprised 34.2 percent of the TCF
workforce in 2006, compared to just 15.6 percent in the rest of manufacturing. The TCF industries employ
around two-thirds of the proportion of tradespersons engaged by other manufacturing industries. The
occupational structure of the TCF industries, compared to that of the rest of manufacturing, also continues
to have a high proportion of lower skilled occupations. This is one factor in the particularly poor labour
market outcomes for TCF workers who are made redundant.

J Robins and Laura Benini for Clustering

J Robins and Sons has been designing, manufacturing,
marketing and distributing footwear for nearly 130
years, predominantly through its Sandler and Easystep
brands. Within the market segments for medium-priced
women’ fashion and casual shoes and middle- to
high-priced, high-quality women’s fashion footwear, the
company is the pre-eminent Australian manufacturer.

Laura Benini is among Australia’s fastest growing
designers and manufacturers of women’s fashion
footwear, which is marketed and distributed through an extensive party plan network throughout
Australia.

This newly developing method of providing access to personalised shopping and product selection is
proving so successful that Laura Benini’s original factory of some 500 square metres—where all its shoes
were made predominantly by hand—was unable to produce all the footwear that was being demanded
by the market.

Faced with the prospect of having to outlay millions of dollars for a new factory and equipment, Laura
Benini undertook a study into the benefits of co-locating in J Robins modern factory in Belmore, Sydney.
Laura Benini footwear is now manufactured in the more efficient J Robins system.

J Robins Managing Director Phil Butt said: ‘It gives us another view into what the market is demanding
that we normally wouldn’t get through our department stores and helps keep up the use of our making
track.’

‘Having another producer in-house requires a different way of managing the facilities’, Mr. Butt said.
‘However, the skills and insights we can share and the services we share can make both our businesses
better and stronger as well as help secure the employment of over 160 employees.’
### Table 3.10: Occupational structure of TCF industry groups in Australia, 1986

<table>
<thead>
<tr>
<th>Industry</th>
<th>Managers</th>
<th>Professionals</th>
<th>Associate professional</th>
<th>Trades</th>
<th>Clerical</th>
<th>Intermediate production and transport workers</th>
<th>Labourers</th>
<th>Inadequately described/not stated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Textile fibre, yarn and woven fabric manufacturing</td>
<td>5.9%</td>
<td>3.7%</td>
<td>2.4%</td>
<td>11.5%</td>
<td>10.6%</td>
<td>43.4%</td>
<td>19.2%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Textile product manufacturing</td>
<td>10.9%</td>
<td>2.7%</td>
<td>1.2%</td>
<td>13.9%</td>
<td>14.6%</td>
<td>34.7%</td>
<td>19.2%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Knitting mills</td>
<td>7.0%</td>
<td>2.3%</td>
<td>0.4%</td>
<td>8.4%</td>
<td>9.9%</td>
<td>44.4%</td>
<td>24.9%</td>
<td>2.6%</td>
</tr>
<tr>
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<td>7.8%</td>
<td>2.7%</td>
<td>0.3%</td>
<td>13.4%</td>
<td>8.3%</td>
<td>48.9%</td>
<td>16.5%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Footwear manufacturing</td>
<td>5.7%</td>
<td>2.1%</td>
<td>0.4%</td>
<td>21.8%</td>
<td>8.6%</td>
<td>33.7%</td>
<td>24.5%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Leather and leather product manufacturing</td>
<td>11.1%</td>
<td>1.6%</td>
<td>3.4%</td>
<td>17.8%</td>
<td>10.8%</td>
<td>19.5%</td>
<td>32.2%</td>
<td>3.6%</td>
</tr>
<tr>
<td>TCF undefined</td>
<td>9.1%</td>
<td>2.8%</td>
<td>0.5%</td>
<td>8.8%</td>
<td>8.8%</td>
<td>50.4%</td>
<td>16.9%</td>
<td>2.7%</td>
</tr>
<tr>
<td>TCF</td>
<td>7.8%</td>
<td>2.7%</td>
<td>0.9%</td>
<td>13.1%</td>
<td>9.6%</td>
<td>43.9%</td>
<td>19.4%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Remainder of manufacturing</td>
<td>7.7%</td>
<td>6.1%</td>
<td>4.0%</td>
<td>27.7%</td>
<td>16.1%</td>
<td>14.9%</td>
<td>21.0%</td>
<td>2.6%</td>
</tr>
</tbody>
</table>


### Table 3.11: Occupational structure of TCF industry groups in Australia, 2006

<table>
<thead>
<tr>
<th>Industry</th>
<th>Managers</th>
<th>Professionals</th>
<th>Associate professional</th>
<th>Trades</th>
<th>Clerical</th>
<th>Intermediate production and transport workers</th>
<th>Labourers</th>
<th>Inadequately described/not stated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Textile fibre, yarn and woven fabric manufacturing</td>
<td>13.6%</td>
<td>5.7%</td>
<td>4.3%</td>
<td>15.6%</td>
<td>12.0%</td>
<td>37.9%</td>
<td>9.0%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Textile product manufacturing</td>
<td>14.8%</td>
<td>4.5%</td>
<td>3.9%</td>
<td>12.7%</td>
<td>15.0%</td>
<td>37.0%</td>
<td>11.0%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Knitting mills</td>
<td>12.8%</td>
<td>4.9%</td>
<td>3.0%</td>
<td>9.0%</td>
<td>14.5%</td>
<td>40.6%</td>
<td>13.7%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Clothing manufacturing</td>
<td>13.6%</td>
<td>9.9%</td>
<td>3.1%</td>
<td>21.1%</td>
<td>13.2%</td>
<td>32.4%</td>
<td>5.4%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Footwear manufacturing</td>
<td>12.1%</td>
<td>5.4%</td>
<td>3.1%</td>
<td>20.7%</td>
<td>14.0%</td>
<td>26.4%</td>
<td>16.6%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Leather and leather product manufacturing</td>
<td>13.1%</td>
<td>3.9%</td>
<td>2.6%</td>
<td>24.2%</td>
<td>9.6%</td>
<td>25.7%</td>
<td>19.6%</td>
<td>1.4%</td>
</tr>
<tr>
<td>TCF undefined</td>
<td>16.2%</td>
<td>6.7%</td>
<td>3.6%</td>
<td>13.6%</td>
<td>11.3%</td>
<td>37.8%</td>
<td>9.7%</td>
<td>1.2%</td>
</tr>
<tr>
<td>TCF</td>
<td>14.0%</td>
<td>7.0%</td>
<td>3.5%</td>
<td>17.3%</td>
<td>13.4%</td>
<td>34.2%</td>
<td>9.3%</td>
<td>1.3%</td>
</tr>
<tr>
<td>Remainder of manufacturing</td>
<td>11.8%</td>
<td>10.2%</td>
<td>5.4%</td>
<td>24.6%</td>
<td>14.1%</td>
<td>15.6%</td>
<td>16.7%</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

Sources of competitive advantage

The survival of local TCF manufacturing capacity through decades of intense import competition suggests that the industries continue to have a number of competitive advantages. Any consideration of measures to assist the TCF industries must have regard to the nature, source, scope and sustainability of these advantages. The following types of competitive advantage have been identified:

Need for residual manufacturing capacity

Some sections of the TCF industries, and users and consumers of TCF products, require the maintenance of a residual manufacturing capacity, even if most or all production is sourced offshore. For example, in the clothing and accessories industry in particular, domestic designers require some local clothing production capacity to make prototypes for offshore producers and for local clients. There are also bespoke or very small niche markets, such as orthotic footwear or theatre costumes, which will continue to be supplied through local sources.

Retailers and suppliers also want to retain some manufacturing capacity in Australia, to spread the ‘sourcing risk’ by avoiding excessive reliance on a single overseas supplier. Potential problems could derive from sovereign risk, political upheaval, labour disputes, transport disruption or dramatic exchange-rate fluctuations.

Small batch production and low value—high weight

The small size of the Australian TCF market and its volatile fashion trends and seasonal variations confer some degree of natural protection. It is not economic for large Chinese producers, for example, who are oriented to long production runs for domestic or other large markets in Europe or the United States, to undertake small-batch production for the Australian market. This is especially the case for small-batch fashion items.

Exploiting small-batch production, however, requires rapid turnaround from order to delivery and flexibility in production systems, in terms of both machinery and broadly skilled workers who can cope with frequent changes in product design and material inputs. Some products, such as carpets (which can be heavy and have relatively low value per unit of weight), may be uneconomical to transport over long distances. It may therefore be optimal to produce these items closer to their end market. Such products are afforded a degree of natural protection. It is probable that, with transport costs rising due to fuel-price increases, the degree of natural protection could increase over time.

Fashion, proximity to market and customisation

Fashion and design mean that, for many TCF items, the cost of production is only a fraction of the sale price. Moreover, fashion, branding and marketing create barriers to entry and are sources of higher margins. In commissioned research for the Review, it was argued that, ‘Increasingly, design is being seen as a critical competitive advantage and a key to productivity, profitability and sustainability’ (Vaughan & Schmidt 2008: 18). However, branding and marketing are capital-intensive to generate. Fashion is related to social status and personal and group identity. ‘The ability to predict, capture and even generate fashion trends is the primary source of market power’ in this sector (Webber & Weller 2001: 74). Fashion may be global but it is also local, which suggests that proximity to particular geographic markets confers a level of natural production, at least for designers and to some extent for local manufacturers.

For manufacturers to exploit the opportunities arising from fashion and customisation requires production systems that are geared to rapid turnaround, given the ephemeral nature of much fashion and the need to get to market before competitors copy designs. It also requires close collaboration between manufacturers, designers and retailers. Some local firms have, of necessity, developed similarly effective supply chains and ‘product–service packages’ to those provided by the sophisticated Chinese suppliers. (These ‘product–service packages’, in which producers manage the complete supply chain for the wholesaler or retailer, were described in Chapter 2.)
Aside from fashion, other firms—such as those providing corporate apparel—are increasingly adopting production systems and employing broadly skilled workers to enable them to meet specific customer requirements.

**Product and process innovation**

Product innovation enables firms to better meet customer needs and to create products that have a limited number of substitutes, hence becoming a means of reducing competitive pressure and fostering increased localisation of TCF production. The Review came across many examples of technical innovation such as filtration products, defence equipment, and geotextiles for mining applications and soil erosion control.

The competitive advantages of new technology arise, firstly, from significantly reduced labour input, thereby overcoming the major cost disadvantage compared to developing nations. Secondly, new production methods can reduce the minimum efficient scale of output needed to be competitive. This is especially important for Australia, which has a relatively small domestic market. Thirdly, many process innovations, such as those incorporating computer-aided design or manufacture, are specifically designed to increase the flexibility of production systems by increasing the speed and reducing the cost of changing output. Such production systems are especially suited to small niche markets where customisation and rapid turnaround are critical to success. Finally, recently developed technologies can reduce pollution from production and resource use per unit of output.

The Review came across many examples of process innovation developments, including the following:

- New dyes allow clothing to be coloured after they have been fabricated. This permits made-up garments to be imported and then dyed to suit local fashion tastes. This is one factor in the retention of the dyeing industry in Australia.

- ‘Problems associated with printing in the past revolved around colour fastness, repeat patterns, restrictions on colour numbers, the expense of strike-offs and large bulk meterage requirements. Digital textile printing has eliminated all but the former of these issues through advanced technology that enables printers to produce inexpensive strike-offs with unlimited colours that allow greater room for experimentation and potential for small runs. It is now possible to transfer any graphic design from paper to textile seamlessly. For Australian designers who struggle to access a broad range of textiles, digital printing is one method of creating an edge to designer fashion collections’ (Vaughan & Schmidt 2008: 13).

- New textile production systems allow for efficient manufacture of smaller batch production for higher-value clothing producers. This in turn allows local firms to create and exploit niche fashion markets.

- Production systems from metal fabrication industries have been adapted to footwear production. The foot can now be digitally modelled via laser imaging and ‘lasts’ are made using sintering technology, whereby fine particles are formed into complex three-dimensional shapes using laser technology. This results in more comfortable footwear, since each shoe is formed to the exact specifications of the wearer, and represents a competitive advantage for local producers. This technology is especially suited to fashion footwear and orthotic devices.

- Improvements in pollution control, especially of toxic effluents, and recycling of resources such as water, provide enhanced environmental protection and at lower cost than previous control methods. This can make it feasible to bring back to Australia production that was sent offshore to countries with minimal emissions regulation. Industries such as leather production and wool processing could greatly benefit from these developments.

**Education, training and research infrastructure**

Despite the problems of declining critical mass in the provision of training, which is especially a problem for TAFE, Australia retains an important base for skilling operatives, tradespeople, professionals and those in scientific and managerial occupations for the TCF industries. (These problems are dealt with in more detail later in this chapter.) In addition, the country continues to have a strong research and technical base in fields such as design, fibres, chemical engineering and composites in universities, CSIRO, Cooperative Research...
Centres and private laboratories. The Council of Textile and Fashion Industries of Australia noted in its submission to the Review that:

Australia is fortunate to have available to them world class training facilities in the area of fashion and design through organisations such as RMIT, Kangan Batman TAFE, University of Technology in Sydney and the Queensland University of Technology.

A further related issue is that of protection of intellectual property. Those TCF products, such as technical textiles, that are more R&D-intensive and rely on advances in fields such as chemical engineering and materials science for their competitive advantage, are produced typically by multinational corporations in developed economies. There is a strong reluctance on the part of these large firms to establish plants in developing economies, despite potential labour and input cost savings. This is due to concern about piracy of intellectual property and the perception that in some developing economies the legal framework for protecting such property is limited.

Environmental and labour standards

Another factor promoting localisation of production is increasing attention to labour standards and environmental factors, including rising transport costs:

The realisation that oil prices are unlikely to fall and the inevitability of on-costs on the production of greenhouse gas points to significant opportunity for Australian firms. The additional costs of sourcing from overseas will not tip the balance for all products, but the more marginal products where the cost advantage may be only 10–20 percent, could quickly become equally cost effective to produce in Australia, particularly when the additional responsiveness to demand changes is factored in. If … oil prices continue to rise the threshold will obviously move up.

(Gattorna & Ellis 2008: 15.)

This is especially the case for products that are airfreighted. On the other hand, overseas suppliers from low-labour-cost countries may be able to offset rising transport prices by using increasing levels of capital, or by adding value to the total package.

Concern among consumers regarding the environmental impact of the production, processing, transport and final disposal of many commodities is embodied, for example, in the notion of ‘food miles’. Consumers are also expressing interest in goods and services produced under conditions they consider to be ethical—such as excluding child or prison labour and applying national labour standards regarding wages, working conditions and occupational health and safety. There is also concern about animal welfare in the sourcing of materials for TCF products. The extent to which these concerns are expressed in actual consumer purchasing decisions should, however, not be exaggerated. A recent study in Europe found that less than 10 percent of consumers consistently made purchasing decisions based on environmental or other ‘ethical’ principles (Institute of Grocery Distributors 2008). Nevertheless, there is some evidence that this market segment is expanding, albeit from a low base. Similar concerns regarding the ecological footprint of TCF production and labour standards in low-labour-cost countries could provide a competitive advantage for Australian producers.

EDUCATION AND TRAINING

A strong theme that emerged from public consultations, key stakeholder consultations and public submissions to the Review was that education and training are critically important to the future of the TCF industries. For example, the Textiles Clothing and Footwear Union of Australia commented in its submission that:

There is almost universal acknowledgement from all those in the TCF industry of the importance of skills in ensuring the industry’s long-term viability and competitiveness.

This section examines changes in the post-school educational attainment of the TCF workforce and aspects of the provision of vocational training and tertiary education for the industries.
Post-school educational attainment

The TCF industries continue to be notable for the high share of their workforce that has undertaken no recognised workforce training. In 2006 close to 60 percent of the workforce had no post-school qualifications (Table 3.12). This compares to 45 percent for other manufacturing industries.

However, the share of the TCF workforce with post-school qualifications has increased over the last two decades, as has the proportion of the workforce with higher-level qualifications (Table 3.13). This improvement reflects a general increase in educational standards across total manufacturing and all industries. Also, there has been a large shift in the occupational structure of the industries towards those jobs—such as managers and professionals—that typically require higher-level qualifications for entry. Conversely, there has also been a large decline in the proportion of those occupations (notably labourers) that, on average, have low rates of post-school qualifications. These changes reflect general trends such as mechanisation of manual tasks and strategic decisions specific to the TCF industries that have altered the demand for skills. These strategic shifts have been dealt with in some detail under the response of firms to increased competitive pressure but include reduced manufacturing activity and an increase in import, wholesale and retail activities.

Table 3.12: Proportion of TCF workforce in Australia with post-school qualifications, 1986

<table>
<thead>
<tr>
<th></th>
<th>Postgraduate/ Grad Dip/Cert</th>
<th>Bachelor degree</th>
<th>Adv Dip/ Dip</th>
<th>Cert III &amp; IV</th>
<th>Cert I &amp; II</th>
<th>Qual nfd*</th>
<th>No post-school quals</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCF and leather manufacturing, undefined</td>
<td>0.3%</td>
<td>1.1%</td>
<td>1.6%</td>
<td>7.4%</td>
<td>5.0%</td>
<td>12.6%</td>
<td>71.9%</td>
</tr>
<tr>
<td>Textile fibre, yarn and woven fabric manufacturing</td>
<td>0.6%</td>
<td>1.8%</td>
<td>1.6%</td>
<td>10.5%</td>
<td>5.7%</td>
<td>10.5%</td>
<td>69.2%</td>
</tr>
<tr>
<td>Textile product manufacturing</td>
<td>0.4%</td>
<td>2.0%</td>
<td>1.9%</td>
<td>10.9%</td>
<td>5.3%</td>
<td>11.0%</td>
<td>68.6%</td>
</tr>
<tr>
<td>Knitting mills</td>
<td>0.1%</td>
<td>1.3%</td>
<td>1.4%</td>
<td>6.7%</td>
<td>4.4%</td>
<td>11.6%</td>
<td>74.4%</td>
</tr>
<tr>
<td>Clothing manufacturing</td>
<td>0.1%</td>
<td>0.9%</td>
<td>1.3%</td>
<td>7.6%</td>
<td>4.8%</td>
<td>13.4%</td>
<td>71.9%</td>
</tr>
<tr>
<td>Footwear manufacturing</td>
<td>0.2%</td>
<td>0.8%</td>
<td>0.9%</td>
<td>13.1%</td>
<td>2.9%</td>
<td>12.8%</td>
<td>69.4%</td>
</tr>
<tr>
<td>Leather and leather product manufacturing</td>
<td>0.3%</td>
<td>1.2%</td>
<td>1.5%</td>
<td>9.6%</td>
<td>4.8%</td>
<td>11.3%</td>
<td>71.3%</td>
</tr>
<tr>
<td>Total TCF</td>
<td>0.2%</td>
<td>1.2%</td>
<td>1.4%</td>
<td>8.9%</td>
<td>4.8%</td>
<td>12.3%</td>
<td>71.1%</td>
</tr>
<tr>
<td>Remainder for manufacturing</td>
<td>0.7%</td>
<td>3.2%</td>
<td>2.1%</td>
<td>23.3%</td>
<td>7.1%</td>
<td>10.7%</td>
<td>53.0%</td>
</tr>
</tbody>
</table>

* Includes certificate/qualification inadequately described and not stated. nfd = not further defined.


Table 3.13: Proportion of TCF workforce in Australia with post-school qualifications, 2006

<table>
<thead>
<tr>
<th></th>
<th>Postgraduate/ Grad Dip/Cert</th>
<th>Bachelor degree</th>
<th>Adv Dip/ Dip</th>
<th>Cert III &amp; IV</th>
<th>Cert I &amp; II</th>
<th>Qual nfd*</th>
<th>No post-school quals</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCF and leather manufacturing, undefined</td>
<td>1.5%</td>
<td>6.4%</td>
<td>8.0%</td>
<td>14.6%</td>
<td>1.4%</td>
<td>9.3%</td>
<td>58.8%</td>
</tr>
<tr>
<td>Textile fibre, yarn and woven fabric manufacturing</td>
<td>1.9%</td>
<td>8.7%</td>
<td>7.3%</td>
<td>18.5%</td>
<td>1.3%</td>
<td>8.5%</td>
<td>53.9%</td>
</tr>
<tr>
<td>Textile product manufacturing</td>
<td>1.0%</td>
<td>6.4%</td>
<td>6.0%</td>
<td>15.6%</td>
<td>1.3%</td>
<td>8.0%</td>
<td>61.7%</td>
</tr>
<tr>
<td>Knitting mills</td>
<td>1.3%</td>
<td>8.1%</td>
<td>7.2%</td>
<td>9.8%</td>
<td>0.7%</td>
<td>10.3%</td>
<td>62.5%</td>
</tr>
<tr>
<td>Clothing manufacturing</td>
<td>1.4%</td>
<td>8.3%</td>
<td>10.9%</td>
<td>11.0%</td>
<td>1.0%</td>
<td>8.5%</td>
<td>58.9%</td>
</tr>
<tr>
<td>Footwear manufacturing</td>
<td>1.2%</td>
<td>5.3%</td>
<td>4.4%</td>
<td>16.8%</td>
<td>1.2%</td>
<td>8.0%</td>
<td>63.1%</td>
</tr>
<tr>
<td>Leather and leather product manufacturing</td>
<td>1.2%</td>
<td>5.0%</td>
<td>5.8%</td>
<td>16.7%</td>
<td>1.3%</td>
<td>8.4%</td>
<td>61.6%</td>
</tr>
<tr>
<td>Total TCF</td>
<td>1.3%</td>
<td>7.3%</td>
<td>8.2%</td>
<td>13.8%</td>
<td>1.2%</td>
<td>8.4%</td>
<td>59.8%</td>
</tr>
<tr>
<td>Remainder for manufacturing</td>
<td>2.7%</td>
<td>9.8%</td>
<td>6.6%</td>
<td>27.6%</td>
<td>1.1%</td>
<td>6.9%</td>
<td>45.3%</td>
</tr>
</tbody>
</table>

* Includes certificate/qualification inadequately described or not stated. nfd = not further defined.

Vocational training rate

The vocational training performance of TCF, in general, is much lower than for manufacturing as a whole. Table 3.14 shows trends in the training rate of apprentices and trainees for TCF and total manufacturing. The training rate—the ratio of the number of in training in a given industry to the total number of people employed in that industry—measures the extent to which an industry is reproducing its skilled workforce through domestic training.

Apprenticeships and traineeships are a major part of the vocational training system and the principal mechanism for employers and employees to share the costs and benefits of investment in industry-specific skills. They are an entry point for key manufacturing occupations such as patternmakers, machinists, mechanics, plant operators and textile technologists.

Between 2001/02 and 2005/06 the training rate across TCF industries was between 35 percent to over 60 percent lower than that for the manufacturing industries as a whole. The rates for some parts of the industries however, especially textile product manufacturing, were substantially higher than that for total manufacturing. This probably reflects the fact that textile product manufacturing is the only TCF industry to have experienced increased employment over the long term (Table 3.14).

Table 3.14: Training rate of apprentices and trainees, 2001/02 to 2005/06

<table>
<thead>
<tr>
<th>Industry</th>
<th>2001/02</th>
<th>2002/03</th>
<th>2003/04</th>
<th>2004/05</th>
<th>2005/06</th>
</tr>
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<tr>
<td>Textile fibre, yarn and woven fabric manufacturing</td>
<td>5.0%</td>
<td>5.4%</td>
<td>5.8%</td>
<td>3.4%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Textile product manufacturing</td>
<td>6.3%</td>
<td>8.3%</td>
<td>5.0%</td>
<td>5.7%</td>
<td>5.1%</td>
</tr>
<tr>
<td>Knitting mills</td>
<td>0.2%</td>
<td>0.5%</td>
<td>0.4%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Clothing manufacturing</td>
<td>1.2%</td>
<td>1.1%</td>
<td>1.0%</td>
<td>1.1%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Footwear manufacturing</td>
<td>3.6%</td>
<td>5.0%</td>
<td>3.2%</td>
<td>2.4%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Leather and leather product manufacturing</td>
<td>2.9%</td>
<td>3.0%</td>
<td>1.5%</td>
<td>1.0%</td>
<td>0.9%</td>
</tr>
<tr>
<td>TCF</td>
<td>3.1%</td>
<td>3.8%</td>
<td>2.8%</td>
<td>2.7%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Total manufacturing</td>
<td>4.6%</td>
<td>5.3%</td>
<td>5.8%</td>
<td>5.7%</td>
<td>5.4%</td>
</tr>
</tbody>
</table>

Note: The number of people in training is derived from the number undertaking an apprenticeship or traineeship under the TCF Training Package. Around half were undertaking courses in laundry and dry cleaning, which are not considered to be part of the TCF industries. These were excluded from calculation of the training rate. In training data are based on calendar year and data on employment in the industries are based on financial year. This difference would not materially affect the results.


The low training rate of TCF compared to manufacturing as a whole is the result of multiple factors. Differences between TCF and manufacturing generally in the proportion of occupations that are the main users of vocational training—tradespersons and machine operators—only account for a small part of the lower training rate. While the proportion of tradespersons in TCF is somewhat lower than for total manufacturing, the share of machine operators (intermediate production and transport workers) is much higher.

Continued redundancies over many decades are likely to have reduced the incentive for people currently employed in the industries to undertake TCF-specific vocational training. Similarly, people outside the industries considering their future career paths could be reluctant to undertake training for an industry which they perceive as having diminished prospects. Both of these would reduce the number of people prepared to undergo TCF-specific vocational training.

On the demand side, employers could be unwilling to invest in workforce training due to uncertainty regarding the industries’ growth prospects and future government policy. Accordingly, employers may be relying, somewhat excessively, on the external labour market to supply the requisite skills. The small average size of TCF firms would also constrain employer-funded training, because, compared to larger firms, small firms have a much lower propensity to train. In its submission, RMIT University reported:

Past industry reviews have highlighted industry perceptions that training and education programs are not available, or flexible or innovative enough. It is RMIT’s experience, however, that it is challenging to
engage the small and medium enterprises typical of the TCF in long term planning in relation to skills and training requirements.

**Skills shortages**

The net result of low levels of investment by the TCF industries in training and diminished vocational education infrastructure is that the industries report chronic shortages of vocational skills to support manufacturing activities. These shortages, however, are not limited to vocational occupations but also include management and advanced scientific and engineering disciplines. This paradox of skills shortages arises despite significant and sustained labour redundancies over several decades.

Skills shortages occur for a variety of reasons, including a strong economy with low rates of unemployment; and a lack of interest in particular industries among potential job seekers. Many submissions sought to identify the reasons for skill shortages. In its submission, Manufacturing Skills Queensland identified a number of skill-related challenges facing the TCF industries:

- lower wage rates in manufacturing make it difficult to attract labour
- improving the image and understanding of the TCF sector
- severe impact on the manufacturing sector of the ageing workforce
- loss of workers to other sectors and jobs.

The Textile and Fashion Industries of Australia argued in its submission that skill shortages arise from a 'lack of skilled people entering the workforce, the ageing workforce and the natural loss of these skills due to attrition over time’.

The Textile Clothing and Footwear Union of Australia commented in its submission that:

> It is imperative for the industry to recognise that to remain viable it must attract new employees with the appropriate skills, and one of the key elements of this is to ensure that wages of TCF employees increase and their conditions of work improve. TCF workers are already at the low end of the wages scale compared to the rest of manufacturing…

This was confirmed by the Department of Education, Employment and Workplace Relations, which noted that ‘the median weekly full-time earnings for persons employed in TCF manufacturing was well below that for all industries ($720 compared with $940)”.

Submissions identified shortages in a broad range of occupations. The Council of Textile and Fashion Industries of Australia noted that:

> There was difficulty in Australia in finding people with skills in areas such as, but not limited to, specialised sewing and machine operators, garment construction, pattern making, product development, fit analysis, printing, textile engineering and chemistry.

RMIT University stated in its public submission that:

> The industry is facing skills shortages in the following critical areas (both low wage manufacturing related roles and in highly technical areas):

- Sewing machine operators and cutters
- Patternmakers
- Yarn technicians
- Weavers/knitters
- Textile technologists
- Dyers.

Deakin University identified a different set of areas:
The industry must attract new people with new skills sets in areas such as biotechnology, nanotechnology, materials and product design, and supply change management.

**Provision of vocational and tertiary education**

Public consultation and submissions to the Review pointed to problems confronting firms in sourcing training providers for their employees. This is one manifestation of the problems arising from the hollowing out of the TCF supply chain, including the provision of workforce education and training. Several factors have led to a decline in the scale and scope of TCF-specific vocational training provision.

- Reduced employment in the industries has led to fewer people seeking vocational training. In turn, this has led to a reduction in the number of public and private suppliers. In subindustries such as footwear, it was reported that in some cities and states suppliers have withdrawn courses completely. In its submission, RMIT University commented: ‘Importantly, in many areas where there is high demand for skills there has been a sustained reduction in student demand for associated programs. For example, the critical area of textile technology represented 40% of RMIT student demand in 1995 but only 10% of demand in 2007. Low demand for related programs of study reduces their viability and thus may accelerate (or even cause) the shift of some elements of the supply chain off shore.’

- As a result of a contraction in student numbers, specialist courses or subjects tailored to the needs of particular firms, products or processes are being abandoned in favour of more generic courses. Teachers provide these generic courses in an attempt to retain some training for the industries. Reducing the availability of specialist courses was argued to reduce the skill base of the industries.

- Reduced real funding for TAFE across Australia has greatly restricted its capacity to keep the knowledge and skills of teachers, teaching equipment and teaching materials up-to-date with new technologies (Toner 2005; International Fibre Centre 2008: 50). Submissions and public consultations revealed concerns that resource constraints on TAFE are making it increasingly difficult for teachers in TCF-related fields to be released from teaching to participate, for example, in ‘return to industry’ programs, whereby teachers spend time in plants investigating the latest technologies. Consequently, essential teaching materials were seen as increasingly outdated.10

- It was suggested that the development of training packages can be lengthy and cumbersome, which limits the capacity to respond quickly to changes in the industry. The TCF Package ‘took approximately four years to develop’ (Vaughan & Schmidt 2008: 17).

The provision of university education for the TCF industries is a story of marked contrasts. On one hand, university courses for occupations such as textile technologists, textile-related chemists and materials-science graduates have been in decline.

Technical textiles, recognised as a major strength within the TCF sector, is only marginally represented in the educational programs available within Australia. Universities have either closed down their Textile Technology schools and programs (e.g. UNSW) or have chosen to persist but in the face of diminished demand (e.g. RMIT). Employers are therefore forced to seek graduates overseas. In a funding climate where university courses are funded principally around student numbers and where the ratio of demand to places available is a key performance indicator, it is very difficult to sustain activities with low student demand, regardless of the industry demand… While countries like Germany have built a strong system for technical education, with a very different mix of graduates across technical and creative courses, Australia has seen a shift at university level to the more design led programmes.

(Vaughan & Schmidt 2008: 17.)

The International Fibre Centre (2008: 44) study of training needs in the fibre and textile industry similarly noted that, ‘as a consequence of the level specialisation required for their niche products and processes, there are not enough jobs to warrant development of training courses, hence no graduates emerging with

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10 National training packages specify ‘competencies’ to be attained for various levels of qualification for a broad range of occupations. To convert these prescribed competencies into classroom lessons and activities—to develop a curriculum—is very resource-intensive and requires experienced teachers in a given occupational discipline and specialists in curriculum design that is based on sound educational principles, tailored to the needs of adults. Resources for these essential activities have been reduced.
the right skills. Employers reported having to either import these skills from overseas or train people on the job’.

On the other hand, competition and entry requirements are high for admission to university courses in fashion and design, which are provided by many institutions across Australia. These courses provide entry not only to employment in manufacturing firms but also to multiple occupations related to the TCF industries, such as retail buying and design. They also provide entry to many occupations outside the industries, due to the more general nature of university education compared to occupationally-specific vocational training. It was suggested to the Review that there is a significant oversupply of university-trained fashion designers for the limited number of places in the fashion industry (Vaughan & Schmidt 2008: 22).

There were also a number of suggestions to improve the quality of university and vocational education. It should be noted that these suggestions, which arose from submissions, public consultations and commissioned studies, do not necessarily apply to all institutions, as some already incorporate the following aspects in their course design and delivery.

Some university fashion and design courses do not provide their students with a grounding in manufacturing practices and processes (Vaughan & Schmidt 2008: 17). Familiarity with TCF manufacturing techniques is essential to the ability to realise a design, ensure the product can be manufactured efficiently with appropriate textiles, and achieve the desirable tactile and visual properties required of quality products. As noted earlier, the full integration of design and manufacturing expertise is a key element in the success of the German clothing industry.

In addition to design and manufacturing skills, instruction in business skills such as marketing, basic accounting and dealing with suppliers and customers, is essential. It was often reported to the Review that a person may be a brilliant designer but lacks the necessary skills to manage a business. These skills are especially critical for the self-employed or micro firms that do not have the internal specialised management skills that larger firms enjoy.

To enhance the overall provision of TCF-specific education and training, it was suggested that there be improved linkages between TAFE and universities. These institutions were seen to provide complementary education and training. For example, there could be sharing of resources, teaching staff and students. Improved cooperation between the sectors would potentially overcome some of the problems identified above, in particular declining student numbers in TAFE, access to more advanced technologies and improving the involvement of fashion and design students with manufacturing processes.

Solutions to skills shortages

Group training

Many other industries, such as construction, electrotechnology, automotive and hospitality, have responded to similar problems by establishing group training companies. In these industries, group training companies employ up to 30 percent of all apprentices and trainees. Group training has been established in Australia for over four decades and is a major contributor to the maintenance of a robust vocational training system (Toner, McDonald & Croce 2004). Group training companies operate as a form of labour hire, in that the company directly employs the apprentice or trainee and then hires out the employee to firms that then provide on-the-job training as part of the apprentice’s or trainee’s employment. Apprentices and trainees also undertake off-the-job theory training at TAFE or with another registered training provider.

Group training has a minimal presence in the TCF industries—just 1.5 percent of all apprentices and trainees are employed by group training companies. Almost all those enrolled in an apprenticeship or traineeship in the TCF industries are employed by private firms. There is potentially considerable scope for group training to expand its role in the TCF industries.

Group training companies offer advantages to both employees and employers, in particular by minimising a variety of risks to both parties and reducing transaction costs associated with establishing a contract of employment. If they do not get on with the firm they have been hired out to, or the firm experiences a sustained downturn in output that would normally lead to apprentices or trainees being made redundant,
these employees can be transferred to other employers. Group training companies also have a role in mentoring the quality of on-the-job training provided by firms. Concerns over training quality are a major reason for employees not completing traineeships or apprenticeships. For employers, sourcing labour through group training companies removes the risk of litigation arising from terminating an apprentice’s or trainee’s contract of employment. Firms thus get an opportunity to ‘try out’ prospective employees prior to making permanent appointments. (It is common for a person hired by a firm through a group training company to be offered a permanent position after they complete their training.) Also, group training companies undertake rigorous recruitment and selection tests prior to employing an apprentice or trainee, which reduces the employer's employment transaction costs.

Group training companies typically are established by employer associations or trade unions as a service to their members and as a way of ensuring continuity of skilled-labour supply. Sometimes they are established jointly between the industrial partners. Many also offer a general labour-hire service, in which trained and experienced workers are provided to the industries. For the TCF industries, the provision of such an industry-based labour-hire service could be an important means of reducing skills shortages, by finding employment within the industries for workers who have been made redundant.

Enhanced funding for TAFE
Reduced real funding per student across the TAFE system is inhibiting its capacity to respond to new and emerging technologies and to skills shortages. The problems identified with respect to the provision of training for the TCF industries can be addressed through a general increase in real funding across the whole of the TAFE system.

International Fibre Centre
The International Fibre Centre (IFC) was established by the Victorian Government to provide a specialist training and technology transfer service to the TCF industries. It provides training for operatives and professionals in the industries, typically short courses, many of which are provided in-house on company premises. It meets specific needs that cannot be addressed by the existing TAFE sector. The IFC has received the enthusiastic support of many firms and key representative bodies in the TCF industries. At present the scope of IFC’s work is restricted to Victoria, although it is a successful model that should be expanded to other states.

Increased tertiary training
At present, shortages of scientists and engineers involved in textile production—especially those engaged in research and production of technical textiles—are met primarily through migration. Reliance on overseas sources is, however, insufficient to meet present and projected demand. To meet the higher-level skills needs of the TCF industries, more university places for textile and related science and engineering students should be funded. This is especially important in view of the fact that materials science, of which technical textiles are an integral part, is a field undergoing rapid technological development and has significant growth prospects within the industries and across manufacturing more generally.

ENVIRONMENTAL ISSUES
The increased prominence of environmental issues will continue to shape Australia’s economy and its TCF industries. Although many consider the TCF industries to be relatively low polluters compared to other manufacturing industries, environmental concerns will increasingly affect the industries and will provide both opportunities and challenges.

In Australia, many stakeholders acknowledge that the clothing and textile product supply chain has effectively been broken with Australia losing much of its capacity in textile processing. This is reflected by the large falls in real value added from 1995/96 to 2005/06 in textile fibre, yarn and woven fabric manufacturing and knitting mills (see Table 3.3).

However, Australia remains a significant producer of both wool and cotton. Most of Australia’s capacity in wool scouring, which has historically been considered a polluting and undesirable industry, has moved to
China. Many processes traditionally seen as ‘dirty’ can be more cost competitive in lower-cost countries due to their less stringent environmental regulations. However, the Council of Textile and Fashion Industries of Australia (TFIA) noted in its submission: ‘The Australian TCF sector is inherently a much more sustainable industry than the majority of its counterparts overseas.’

As environmental regulations increase in China and other low-cost countries, Australia may be able to use its competitive advantage in dealing with environmental waste, which may make it more competitive for such processes to occur here. The Australian Council of Wool Exporters and Processors noted in its submission:

Australia is well placed to take advantage of any such moves to export environmental issues through its technology, access to land and closeness to the source of raw material.

The TFIA noted that ‘a legacy of Australia’s long history with natural fibres such as wool and cotton is our expertise in using these fibres to achieve high performance and high specifications with these products in contrast to oil based fibres’. However, there was an acknowledgement amongst many stakeholders that the production and processing of ‘natural fibres’, such as wool and cotton, can be detrimental to Australia’s environment. Animals Australia stated:

[T]he welfare of sheep ... is severely compromised by traditional practices such as mulesing and mutilations performed without pain relief, by live animal export to the Middle East, and now also by the increasing practices such as the housing and husbandry methods used to growing of ultra fine wool in sheds. Such welfare insults risk the future acceptability of wool from Australia.

Many stakeholders also voiced concerns about the impacts of cotton production on the Australian environment, particularly the large amount of water needed to grow cotton. Some stakeholders suggested that the TCF industries could take better advantage of niche areas of opportunity including hemp, organic cotton, Fairtrade Cotton or alpaca wool. The TFIA noted:

Over the past two decades the TCF sector globally has moved steadily towards the manufacture and supply of oil based products that could provide enhanced technical requirements at a relatively cheaper price. However, increasing costs of oil and concerns with waste management and effective recycling have in turn, more recently, pushed TCF companies to the forefront of the game in the search for and development of new and alternative fibres and materials to help ensure environmental sustainability. Australian TCF companies are currently manufacturing products with alternative fibres such as bamboo and hemp and are developing corn starch products and materials to replace oil based products. They are also experimenting with blending fibres, drawing on our historical expertise with natural fibres, to identify more environmentally sound solutions for high performance products.

The gaps in Australia’s clothing and textile product supply chain have climate change implications. Australia exports much of its wool and cotton production overseas for processing into yarns and fabrics. Many Australian garment manufacturers source fabrics from overseas, and some stakeholders noted that fabrics for fashion purposes are particularly difficult to find in Australia. The long lead times in sourcing yarns and fabrics means that it can be harder for fashion retailers to respond quickly to fast-moving and ephemeral trends. Additionally, the resulting supply chain for Australian garment manufacturers can stretch across thousands of kilometres and across many countries—with an associated larger carbon footprint. Given the recent rapid price rises in oil and a corresponding rise in transport costs (and the potential for carbon trading to increase transport costs further), there may be opportunities for profitable textile finishing to return to Australia in the future.

In any event, some stakeholders noted that many areas of the TCF industries will be hit by additional costs to comply with increased environmental regulations. The CSIRO noted:

To meet the global energy and water challenges the future TCF Industry must make greater use of materials from renewable resources, and employ non-polluting processes which use little water.

Much of the environmental focus in recent years has been on measures that save water. The TFIA noted:
As historically large users of water textile organisations are also at the forefront of advances in water saving technologies and research as well as effluent treatment. Many of these technologies are being developed and utilised in Australia ahead of other areas around the world.

Although energy and climate change are becoming more prominent issues in current times, the TCF industries remain relatively low carbon emitters (and many stakeholders from industry were unconcerned about the costs of carbon trading). In addition, there is a suite of existing and proposed Australian Government programs aimed at reducing carbon emissions for all Australian industry.

An examination of the product life cycle of TCF products must consider the products’ end use. Recycling was an issue raised by some stakeholders, including concerns about the volume of textile products ending up in landfill. The Technical Textiles and Nonwoven Association noted that the ‘recycling of PET soft drink bottles … would divert millions of tonnes of waste from landfill into productive feed [for synthetic textiles]’.

Of course, charitable organisations have historically played a very important role in processing and recycling clothing. The Brotherhood of St Laurence recommended in its submission that the Australian Government:

- Support charities involved in the garment recycling industry to build their capacity to recycle donated goods that cannot be re-sold through charity stores. This support should include technology development for sorting used clothing and research into fibre reclamation and recycling technology.

Not all stakeholders focused on the challenges associated with environmental issues, and many saw opportunities arising from early positive action. Standard Universal noted that:

- [C]onsumers are seeking more environmentally sustainable fibre types in their clothing and textile products. Primary producers, man made fibre producers, spinners and textile fabric producers have been extremely slow to take this on board.

Although there were some issues with the monitoring of appropriate labelling and certification, many stakeholders saw opportunities for ‘environmental branding’ on TCF products to obtain a competitive advantage. The Textiles Clothing and Footwear Union of Australia noted: ‘The opportunity exists for the industry to market itself as ethical, clean and green …’
CHAPTER 4
EVALUATION OF PROGRAMS
For more than a decade TCF policy measures have emerged in the context of the impacts of increasing trade liberalisation and tariff reform on Australian industry. Former and current assistance measures for the TCF manufacturing industries were provided to help them to adjust to these changes by becoming more internationally competitive and sustainable.

After the conclusion of the TCF Post-2000 Assistance Package, the TCF Post-2005 Assistance Package was introduced as a continuing regime of tariff reductions, accompanied by further structural adjustment assistance to the TCF industries. The measures are designed to aid the industries as they continue to restructure and position themselves in viable sectors and niches.

The current assistance measures are now under review. This chapter examines the assistance programs of the TCF Post-2005 Assistance Package and draws conclusions as to their effectiveness to date. The appropriateness of the measures for the times in which they were introduced is appraised, as well as their appropriateness for assisting the TCF industries to thrive in the times ahead.

**TCF POST-2005 ASSISTANCE PACKAGE**

The $747 million TCF Post-2005 Assistance Package, announced in November 2003, comprises two legislated five-year tariff pauses and six programs designed to increase the international competitiveness of Australia’s TCF industries through increased investment in innovation and R&D and in regional Australia. The policy objective of the package is to foster the development of Australian TCF manufacturing activity so that it is viable and internationally competitive without continued special assistance. The legislated tariff reductions are shown in Table 4.1.

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>2005</th>
<th>2010</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothing and finished textiles</td>
<td>25.0%</td>
<td>17.5%</td>
<td>10.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Cotton sheeting and fabrics</td>
<td>15.0%</td>
<td>10.0%</td>
<td>5.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Sleeping bags, table linen</td>
<td>10.0%</td>
<td>7.5%</td>
<td>5.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Carpet</td>
<td>15.0%</td>
<td>10.0%</td>
<td>5.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Footwear</td>
<td>15.0%</td>
<td>10.0%</td>
<td>5.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Footwear parts</td>
<td>10.0%</td>
<td>7.5%</td>
<td>5.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Other (eg yarns, leather)</td>
<td>5.0%</td>
<td>5.0%</td>
<td>5.0%</td>
<td>5.0%</td>
</tr>
</tbody>
</table>

The six programs within the TCF Post-2005 Assistance Package are administered by the Department of Innovation, Industry, Science and Research, with overall policy responsibility residing in the department’s Manufacturing Division.

- **TCF Post-2005 Strategic Investment Program Scheme**, known as the TCF Post-2005 (SIP) Scheme—Day-to-day administrative responsibility lies with AusIndustry.

- **TCF Structural Adjustment Program**
  - Part 1: Assistance to workers under Job Network—Day-to-day administration resides with the Department of Education, Employment and Workplace Relations.
  - Part 2: Restructuring Initiative Grants Program—Day-to-day administration resides with the Manufacturing Division.
  - Part 3: Regional Partnerships Program—Discontinued.

- **TCF Small Business Program**—AusIndustry has day-to-day administrative responsibility.

- **Product Diversification Scheme**—Responsibility for allocation of duty credit lies with AusIndustry; the Australian Customs Service is responsible for day-to-day administration of usage credit.

- **TCF Expanded Overseas Assembly Provisions Scheme**—Responsibility for registration resides with AusIndustry; day-to-day administration of usage credit lies with the Australian Customs Service.

- **TCF Supply-chain Opportunities Program**—Not yet implemented.
Copies of the terms and conditions for the programs can be found at <www.innovation.gov.au>.

In accordance with term of reference 3e, the Review has examined and evaluated the appropriateness and effectiveness of the sector-specific assistance provided under the TCF Post-2005 Assistance Package.

**TARIFFS**

The Productivity Commission (2008a: xiv) reports that tariffs remain the dominant form of assistance (to the TCF industries), providing around four times the level of support of budgetary programs.

In 1990, tariffs on clothing and finished textiles were 55 percent, tariffs on footwear were 45 percent and tariffs on other TCF product lines were also much higher than current levels. Figure 4.1 shows the actual and projected falls in tariffs on TCF products.

*Figure 4.1: Actual and projected falls in tariffs on TCF products, 1990–2015*

![Figure 4.1: Actual and projected falls in tariffs on TCF products, 1990–2015](image)


Many public submissions to the Review reported that tariff reductions had hurt the TCF industries and called for a freeze on further tariff reductions.

In its submission, the Australian Canvas and Synthetic Products Association noted:

> Previously, the strength of the TCF industry was due to the protection of all industry sectors by tariffs and quotas. However, quotas were abolished in Australia more than a decade ago, and during this time tariffs have also been significantly reduced. This reduction in tariffs has had a detrimental impact on the ability of … manufacturers to produce competitively priced products.

In its submission, the Textile, Clothing and Footwear Union of Australia (TCFUA) noted:

> Falling tariff rates and increased imports over the past three decades have undeniably been the major cause of job loss and retrenchment in the industry… Falling tariffs have also caused a surge of imports from low-wage countries where labour standards are often non-existent. While employment has more than halved, imports have more than doubled during this period of dramatic falls in tariff protection… We argue that current tariffs should be maintained until 2020 and kept at these levels until such time as it can be proven to be in the interests of Australian workers, their families and communities, to reduce them further.

The Productivity Commission report (2008a: xi) notes that, ‘although TCF tariffs have not changed since 2005, and under existing legislation are not scheduled for further reduction until 2010, competitive
pressures on the industry have continued to mount’. Falling tariffs have been accompanied by a rise in imports of TCF products, although much of this rise can be attributed to the strong growth in low-cost production from countries such as China (see Figure 4.2).

**Figure 4.2: Rate of clothing imports verses tariff reductions, 1990–2007**

The Productivity Commission report (2008a: xvii) notes that ‘reducing assistance for the TCF industries, particularly tariff assistance is projected to generate small net economy-wide gains’. The Commission estimates that the reduction in tariffs to 5 percent is projected to increase real economic activity (GDP) by around $70 million each year, although as broader assumptions are added to the estimates, the benefits of assistance reductions fall significantly.

The Productivity Commission report argues that import tariffs are a more distortionary means of promoting activity in an industry than budgetary assistance (as tariffs involve increased deadweight losses). By reducing the cost of TCF commodities, the low tariff encourages an expansion of production in non-TCF sectors. Reducing tariffs lowers the price of imported TCF products, which encourages buyers towards imports. Consequently the decrease in domestic demand would result in a decrease in output and employment in the sector.

The report also notes that the economy-wide effects of modelling a nominal exchange-rate appreciation—which essentially capture what has occurred in the Australian economy over the past few years—are orders of magnitude greater than for any of the TCF-specific scenarios modelled. It further reports that, for the TCF sector itself, the resulting real appreciation involves roughly double the competitive pressure from implementing scheduled assistance reductions. Figure 4.3 shows the sharp appreciation of the Australian dollar against the US dollar over the last ten years.
In its submission to the Review, the Victorian Government noted that:

[In its 2000 report on Australia’s General Tariff Arrangements, the Productivity Commission estimated the gain in real GDP from lower tariffs to be negligible. Modelling prepared for the Productivity Commission’s 2003 inquiry demonstrated that the majority of the economic benefits associated with TCF tariff reductions have already been realised and that further adjustments are likely to cause ‘more pain than gain’.

The Victorian Government funded the consulting firm Lateral Economics to examine tariff reductions in the TCF industries. Lateral Economics incorporated modelling conducted at the Centre of Policy Studies. Its report (Lateral Economics 2008a: 2) noted:

Australia’s economy will not benefit, and would most likely suffer some small harm from further tariff cuts on the textiles, clothing and footwear (TCF) sector.

The Victorian Government also funded Lateral Economics to examine tariff reductions in the automotive industry; the resulting report (Lateral Economics 2008b) also argued the case against further tariff reductions.

The Productivity Commission released a technical supplement to its report examining automotive tariffs to address the issues raised by Lateral Economics. The supplement (Productivity Commission 2008b: 1) noted:

It remains the Commission’s assessment that none of the arguments for reversing or delaying scheduled tariff reductions for the automotive industry is supported by the evidence.

Tariffs and industry assistance measures are discussed further in Chapter 5. An evaluation of the Productivity Commission modelling of TCF assistance is in Volume 2 of this report.

TCF POST-2005 (SIP) SCHEME

The ten-year, $575 million TCF Post-2005 (SIP) Scheme is a legislated program under the authority of the Textile, Clothing and Footwear Strategic Investment Program Act 1999 (the Act). The Act also provided the authority for the $687 million TCF (SIP) Scheme that was in place for the period 2000 to 2005.

The policy objective of the TCF Post-2005 (SIP) Scheme is to foster the development of sustainable and internationally competitive TCF manufacturing and design industries in Australia, by providing incentives that will promote investment and innovation.
The Act sets out the legislative framework for the scheme, including:

- requiring grants made under the scheme to be made in connection with the manufacture in Australia, or design for manufacturing in Australia, of eligible TCF products
- setting the funding limits for the scheme
- setting out the requirements for capital investment and R&D expenditure
- requiring grants to be paid in arrears
- making grants paid under the scheme conditional on compliance with the Act and the terms and conditions of the scheme.

Copies of the Act and the TCF (SIP) and Post-2005 (SIP) schemes are available at <www.comlaw.gov.au>.

The scheme provides for two grant types, which provide subsidies for capital expenditure and innovation activities:

- **Type 1**: grants in respect of TCF capital investment expenditure, including investment in new plant and buildings; brand support; and, for clothing and finished textile entities only, investment in non-production-related information technology. Type 1 grants provide a subsidy of up to 40 percent of eligible expenditure (ie a maximum of 40 cents for every dollar of Type 1 expenditure).
- **Type 2**: grants in respect of TCF R&D expenditure, except leather and/or technical textile expenditure. Type 2 grants provide a subsidy of up to 80 percent of eligible expenditure (ie a maximum of 80 cents for every dollar of Type 2 expenditure).

The scheme runs for ten years, from 2005/06 to 2014/15. TCF entities undertaking eligible clothing and finished textile activities will benefit from the scheme for the full ten years, while other eligible TCF entities will only receive grant support for the first five years.

TCF entities undertaking leather and technical textile activities cannot access Type 2 grants under the scheme. This reflects the decision to concentrate support towards those firms facing the greatest tariff adjustment in the future.

Grants are capped at a total of $487.5 million for the 2005/06–2009/10 program years, or $97.5 million a year, and a total of $87.5 million for the 2010/11–2014/15 program years, or $17.5 million a year. Grants are paid annually and in arrears, subject to entities meeting a $200,000 expenditure threshold. For example, grants to entities that met the expenditure threshold for the 2005/06 program year were paid in June 2007.  

The scheme provides for the modulation of grants to ensure that they do not exceed the legislated annual cap, meaning that all grants are paid at the same pro rata rate. This ensures that all grantees are treated equitably if the call on grant funding is greater than the funds available.

To date, grants paid have been in respect of the 2005/06 and 2006/07 program years.

**2005/06 program year**

TCF entities incurred $259 million in eligible expenditure for the 2005/06 program year. This meant that the total call on grant funds for the program year exceeded the $97.5 million available. As a result, grants for the 2005/06 program year were modulated at a rate of 0.7367. Type 1 grants provided assistance at the rate of 29 cents in the dollar (maximum possible: 40 cents) in respect of eligible expenditure, while Type 2 grants provided assistance at the rate of 59 cents in the dollar (maximum possible: 80 cents). The total of grants paid for the 2005/06 program year was $96,149,565. In addition, $1,079,571 was set aside to be paid in future years when those entities meet the expenditure threshold. The breakdown of 2005/06 program year grants by TCF sector is shown in Figure 4.4.

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1 Entities not meeting the expenditure threshold in a program year have their grant eligibility amount set aside until it is met; eligible expenditure for the purpose of the threshold is accruable over the life of the scheme.
2006/07 program year

TCF entities incurred $239 million in eligible expenditure for the 2006/07 program year. This meant that, for the second year running, the total call on grant funds for the program year exceeded the $97.5 million available. As a result, grants for the 2006/07 program year were modulated at a rate of 0.7375. Type 1 grants provided assistance at the rate of 30 cents in the dollar in respect of eligible expenditure, while Type 2 grants again provided assistance at the rate of 59 cents in the dollar. The total of grants paid for the 2006/07 program year was $97,402,550. In addition, $247,520 was set aside to be paid in future years.

The breakdown of 2006/07 program year grants by TCF sector is shown in Figure 4.5.

**Figure 4.5: TCF Post-2005 (SIP) Scheme program year 2006/07—total grant payments by sector**

Source: Department of Innovation, Industry, Science and Research, unpublished data.


Evaluation

In its submission to the Review, the Council of Textile and Fashion Industries of Australia (TFIA) stated that:

the Strategic Investment Program has proven to be a very beneficial enabler of change within the TCF industries and the fact that modulation has been necessary is a strong indicator that it is driving investment within the sector.

In addition, the TFIA submission included the following quotes on the effectiveness of the two SIP schemes:

- Luc Deleu, Managing Director, Bekaert Australia—‘The availability of SIP has allowed Bekaert Australia to differentiate from its competitors by releasing innovative products onto the market… SIP allowed us to invest in new machinery, which enabled Bekaert Australia to regain the previously lost volumes as a result of segment evolution.’

- Jim Liaskos, Managing Partner, United Bonded Fabrics—‘The confidence generated in these novel technologies, and as a direct result of the SIP program, has encouraged further investment in these technologies with the company recently completing a second and larger Airlay technology based investment, which has pushed the bounds of knowledge and innovation even further.’

- Geoff Burfurd, Pacific Brands—‘Pacific Brands has undertaken an increased level of local manufacturing investment as a result of the SIP program incentives. Since the start of the post-2000 program approximately $45 to $50 million has been spent on new manufacturing plant and equipment.’

The majority of those who made submissions to the Review commented on the grant assistance arising from the two SIP schemes, supporting the above views. Further views are reported below.

The Carpet Institute of Australia Limited stated:

SIP has assisted carpet manufacturers to improve their international competitiveness by investing in state of the art technology, and by providing incentives for product and process improvement.

Further, in his submission, Mr Barry Poynter, Managing Director of Victoria Carpets Pty Ltd, told the Review:

SIP has enabled those who are investing in today’s equipment to do it earlier and at a faster rate than they would have previously done.

The Technical Textile and Nonwoven Association submitted its view that:

the Australian technical and nonwoven textiles industry has responded well to the SIP scheme. Government assistance has been valuable in encouraging and accelerating the necessary investment. It would appear that the scheme is working as the legislation intended. Investment in new plant and equipment and RDI expenditure has expanded considerably, and is set to continue to provide a stable investment environment. In essence, the industry is on the way to becoming smarter and more innovative than it once was.

The Footwear Manufacturers Association of Australia is of the view that the industry has responded well to the incentives provided by the two SIP schemes. The case study of Victor Footwear in the association’s submission states:

As a consequence of the introduction of the TCF Strategic Investment Program, in 2001 Victor Footwear believed that it was in a position to make a substantial investment in a 20 station injection moulder to modernise its production methods and to improve its ability to compete with imported products.

The size of Victor Footwear’s investment relative to its size and turnover was substantial, i.e. about 20% of its annual revenue. As an indication of the degree of commitment that this investment represented for the Company, if the whole TCF industry had similarly committed to new plant and equipment, then the new capital investment for the industry would have been approximately ten times the investment that actually occurred. In other words, Victor Footwear responded in the most positive way possible to the establishment of SIP even in the face of accelerating import competition.
The Australian Association of Leather Industries stated in its submission:

The industry has continued to improve its favourable balance of trade position over the past 5 years. This reflects the fact that participants have successfully diversified their activities and focused on export markets. These companies that have been successful in competing on export markets have invested in the latest equipment and technology and been innovative in their approach to product development and marketing.

This view of the assistance provided by the two SIP schemes evident in the public submissions is also reflected in the outcome of the survey of SIP grantees conducted by the Workplace Research Centre at the University of Sydney (WRC 2008).

The survey was commissioned to answer questions including: ‘What has been the impact of the TCF Strategic Investment Program within recipient’s business?’. In response to this question, the survey, completed by senior personnel from firms that received SIP grants in June 2007, found:

- While price is important, quality and responsiveness to customers are critical to the success of these firms.
- They have increased the use of outsourcing and reduced Australian manufacturing employment in the last five years.
- They face major supply and demand-side challenges.
- They have responded to multifaceted and deepening pressures by improving production and repositioning product offerings.
- SIP funding has contributed to improving business performance by allowing them to improve production processes and product design.

(WRC 2008: i–iii.)

The WRC (2008: iii) concluded:

Supporters of active industry policy in general and for the TCF sector in particular are sometimes assumed to be primarily concerned with protection or seeking shelter from inevitable change. Such a sentiment is not widespread amongst the SIP recipients surveyed. More pervasive is an understanding of the depth and dimensions of the challenges underway: SIP is seen as contributing to their repositioning and to level the playing field.

This is seen in the changing levels of expenditure incurred by entities participating in the TCF (SIP) Scheme and the TCF Post-2005 (SIP) Scheme, as set out in Figure 4.6.
These data indicate a shift in eligible program expenditure from being primarily on new plant and equipment to innovative product design, process improvement and other forms of expenditure, including information technology, brand support, R&D and industrial property rights.

**Effectiveness of the TCF Post-2005 (SIP) Scheme**

Two key issues impacting on the effectiveness of the TCF Post-2005 (SIP) Scheme were identified in the submissions to the Review: modulation and the lack of Type 2 grant assistance for technical textiles and leather.

**Modulation**

Modulation was identified by most stakeholders making submissions as the primary impediment to maximising the potential of the scheme.

The current annual funding limit of $97.5 million derives from the levels of demand on the original TCF (SIP) Scheme. This limit was determined in response to the Productivity Commission’s 2003 review of TCF assistance and took into account the industries’ view on the level of assistance required to provide continued structural adjustment assistance.

The TFIA claims:

SIP has been a vital enabler of investment and innovation however its impact going forward is seriously limited by the modulation ‘handbrake’ on investment and innovation incentives. In addition, modulation is actively working against the goals of the program by diluting the incentives to companies for investing in innovation.

In their joint submission, Bruck Textiles Limited and Melba Industries Pty Ltd stated that:

There is no question that SIP provides a greater confidence for firms to commit to investment in new technologies and innovative development, in that it helps offset technical risk. SIP has encouraged investment, as highlighted above, and this is reflected by the fact that the scheme is over-subscribed and that modulation has been triggered in the last two years. But modulation is a problem in itself. It undermines the confidence that companies may have had in the scheme, and certainly the “spectre” of modulation has meant that both Melba and Bruck, have either deferred or even cancelled investment projects (both in new equipment and on innovative product development) as a consequence.
Similarly, Pacific Brands Limited claimed in its submission that, to a large extent, domestically based innovations and investments would not have occurred without SIP. The company stated that, without the financial support and the long-term focus on innovation and investment driven by SIP, the short-term existence of those of its plants that benefited from investment would have been in question. Further, it expressed the view that the viability and level of the TCF industries’ innovation and investment activity is directly related to the level of government assistance directed towards the short-term wellbeing of local manufacture while the industries invest in long-term innovations and investments. Pacific Brands indicated that the discounting of the level and incentive rates for innovation and investment (because of modulation) has had a commensurate negative effect on the extent to which these activities can occur within its domestic manufacturing base.

Further, the TCFUA submission claimed:

Under the reduced Post-2005 program from 2005–2010, funding levels will now be effectively modulated to a discount rate of about 30%. In order to encourage the full impact of the schemes objectives: modulation should be scrapped for the final three years of the Post-2005 SIP program.

These sentiments were also reflected in the WRC survey: a number of respondents said that the announced levels of funding for SIP should not be subject to modulation, to ensure that the confidence needed to justify and then succeed in a major capital investment program is not subsequently undermined (WRC 2008: 27). However, when asked to elect a preferred method of rationing funds, 40 percent nominated some kind of modulation to spread available funds proportionally (WRC: 28, Table 5.5).

The data indicate the Australian TCF industries have responded favourably to the generous incentives to invest in new plant or equipment and innovation provided by the TCF Post-2005 (SIP) Scheme since its inception, as demonstrated by Figure 4.7.

Figure 4.7: Actual eligible expenditure for TCF (SIP) and Post-2005 (SIP) Schemes

Despite modulation, estimates of eligible expenditure made by entities registering for the 2008/09 program year, including updated expenditure for 2007/08, show that the level of eligible expenditure is continuing to increase. The latest estimates of eligible expenditure for the program years up to 2009/10 are as follows:

- 2007/08: $276.4 million
- 2008/09: $329.3 million
- 2009/10: $317.8 million.
These estimates indicate that the total call on the annual allocation of grant funding will continue to exceed the $97.5 million available, which means that the scheme will need to be modulated for the next three program years. The estimated rate of modulation for these years is as follows:

- 2007/08: 0.7574
- 2008/09: 0.7543
- 2009/10: 0.7448.

Access to Type 2 or innovation grants

In their submissions, a number of stakeholders said that their inability to access Type 2 grants was discriminatory and an impediment to growth.

Specifically, the Technical Textile and Nonwoven Association recommended that:

The federal government reverses the SIP post-2005 program discrimination against the nonwoven industry in its exclusion from Type 2 grants. The program should be more merit based for those firms that will contribute most to the future sustainability and growth of the fibre and textiles industry.

Similarly, the Australian Association of Leather Industries is seeking access to Type 2 grants. Its submission called for:

[A]ccess to Type 2 Innovation Grants supporting Research and Development initiatives for product and process innovation under any future TCF program Post-2010.

While technical textile products and leather are excluded from Type 2 grant support, entities producing these products are able to access other innovation support programs available to all industries, such as the R&D tax concession and the Commercialising Emerging Technology (COMET) program.

The appropriateness of the TCF grant program is examined in the context of its establishment and taking account of information placed before the Review.

The TCF Post-2005 (SIP) Scheme is a structural adjustment package and an integral part of the TCF Post-2005 Assistance Package, implemented in response to the 2003 report by the Productivity Commission reviewing TCF assistance. The TCF Post-2005 Package follows on from the TCF Post-2000 Assistance Package.

Among the Productivity Commission’s key findings was a recommendation to facilitate adjustment to the tariff reductions, with transitional budgetary support to be extended for a further eight years from 2005, but with funding levels reducing over time, using a modified version of the Strategic Investment Program (Productivity Commission 2003 xiv).

The Productivity Commission was also of the view that continued microeconomic reform and government efforts to improve access to overseas markets would help TCF firms become more internationally competitive. It felt that there is little that can or should be done to stop further adjustment out of labour-intensive, standardised TCF production in Australia; the policy focus should be on facilitating and supporting the adjustment process (Productivity Commission 2003).

After what will be a decade of structural adjustment assistance, the question now is what form any future, post-2010, microeconomic reform, and the facilitation and support of the adjustment process, should take.

Many are of the view that there should be a continuation of the Post-2005 (SIP) Scheme, or a new structural adjustment program with many of the same features, preferably with more funding than currently provided.

The Carpet Institute of Australia Limited submission stated:

The carpet industry has made good progress over recent years, however, the adjustment journey is ongoing and will not be completed by 2010. New positive assistance measures that borrow from the
valued elements of the current TCF Strategic Investment Program (SIP) together with an extension of the carpet tariff pause at 10% is required to give the industry the best possible chance of consolidating the gains already made, and meet the challenges ahead.

Similarly, the TFIA made the following recommendation:

Introduce a new TCF Investment Facilitation and Innovation Program for 2010 – 2015, driving ongoing support to firms as a driving force for continued innovation (this method provides optimal transparency ensuring funds are spent the way they were designed).

The Technical Textile and Nonwoven Association, Australian Association of Leather Industries and Footwear Manufacturers Association of Australia also expressed views that a continuation of the TCF Post-2005 (SIP) Scheme in its current form post-2010 was not necessarily the most appropriate direction for the future. This view was shared by a number of other key stakeholders during the Review.

The Technical Textile and Nonwoven Association submission stated that:

The Australian technical and nonwoven textiles industry views investment, including RDI activity, as the principal driver of growth. Product rollover and the renewal of ideas are constant, as is the reinvestment in technology/capital. Indeed, SIP is critical to carrying the technical and nonwoven textile industry to the next level required to position the industry competitively past 2010. The industry is therefore united in its support for a continuation of SIP mark 3 beyond 2010.

It further recommended:

The federal government reverses the SIP post 2005 program discrimination against the non-woven industry in its exclusion from Type 2 grants. The program should be more merit based for those firms that will contribute most to the future sustainability and growth of the fibre and textiles industry.

In addition, other stakeholders identified areas of competitiveness not supported under the scheme that should be considered post-2010.

For example, in its submission Australian Fashion Partners Pty Ltd stated that:

Future competitiveness requires a sound understanding of business and international trade relations as well as a basic understanding of macro-economic principles such as Exchange Rate Management (ERM), quotas and WTO negotiations. In addition to these macro-economic principles are the issues surrounding ethical manufacturing, ethical sourcing and ecological sustainability that are the hot button issues of the moment. To remain internationally competitive TCF Sector businesses will need the support of government to fund broadbased skills development across multiple business disciplines and provide comprehensive market intelligence tailored for TCF needs.

In addition, the firm recommended the creation of a standard sizing regime across product types, as an initiative that should assist the sector to maintain competitiveness. It identified a number of important potential benefits to the sector from the introduction of a standard sizing regime.

In its submission the TFIA outlined a proposal for the creation of an entity, a National Sizing Research and Coordinating Centre, to oversee and coordinate work supporting capability in sizing in the clothing sector. The TFIA expressed the view that such a body would ‘play an critical and lead role in raising the quality of TCF products and services and connecting the industry’.

The NSW Business Chamber suggested ‘that the Federal Government should help TCF industries to formulate a long-term competitive strategy and provide appropriate assistance to ensure its success’. In particular, it recommended:

The Federal Government should work with business leaders and other stakeholders to forge a long-term vision for the TCFL sector, which identifies the capabilities, resources and relationships that are needed to secure a sustainable competitive position.
Further, the TFIA found that:

While Australia's TCFL sector lags behind other sectors in terms of growth and value-added, its capacity to generate new products and processes is close to the average for the total manufacturing sector, and compares favourably to the average for Australian business as a whole.

It suggested that ‘Australian-based TCFL industries have the potential to adapt to external pressures and create new markets, even if this potential is not currently being realized.’ As a result, the TFIA recommended:

Existing mechanisms to support R&D in TCFL industries should be made more accessible to small-and-medium sized firms, and include measures to facilitate technology transfer to TCFL from other industries.

The CSIRO put forward its view that:

Technology and global challenges, however, are opening up a vast array of new applications for textiles including textile composites for aerospace, automotive and marine applications, medical textiles including tissue engineering scaffolds, textiles for protection and improved human performance, filtration textiles for water and energy applications, fibrous materials as components of batteries, solar cells and organic light emitting diodes, large scale applications in agriculture, aquaculture and horticulture and many more. The markets for these textiles may be smaller than the traditional commodity textiles but growth rates are higher and quality and performance characteristics are key attributes rather than simply price making barriers to market entry much higher. It is in these segments of the market where Australia’s TCF industry can potentially be competitive if the industry is able and willing to embrace radical innovation. Success can only be achieved by increasing innovation intensity in material science, process engineering, supply chain management and product design and by moving away from the notion that textiles are only about clothing. Many future materials will be based on fibres, and by strategic focusing of effort, Australian TCF businesses can find niches where they can be competitive. The TCF industry must see itself increasingly as a manufacturer of advanced materials and take advantage of the explosion in new knowledge in material science and process engineering.

Conclusion

Overall it can be concluded that the TCF Post-2005 (SIP) Scheme, along with its predecessor, the TCF (SIP) Scheme, has made a positive contribution to Australia’s TCF industries. The Workplace Research Centre survey found that SIP contributed to improving businesses’ performances, principally by improving production processes and production design. It also demonstrated that TCF firms understand the depth and dimensions of the challenges that face them. Rather than focusing on protectionist assistance, they have used SIP to reposition themselves to compete in the changing business operating environment.

The TCF Post-2005 (SIP) Scheme has focused Australia’s TCF industries on the importance of improving their competitiveness through capital investment and innovation. The scheme, along with the other measures in the TCF Post-2005 Assistance Package, has been an appropriate mechanism for addressing the pressures of structural adjustment and should continue to do so until 2010.

However, from 2010 the TCF Post-2005 (SIP) Scheme as currently formulated will provide limited grant support for only the clothing and finished textile sectors, at the significantly reduced level of $17.5 million per annum.
TCF STRUCTURAL ADJUSTMENT PROGRAM

The TCF Structural Adjustment Program (SAP) is a ten-year, $50 million program for the period July 2005 to June 2015 that aims to support TCF industry consolidation and labour market adjustment.

The goals of the three parts of the program are to:

- increase the awareness of existing programs and services, such as the Australian Government’s Job Network, that can be used to support requirements for major labour adjustment, such as dislocation associated with large-scale plant closure
- provide restructuring initiative grants to both metropolitan and regional firms, subject to strict eligibility criteria, through the TCF Restructuring Initiative Grants Scheme
- provide support in regionally sensitive areas through the Regional Partnerships program. (Note: the Regional Partnerships program was discontinued under the 2008/09 Budget.)

TCF SAP is demand driven. The annual reports for the department show that the program has been underspent each year since its implementation in July 2005.

Part 1: Job Network

Labour market adjustment support is provided through Part 1 of TCF SAP. Retrenched TCF employees are able to immediately access the Intensive Support Customised Assistance provided by the Australian Job Network, regardless of whether they meet the Job Network eligibility criteria. Job Network is delivered by the Department of Education, Employment and Workplace Relations (DEEWR).

For these purposes, a ‘retrenched TCF employee’ is an employee (including a casual employee) retrenched from a business that is currently, or was, involved in the manufacture of TCF products in Australia, or involved in the design for manufacture in Australia of those products. A ‘retrenched casual TCF employee’ is a casual employee who can demonstrate continuous employment of an average of 15 hours or more a week for at least six months.

Access to Intensive Support Customised Assistance for those who are not retrenched TCF employees is limited to job seekers who have been unemployed for more than 12 months or who are assessed as being highly disadvantaged.

Support provided under Part 1

Table 4.2 summarises the job referral assistance provided to retrenched TCF employees under Part 1 since TCF SAP’s inception in July 2005.

**Table 4.2: Job referral assistance**

<table>
<thead>
<tr>
<th></th>
<th>2005/06</th>
<th>2006/07</th>
<th>2007/08</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered with Job Network members</td>
<td>332</td>
<td>329</td>
<td>285</td>
<td>946</td>
</tr>
<tr>
<td>Total job referrals</td>
<td>639</td>
<td>1,251</td>
<td>1,182</td>
<td>3,072</td>
</tr>
<tr>
<td>Individuals referred</td>
<td>191</td>
<td>329</td>
<td>279</td>
<td>799</td>
</tr>
<tr>
<td>Total job placements</td>
<td>271</td>
<td>616</td>
<td>492</td>
<td>1,379</td>
</tr>
<tr>
<td>Individuals placed</td>
<td>144</td>
<td>321</td>
<td>240</td>
<td>705</td>
</tr>
<tr>
<td>13-week employment outcomes</td>
<td>74</td>
<td>315</td>
<td>243</td>
<td>632</td>
</tr>
<tr>
<td>Individual 13-week employment outcomes</td>
<td>73</td>
<td>293</td>
<td>212</td>
<td>578</td>
</tr>
<tr>
<td>26-week employment outcomes</td>
<td>26</td>
<td>234</td>
<td>181</td>
<td>441</td>
</tr>
<tr>
<td>Full-time education placements</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>10</td>
</tr>
</tbody>
</table>

Source: DEEWR unpublished data.
Table 4.3 summarises the financial assistance that has been provided under Part 1.

### Table 4.3: Financial assistance

<table>
<thead>
<tr>
<th></th>
<th>2005/06</th>
<th>2006/07</th>
<th>2007/08</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Job Seeker Account</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothing and equipment</td>
<td>$7,377</td>
<td>$40,651</td>
<td>$28,154</td>
<td>$76,542</td>
</tr>
<tr>
<td>Employer incentives</td>
<td>$7,727</td>
<td>$66,100</td>
<td>$81,917</td>
<td>$155,754</td>
</tr>
<tr>
<td>Fares and petrol assistance</td>
<td>$1,261</td>
<td>$2,094</td>
<td>$2,930</td>
<td>$6,285</td>
</tr>
<tr>
<td>Interpreter services</td>
<td>$334</td>
<td>$1,781</td>
<td>$2,152</td>
<td>$4,267</td>
</tr>
<tr>
<td>Job Network member contacts</td>
<td>$875</td>
<td>$3,128</td>
<td>$313</td>
<td>$4,316</td>
</tr>
<tr>
<td>Other</td>
<td>$1,933</td>
<td>$2,300</td>
<td>$5,530</td>
<td>$9,763</td>
</tr>
<tr>
<td>Professional services</td>
<td>$4,549</td>
<td>$22,243</td>
<td>$18,504</td>
<td>$45,296</td>
</tr>
<tr>
<td>Training</td>
<td>$26,161</td>
<td>$74,208</td>
<td>$90,462</td>
<td>$190,831</td>
</tr>
<tr>
<td>Transport assistance</td>
<td>$2,936</td>
<td>$10,786</td>
<td>$8,645</td>
<td>$22,367</td>
</tr>
<tr>
<td>Work-related licensing</td>
<td>$2,592</td>
<td>$5,869</td>
<td>$8,929</td>
<td>$17,390</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>$55,745</td>
<td>$229,170</td>
<td>$247,896</td>
<td>$532,811</td>
</tr>
<tr>
<td><strong>Assistance to Job Network members</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service fee</td>
<td>$190,102</td>
<td>$363,002</td>
<td>$233,098</td>
<td>$786,502</td>
</tr>
<tr>
<td>Outcome fee</td>
<td>$103,250</td>
<td>$763,825</td>
<td>$568,766</td>
<td>$1,435,841</td>
</tr>
<tr>
<td>Job placement fee</td>
<td>$36,900</td>
<td>$91,360</td>
<td>$72,765</td>
<td>$201,025</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>$330,252</td>
<td>$1,218,187</td>
<td>$874,929</td>
<td>$2,423,386</td>
</tr>
<tr>
<td><strong>Total expenditure</strong></td>
<td>$385,997</td>
<td>$1,447,357</td>
<td>$1,122,825</td>
<td>$2,956,179</td>
</tr>
</tbody>
</table>

Source: DEEWR unpublished data.

General Employee Entitlements and Redundancy Scheme and the Employee Entitlement Support Scheme

In addition to receiving support under Part 1 of TCF SAP, retrenched TCF employees whose previous employer was liquidated and is unable to meet its obligations in respect of employee entitlements are able to seek assistance under the General Employee Entitlements and Redundancy Scheme. This scheme and its precursor, the Employee Entitlement Support Scheme, provide a safety net for all Australian employees whose previous employer has insufficient funds to cover leave, long service leave and redundancy entitlements.

The total amount of assistance provided under the two schemes for the period 1 January 2000 to 30 June 2008 is shown in Table 4.4.

### Table 4.4: Assistance under employee entitlements schemes, 1 January 2000 to 30 June 2008

<table>
<thead>
<tr>
<th></th>
<th>Non-TCF industries</th>
<th>TCF industries</th>
<th>Ratio of TCF to non-TCF industries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of businesses</td>
<td>7,109</td>
<td>129</td>
<td>1.8%</td>
</tr>
<tr>
<td>Number of employees paid</td>
<td>61,118</td>
<td>2,071</td>
<td>3.4%</td>
</tr>
<tr>
<td>Total paid</td>
<td>$431,093,517</td>
<td>$18,013,287</td>
<td>4.2%</td>
</tr>
<tr>
<td>Average paid</td>
<td>$7,053</td>
<td>$8,698</td>
<td>123.3%</td>
</tr>
</tbody>
</table>

Source: DEEWR unpublished data.

Evaluation

As noted above, Part 1 of TCF SAP is demand driven. Any employee who has been, or will be, retrenched between 1 July 2005 and 30 June 2015 from a business manufacturing TCF products in Australia or designing for manufacture in Australia is eligible for assistance. When DEEWR or Job Network members are aware of TCF retrenchments, they may contact affected employees directly to advise them of the assistance available to them. If DEEWR or Job Network members are not informed about TCF redundancies, it is up to individual retrenched TCF employees to identify themselves to their Job Network members. This can cause problems in circumstances where with the Job Network member or the
retrenched TCF employee is not fully aware of the assistance available under Part 1 of TCF SAP. The Review understands that the TCFUA has also played a key role in ensuring retrenched TCF employees are aware of the assistance available to them.

The primary goal of Job Network members is to get people into jobs as quickly as possible, a goal often mirrored by the retrenched TCF employees themselves. However, it has been reported to the Review that quick placement into a new job may not be the optimal outcome for some employees. The TCFUA maintains that where retrenched TCF employees are given the opportunity to enhance or build their skills, their chances of securing better jobs with either equal or higher pay than before are substantially increased.

In its submission to the Review, the TCFUA expressed its criticism of the outcomes under Part 1, stating:

The former Federal Government’s $50 million TCF-SAP (2005-2015) has so far failed to deliver on its core objective to assist retrenched TCF workers.

As part of its submission to the Review the Victorian Government commissioned an update of the TCFUA’s 2006 report ‘Empty Promises’, which catalogued the TCFUA’s concerns with the implementation of Part 1. The updated report, titled ‘More Empty Promises’, is at Annex 1 to the Victorian Government’s submission. The report sets out the experiences of 80 retrenched TCF workers in using the services of Job Network to either find employment or access training.

The report urged the Review to substantially redesign TCF SAP so that it is solely worker-focused, delivers immediate, high-quality and flexible support and provides financial assistance as well as training, to increase workers’ chances of finding appropriate and secure jobs.

The report also recommended that the eligibility criterion for assistance under the TCF SAP be a worker’s TCF Award coverage, rather than requiring that their former employers undertook an eligible TCF activity, a recommendation reiterated in the TCFUA’s submission. However, based on the latest data available from the Australian Bureau of Statistics, TCF Award coverage applies to only 16.9 percent of the TCF industries’ workforce.

On the other hand, in its submission the TFIA expressed its belief that TCF SAP is an important scheme extending across all sectors of the TCF industries, including all employees, regional bodies and firms.

**Conclusion**

To date, Part 1 of TCF SAP has provided effective assistance to 946 retrenched TCF employees at a total cost of $3 million for the period 1 July 2005 to 30 June 2008. The outlook for employment in the Australian TCF industries in the coming years is somewhat uncertain, although it is likely to continue to decline. DEEWR predicts that over the five years to 2012/13 employment in TCF manufacturing is expected decline at an average rate of 2.4 percent per annum. In contrast, employment across all industries is forecast to grow at an annual average rate of 1.5 percent over the same period.

Given that employees in the TCF sector have relatively low levels of education and include a large percentage from non-English-speaking backgrounds, there remains a need to provide ongoing structural adjustment assistance to those affected by rationalisation in the TCF industries.

Based on information provided to the Review in public submissions, it is also reasonable to conclude that the assistance available under Part 1 of TCF SAP could be enhanced by providing improved training opportunities for retrenched TCF employees. The benefits arising from an enhanced TCF SAP could then feed back into the industries if TCF SAP also facilitated linking employers experiencing skills shortages with retrenched TCF employees wanting to stay in the industry.

**Part 2: TCF Restructuring Initiative Grants Scheme**

The TCF Restructuring Initiative Grant Scheme (RIGS) is a ministerial discretionary grants scheme. Under RIGS, the Minister for Innovation, Industry, Research and Science may decide to provide grant support to a proposed restructuring initiative.
RIGS is a three-step program. First, a proposed restructuring initiative must be approved by the Minister. Second, the restructuring initiative must be carried out as agreed; and third the outcome is presented to the Minister, who then may decide to provide a grant. A proposal for a restructuring initiative must come from at least two non-related entities. One of the entities must be either financially unviable or likely to be financially unviable in the near future.

Eligible expenditure under RIGS is limited to the acquisition of state-of-the-art second-hand plant or equipment purchased as a direct consequence of the initiative or an ancillary activity related to the initiative. An ancillary activity could include obtaining legal advice, decommissioning and recommissioning plant or equipment, and obtaining technical advice. State-of-the-art second-hand plant or equipment that has been subsidised by either the TCF (SIP) or Post-2005 (SIP) scheme or by state or territory governments is not eligible expenditure under RIGS. Neither is routine expenditure, including employee entitlements eligible for grant support.

The department advises that as at 18 February 2008 the total amount spent under RIGS was $6,113,252.

Evaluation

One entity, Bruck Textiles Limited, in its joint submission with Melba Industries Pty Ltd, identified itself as being a grantee under RIGS. Bruck's conclusion on the effectiveness of RIGS was that:

[T]he limited funding eventually provided, coupled with the substantive compliance cost associated with the preliminary submissions and consequent applications, put into question the real incentive this scheme applies to encourage the industry rationalisation that is still sorely needed to help retain scale economies in a contracting market. Certainly this experience for Bruck, precluded the company from proceeding with a number of other company acquisitions that it had planned.

The TCFUA has called for the abolition of RIGS, citing the disproportionate amount of funding being provided as RIGS grants against that used to provide support to retrenched TCF employees through Part 1 of TCF SAP. As previously mentioned, the TCFUA is of the view that all TCF SAP funding should be focused on workers, rather than firms.

Given that only one entity has identified itself to the Review as a grantee under RIGS it is difficult to assess the effectiveness of the scheme. Nevertheless, based on anecdotal information provided during the Review, providing support for second-hand plant or equipment would seem to be counterintuitive or even contrary to the policy objectives of the TCF Post-2005 (SIP) Scheme. It is also difficult to identify benefits that might arise from a restructuring initiative that is predicated on at least one participant who is either financially unviable or potentially financially unviable selling second-hand plant or equipment to the other participant or vice versa. This is especially so as the criterion requires the plant or equipment be state-of-the-art while excluding any second-hand plant or equipment subsidised by the two SIP schemes since 1998. This means that any plant or equipment subsidised under RIGS in 2008 would have to be at least ten years old.

Conclusion

RIGS does not appear to be strategically focused on supporting restructuring initiatives that take the TCF industries forward in a meaningful way. According to one grantee, it has not achieved its policy objective in facilitating restructuring, proving to be cumbersome with high compliance costs and uncertain outcomes in respect of the level of support available. Requiring at least one participant to be unviable does little to establish confidence that RIGS provides a benefit to the Australian TCF industries.

Part 3: Regional Partnerships program

Part 3 of TCF SAP provided for the supplementation of the Regional Partnerships program to help specific communities and regions adjust to major economic, social or environmental change. Decisions in respect of funding under the program were made by a Ministerial Council. The program was delivered by the Department of Infrastructure, Regional Development and Local Government, but was discontinued as part of the Australian Government's 2008/09 budget measures. There was no funding provided under Part 3 of TCF SAP.
TCF SMALL BUSINESS PROGRAM

The TCF Small Business Program (SBP) is a legislated ten-year, $25 million competitive grants program, made under the authority of the Textile, Clothing and Footwear Strategic Investment Program Act 1999.

The program’s policy objective is to improve the business enterprise culture of TCF small businesses that do not qualify for assistance under the TCF (SIP) Scheme or the TCF Post-2005 (SIP) Scheme.

Under the Textile, Clothing and Footwear Small Business Program Determination 2005, ‘business enterprise culture’ is defined as:

the nature and style of the decision-making and production processes that occur within a business. More specifically, business enterprise culture is intended to describe the extent to which the values, attitudes and norms that are dominant in a business can be described as entrepreneurial. Thus a pronounced enterprise culture might typically be found in businesses in which emphasis is placed on the importance of innovative characteristics such as initiative, self-reliance and creativity. Businesses in this category generally understand how to maximise commercial returns on their products and services, and are skilled at securing and maintaining a competitive market edge. Change is generated and managed largely from within—and there is a strong focus among its staff upon the goals of financial growth and expansion.

The $25 million program has annual funding of $2.5 million available from 2006/07 until 2015/16. One annual selection round is generally announced in December, with final decisions and announcements of successful applicants by May the following year.

To date there have been three selection rounds for the program.

Round 1: 2006/07 financial year

Round 1 (December 2005 to March 2006) of the TCF SBP resulted in applications for 138 projects from 106 applicants seeking just over $5.6 million in funding. Seventy projects were selected to receive a total of $2,424,456 in grant funding in 2006/07.

Round 1 successful project categories are shown in Table 4.5.

Table 4.5: TCF SBP Round 1 projects

<table>
<thead>
<tr>
<th>Project category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other—R&amp;D</td>
<td>1</td>
</tr>
<tr>
<td>Trade show</td>
<td>1</td>
</tr>
<tr>
<td>Sampling</td>
<td>2</td>
</tr>
<tr>
<td>Computer-aided design/manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>Equipment</td>
<td>3</td>
</tr>
<tr>
<td>Mentoring</td>
<td>5</td>
</tr>
<tr>
<td>Exporting</td>
<td>7</td>
</tr>
<tr>
<td>E-commerce</td>
<td>9</td>
</tr>
<tr>
<td>Quality assurance</td>
<td>11</td>
</tr>
<tr>
<td>Marketing</td>
<td>12</td>
</tr>
<tr>
<td>Enterprise management system</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>70</strong></td>
</tr>
</tbody>
</table>

Source: Department of Innovation, Industry, Science and Resources, unpublished data.

Of the 70 projects funded, 66 have been completed, three were cancelled and one remains active.
Round 1 example project outcomes

*Longford River Pty Ltd, trading as Ivy Industries*

Ivy Industries was a grantee in Round 1 of the TCF SBP, receiving support to implement its project ‘Cleanroom Uniforms to Australian Standards Class A & B’.

Ivy reported that the project funding enabled it to put in place a structured effective office administration, research and production team capable of delivering innovative high-tech cleanroom uniforms.

In its final report on the project, Ivy expressed the view that it met the program’s policy objective, stating:

> There is no doubt the project made Ivy Industries stretch its boundaries. We attended courses which in the past we had put off for another day. We paid attention to far more detail out on the production table and brought our whole team together for regular meetings, bringing in the pattern maker, cutter, main sewer, and staff to improve design, sewing, finishing, labels and packaging.

> The appointment of a new research sales and marketing person has enriched our team. I had previously done marketing, selling, research on the internet, dealt with all major clients and developed new garments. Consequently things were being neglected. I can now move ahead and make strategic decisions for the business to move ahead while Andrea handles the sales, marketing and research. Previously Ivy Industries could not afford another staff member I am hopeful these new contracts will cover this new wage.

Ivy completed its TCF SBP project in July 2007.

*Susie Morratoff Pty Limited*

Susie Morratoff Pty Limited, another grantee for Round 1, received support to implement a project for the commercialisation of the first significant and comprehensive export distribution. Susie Morratoff identified the outcomes of the project as including the delivery of a strategy for growth in the export market and participation in a Los Angeles fashion show aimed at increasing international awareness of the brand and generating sales.

Susie Morratoff stated in its final report that the project met the program’s policy objective as follows:

> Our aim in this project has been to take a managed approach to expansion, allowing us to learn as we go. Working closely with local partners has enabled us to gain additional knowledge and understanding of the market, thus allowing us to become more creative both in our product design and business model.

> Through exporting to the USA we are now expanding our systems to accommodate the growing requirements for international trade, such as distribution and freight forwarding options, factoring companies in the USA to collect monies on our behalf etc.

> With increased volume of production, our manufacturing processes have been and are continuing to be revised and improved to ensure efficient and timely quality manufacturing of our products to be exported.

Susie Morratoff completed its TCF SBP project in April 2008.

*Round 2: 2007/08 financial year*

Round 2 of the program (January to March 2007) resulted in applications for 287 projects from 195 applicants seeking more than $12 million in funding. Sixty-three projects were selected to receive a total of $2,492,623 in grant funding in the 2007/08 financial year.

Round 2 successful project categories are shown in Table 4.6.
Table 4.6: TCF SBP Round 2 projects

<table>
<thead>
<tr>
<th>Project category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer-aided design/manufacturing</td>
<td>1</td>
</tr>
<tr>
<td>Equipment</td>
<td>1</td>
</tr>
<tr>
<td>Trade show</td>
<td>1</td>
</tr>
<tr>
<td>Marketing</td>
<td>6</td>
</tr>
<tr>
<td>Exporting</td>
<td>8</td>
</tr>
<tr>
<td>Quality assurance</td>
<td>8</td>
</tr>
<tr>
<td>Mentoring</td>
<td>11</td>
</tr>
<tr>
<td>E-commerce</td>
<td>12</td>
</tr>
<tr>
<td>Enterprise management system</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>63</strong></td>
</tr>
</tbody>
</table>

Source: Department of Innovation, Industry, Science and Research unpublished data.

Of the 63 projects funded, 16 have been completed, one was cancelled and 46 are still active.

Round 2 example project outcomes

**Josh Goot Pty Ltd**

Josh Goot Pty Ltd, a grantee for Round 2, received support to implement a project for operational change and manufacturing systems transformation.

Josh Goot reported the outcomes arising from the project included the implementation of new operating strategy and processes and a new niche software system.

In respect of how met the program’s policy objective of improving business enterprise culture, the company stated in its final report:

- This project has greatly improved our business enterprise culture. The increase in flexibility and adaptability of our business activities was immediately noticeable. The improvements have led to an increase in our willingness and ability to take calculated risks with primary business decisions and behaviours.
- The project has assisted the business with building connections across its networks through the use of technology, and resulted in improved business operations and opportunities to achieve our growth strategies. The project has achieved significant time and cost savings, which have been brought about through internal sharing of information.

Josh Goot competed this project in May 2008.

**Textile Clothing Footwear Resource Centre of Western Australia Inc.**

The Textile Clothing Footwear Resource Centre of Western Australia Inc. (TCFWA), also a grantee for Round 2, received support to implement its TCFWA National Trade Exhibition Project.

The outcomes from this project included taking a consortium of designers to three different national fashion events.

In its final report, TCFWA made the following observations on how its project met the program’s policy objective:

**Fashion Exposed, September 2007**

Designers improved their enterprise culture through their participation, made new contacts and developed confidence in representing the product and meeting media. Creativity was developed through the designers creating new ranges for the event and their promotional and marketing material; this event
was showcasing winter 08 and transeasonal collections. Designers achieved sales and made contacts with agents and media opportunities.

**Fashion Exposed, March 2008**

Designers developed their enterprise culture to identify their target market clientele. Creativity was supported through the release of new styling, marketing and promotional material. This event was showcasing summer 08/09 collections.

**Rosemount Australian Fashion Week, May 2008**

This stage 3 event was cancelled due to the participant’s change of direction with their labels and business.

The TCFWA completed this project in April 2008.

**Round 3: 2008/9 financial year**

Round 3 of the program (December 2007 to February 2008) resulted in applications for 162 projects from 153 applicants seeking more than $6 million in funding. Sixty-nine projects were selected to receive a total of $2,547,738 in grant funding in 2008/09.

Round 3 successful project categories are shown in Table 4.7.

**Table 4.7: TCF SBP Round 3 projects**

<table>
<thead>
<tr>
<th>Project category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sampling</td>
<td>1</td>
</tr>
<tr>
<td>Equipment</td>
<td>2</td>
</tr>
<tr>
<td>Computer-aided design/manufacturing</td>
<td>5</td>
</tr>
<tr>
<td>Quality assurance</td>
<td>7</td>
</tr>
<tr>
<td>E-commerce</td>
<td>8</td>
</tr>
<tr>
<td>Exporting</td>
<td>8</td>
</tr>
<tr>
<td>Mentoring</td>
<td>8</td>
</tr>
<tr>
<td>Marketing</td>
<td>11</td>
</tr>
<tr>
<td>Enterprise management system</td>
<td>19</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>69</strong></td>
</tr>
</tbody>
</table>

Source: Department of Innovation, Industry, Science and Research, unpublished data.

All projects selected for funding under Round 3 of the TCF SBP are active.

**Summary**

In total, 202 projects to ‘improve the business enterprise culture of TCF small businesses’ have received grant support from the TCF SBP (Table 4.8).
Table 4.8: TCF SBP projects, all rounds

<table>
<thead>
<tr>
<th>Project category</th>
<th>All rounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other—R&amp;D</td>
<td>1</td>
</tr>
<tr>
<td>Trade show</td>
<td>2</td>
</tr>
<tr>
<td>Sampling</td>
<td>3</td>
</tr>
<tr>
<td>Equipment</td>
<td>6</td>
</tr>
<tr>
<td>Computer-aided design/manufacturing</td>
<td>9</td>
</tr>
<tr>
<td>Exporting</td>
<td>23</td>
</tr>
<tr>
<td>Mentoring</td>
<td>24</td>
</tr>
<tr>
<td>Quality assurance</td>
<td>26</td>
</tr>
<tr>
<td>ecommerce</td>
<td>29</td>
</tr>
<tr>
<td>Marketing</td>
<td>29</td>
</tr>
<tr>
<td>Enterprise management system</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>202</strong></td>
</tr>
</tbody>
</table>

Source: Department of Innovation, Industry, Science and Research, unpublished data.

Of the 202 projects funded, 84 have been completed, four were cancelled and 116 remain active.

**Evaluation**

In its submission to the Review, the TFIA claimed:

> The TCF Small Business Scheme is scheduled to run 2005–2015 and is open to all TCF small businesses. This program has been a success in that it provides small firms with access to funding for innovative programs that do not meet the minimum SIP expenditure thresholds. The TFIA believes this program should be reviewed to ensure that the best ideas are being supported. Currently start-ups are unable to access this program however they often have the newest ideas and are the most in need of funding.

In his submission to the Review, Mr William Ellis expressed a different point of view, noting that the design and delivery of the program, as a competitive-round model, resulted in a growing number of applications with a relatively constant number being approved for funding, reflecting a less than 25 percent chance of being successful. Mr Ellis further argued that, in the context of limited funding, this type of program design is not as appropriate for broad-coverage small business programs as it is for some others, and expressed concerns about what he sees as the inequitable nature of these types of programs.

**Conclusion**

On the basis of the information available to the Review, and notwithstanding the differing views expressed about the design of the program, it can be concluded that the TCF SBP has facilitated activity in strategic business improvement, flexibility and adaptability. These attributes are all elements of a developing entrepreneurial culture.

**PRODUCT DIVERSIFICATION SCHEME**

The Product Diversification Scheme (PDS) assists clothing and finished textile manufacturers located in Australia to internationalise their sourcing arrangements and complement their existing product range, by providing duty credits based on increased levels of domestic production. The duty credits can then be used to offset duty payable on finished clothing items, or on relevant imported finished textile articles. The PDS provides $5 million per annum in duty credit to Australian manufacturers. Duty credit can only be earned in the 2006/07 to 2015/16 financial years.

In order to qualify for a duty credit under PDS, an entity must be a producer, which means a clothing and/or finished textile entity as defined under the TCF (SIP) and Post-2005 (SIP) schemes.

To earn a duty credit, a producer must be entitled to be paid a grant under the TCF Post-2005 (SIP) Scheme and have additional production. ‘Additional production’ means:
sales revenue derived by the producer from sales (except sales to New Zealand) of the producer’s nominated products for the program year in which a claim is made less sales revenue derived by the producer from sales (except sales to New Zealand) of the producer’s nominated products for the year preceding the claim.

A nominated product must be an eligible TCF product of the producer, resulting directly and predominantly from an eligible clothing activity or an eligible finished-textile activity, as defined by the TCF Post-2005 (SIP) Scheme.

Example
A producer nominates jeans as its nominated product. Additional production is calculated as:

sales revenue from jeans for the program year (eg 2006/07) for which a claim is made: $10,000,000 less sales revenue from jeans for the preceding year (eg 2005/06): $8,000,000.

Additional production would then be $2,000,000.

The producer is allocated a proportion of the total duty credits available (eg $5 million) based on its additional production. From the previous example, if the total additional production of all producers was $50 million, the producer would have claimed 4 percent of the total additional production and would be entitled to 4 percent of the duty credits available. The resulting $200,000 of duty credit could be used to offset the duty payable on imported finished clothing or textile articles in the 2008/09 financial year (ie two years after the claim year). Unused duty credit expires at the end of the financial year.

2004/05 program year
For the 2004/05 TCF (SIP) Scheme program year, $73,523,543 in additional production was generated by 33 producers. Of the 33 entities, seven generated 61 percent of the total additional production. The duty credit value received by individual producers ranged from $3,600 to $631,000.

A total of $4.6 million in 2004/05 program year duty credit was used in 2006/07.

2005/06 program year
For the 2005/06 program year, $53,968,086 in additional production was generated by 28 producers. Of the 28 entities, seven\(^2\) generated 66 percent of the additional production. For the program year, $5 million was awarded in annual duty credit. The value received by individual producers ranged from $7,000 to $1.1 million.

A total of $4.3 million in 2005/06 program duty credit was used in 2007/08.

2006/07 program year
For the 2006/07 program year, $102,360,980 in additional production was generated by 62 producers. Of the 62 entities, 11 generated 63 percent of the additional production. The duty credit value received by individual producers ranged from $3,400 to $501,000.

Evaluation
The PDS provides a duty credit to clothing and finished textile producers who increase their levels of domestic manufacturing for particular nominated products. Domestic manufacture of eligible entities’ nominated products increased for each of the program years, as follows:

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\(^2\) The top seven entities in the 2005/06 program year for the Product Diversification Scheme differ from the top seven in the 2004/05 program year.
EVALUATION OF PROGRAMS

2004/05: 32 percent
2005/06: 27 percent
2006/07: 34 percent.

However, these figures do not indicate a sustained amount of increased domestic manufacture. As shown in Figure 8, the base level of sales varies from year to year, as does the mix of nominated products.

**Figure 4.8: PDS—additional production, 2004/05 to 2006/07**

![Graph showing sales from 2003/04 to 2006/07](image)

Source: Department of Innovation, Industry, Science and Research, unpublished data.

In addition, this varied base level of sales reflects the different number of entities using the scheme year to year.

If the measure of effectiveness is a measurable level of additional production over the three years, it is difficult to say on the basis of the data available that the PDS has achieved that result.

**Conclusion**

The PDS provides a benefit to a small number of Australia’s TCF entities (mainly clothing manufacturers), registered under the TCF (SIP) and Post-2005 (SIP) Schemes, who increase their sales of domestically manufactured clothing or finished textile products on an annual basis. As recipients must have both manufacturing and importing capabilities, use of the program has been limited to a small number of predominantly large firms, as reflected by the small number of firms receiving the majority of the duty credits. The program provides little incentive for innovation, skills enhancement, supply-chain initiatives or any of the other issues identified during the Review as vital to the ongoing future of the TCF industries.

**TCF EXPANDED OVERSEAS ASSEMBLY PROVISIONS SCHEME**

The TCF Expanded Overseas Assembly Provisions (EOAP) Scheme facilitates the ongoing development of Australian textile, clothing and footwear firms by encouraging the retention of high value-added and skilled activities in Australia, while at the same time supporting expansion of overseas assembly activities. The scheme provides assistance, through duty concessions, to firms that assemble clothing and footwear overseas from predominantly Australian-made fabric and/or leather, then import them back into Australia for local consumption.

The EOAP Scheme commenced on 9 June 1999. Duty forgone under the scheme for the period 9 June 1999 to 30 June 2008 was $39,853,497. The annual duty forgone is shown in Figure 4.9.
Figure 4.9: EOAP Scheme—duty forgone, 1999/2000 to 2007/08

![Bar chart showing duty forgone from 1999/2000 to 2007/08.](chart)

Source: Department of Innovation, Industry, Science and Research, unpublished data.

**Evaluation**

The EOAP Scheme is predominantly used by clothing firms with offshore cut, make and trim operations.

Figure 4.10 shows the total value of the imports (free-on-board) and the Australian-made fabric and/or leather used under the EOAP Scheme for the period 2005/06 to 2007/08.

Figure 4.10: EOAP Scheme—value of Australian and imported components, 2005/06 to 2007/08

![Bar chart showing value of imported and Australian components from 2005/06 to 2007/08.](chart)

Source: Australian Customs Service, unpublished data.

The number of entities using the EOAP Scheme is relatively small: 17 in 2005/06, 19 in 2006/07 and 12 in 2007/08.

Notwithstanding the low level of usage, representations were made to the Review seeking the retention of the scheme post-2010.
In its submission to the Review, the Australian Association of Leather Industries recommended an extension of the scheme post-2010, claiming:

[S]ome of our members have been successful in having their leather used in footwear produced in other countries and imported into Australia. There is no doubt that the OAP have been a significant factor in achieving this.

In their joint submission, Bruck and Melba stated:

Bruck and Melba are aware of the availability of the Expanded Overseas Assembly Provisions (EOAP) Scheme and in some instances this has maintained a certain degree of demand for these firms’ apparel fabrics as the Australian volume apparel industry has progressively moved offshore. However, EOAP activities have proved more costly and difficult than industry had envisaged. For major offshore producers of apparel, the Australian market is only a small consideration, and the volume of product demanded does not warrant disrupting production runs to incorporate a relatively small amount of Australian produced fabric. That is, they would rather provide a finished product from their existing production (utilising their locally sourced fabrics), or charge a premium for the special runs. In this context, the assistance accorded by the EOAP (through the concessional duty on the re-imported finished product) is often insufficient to offset the cost involved (both of the actual product and the management/orchestration of the process). The benefit will become even more marginal once the apparel tariff reduces to 10%. Nonetheless, the EOAP is providing some stimulus for the use of Australian fabric in the offshore assembly of garments destined for the Australian market, and as such should be retained.

The EOAP Scheme is scheduled to conclude on 30 June 2010. It has generated a pull-through of Australian-made fabric and leather for firms assembling clothing and footwear offshore and bringing them back for domestic consumption. However, because of the reducing rate of tariffs for the finished product, the value of the scheme is declining.

Conclusion

It is reasonable to conclude, based on the information available including that provided to the Review, that the EOAP Scheme has achieved and will continue to achieve its policy objective of providing an effective and appropriate mechanism to support the textile and leather sectors until it ends on 30 June 2010.

TCF SUPPLY-CHAIN OPPORTUNITIES PROGRAM

The November 2003 press release announcing the TCF Post-2005 Assistance Package stated that the TCF Supply-chain Opportunities Program would be a $20 million competitive grants-based program to support major capital investments to strengthen the local supply chain for the clothing and finished textiles sector. The TCF Supply-chain Opportunities Program is due to be implemented from 1 July 2010.

In their joint submission Bruck and Melba stated:

On 19 September 2007, then Minister for Industry, Tourism and Resources wrote to the TFIA to further clarify the framework for the Supply Chain Opportunities Program (SOP), to commence in 2010.

In that letter, it was stated that the SOP would ‘provide grants which will help subsidise key capital investments that would strengthen the domestic supply chain for the clothing and finished textile product sector’. To be eligible for this support, entities will need to be Australian manufacturers of yarns and fabrics, where at least half of the total value add of the manufactured product, and the last process of production, must occur in Australia.

Further, only entities that can demonstrate ‘international competitiveness’ would be eligible for support. The Minister’s letter indicated that one measure of international competitiveness could be the level of import substitution demonstrated by an applicant, but noted that other measures could be developed, bearing in mind the need to abide by Australia’s international obligations.
This Scheme is vital for Bruck and Melba (and all Australian textile mills) to continue to build on their supply chain strengths and commitments, both with existing customers and potential new customers.

The report into the TCF supply chain commissioned by the Review (Gattorna & Ellis 2008: 2) provided the following definition of a supply chain.

The supply chain is the combination of processes, functions, activities, relationships and pathways along which products, services, information and financial transactions move from original producers to end consumers. Supply chain management has grown out of the fields of logistics and procurement and focuses on the interdependencies of all the organisations involved. It aims to improve the linkages between firms to optimise the cost-to-serve and market effectiveness for all parties. It focuses on improvement in aspects such as removing bottlenecks, minimising the time through the chain, and sharing information to reduce variability and inventory.

It summarised the advantages, barriers, opportunities and threats to the TCF supply chain as follows (Gattorna & Ellis 2008: 23):

<table>
<thead>
<tr>
<th>Supply chain advantages</th>
<th>Supply chain barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation in first stage of process—wool, cotton, hides</td>
<td>Labour cost</td>
</tr>
<tr>
<td>Logistics involvement in Asia</td>
<td>Low involvement in yarn and fabric processing—need to import fabrics</td>
</tr>
<tr>
<td>Well regarded supply chain knowledge base</td>
<td>Low domestic volumes constrain capital intensive production</td>
</tr>
<tr>
<td>Scale at the retail end of the chain</td>
<td>Lack of scale</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supply chain opportunities</th>
<th>Supply chain threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased localisation: Cost driven (Oil/Emissions/China)</td>
<td>More sophisticated global supply chains</td>
</tr>
<tr>
<td>Increased localisation: Responsiveness driven</td>
<td>Low barriers to sourcing offshore</td>
</tr>
<tr>
<td>Support for niche/premium product strengths</td>
<td>Rising cost of accessing export markets</td>
</tr>
<tr>
<td>Convert outworker channels into ethical, responsive skill pools</td>
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<tr>
<td>Artificial scale via new business models</td>
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<td>Industry level supply chain capability</td>
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<td>development</td>
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<td>Strength via flexibility</td>
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The report concluded:

The rate of change in all categories of business is increasing, but the low barriers associated with the clothing and footwear business, the short lifecycle of products, and the exposure to the vagaries of fashion, drive a substantially faster rate than virtually all other industries. The overriding supply chain requirement in this environment is for flexibility—the ability to adapt and make decisions quickly, and to have a range of manufacturing, sourcing and logistics options to be drawn on as required. To participate in, and to avoid being consumed by, global supply chains require a TCF industry prepared for continuous adaptation.

(Gattorna & Ellis 2008: 24.)
Conclusion

Taking into account the findings of the report, and given that the TCF Supply-chain Opportunities Program has not been implemented, now is an opportune time to rethink the design features of the program. Rather than providing a subsidy for capital investment for just the textile sector, the program could facilitate improvements in the supply chain capability of the Australian TCF industries.

GOVERNMENT PROCUREMENT

The Australian Government, state and territory governments and local governments each have their own procurement legislation, policies and procedures. There is no national regulation of government procurement; however, the key common elements for most government procurement are competition and non-discrimination.

Support for Australian industry

Several public submissions to the Review suggested that government procurement policy could be amended to better support the Australian TCF industries. Some submissions suggested that the industries could be supported if there were more explicit environmental and social requirements in procurement policy (which could reduce the competitiveness of tenders from low-cost overseas producers).

In its submission to the Review, the TFIA noted:

Government procurement is a major market for Australia’s TCF companies and as such can provide a real stimulus to encourage desirable outcomes. Yet Government through its own procurement agencies does not take into account the costs to the environment when purchasing low cost product manufactured by offshore companies.

Prime Vendor Program

The Defence Materiel Organisation (DMO) is a service-delivery agency responsible for equipping and sustaining the Australian Defence Force by acquiring capital equipment assets and sustaining those assets throughout their in-service life. DMO is examining procurement based on the prime vendor concept.

DMO’s proposed Prime Vendor Program is a Clothing Systems Program Office strategic initiative that would guide procurement of non-combat uniforms in the future. The non-combat element of the business is in the region of $35 million per year.

The non-combat Prime Vendor Program is premised on the provision of complete uniform packages, including footwear, headwear, military accoutrements and accessories. There are plans for a restricted tender program to commence in September 2008 and contracts to establish deliveries starting from July 2009. The program does not stipulate any fixed percentage of Australian participation.

Prime vendor arrangements could have a number of benefits to DMO, including:

- reducing supply chain–associated costs (by minimising made-to-measure and promoting better stock management)
- standardising uniform style and corporate identity (by standardising quality of fabric and garment)
- providing opportunities for industry-led innovation.

The Clothing Systems Program Office released an exposure draft of the prime vendor concept to industry in December 2007. Some responses to the exposure draft from small and medium-sized enterprises indicated that the concept may not support local manufacturing.
Bruck and Melba noted in their joint submission:

Government (Federal and State) purchasing decisions must take into account not just price but also environmental compliance/regulation requirements and underlying wage levels and conditions of employment to ensure a like for like comparison between Australian industry-v-imported options.

The TCFUA submission was more explicit in its support for Australian industry and sought extra requirements in procurement policy that would further regulate the supply chain. It recommended:

The introduction of Federal and State TCF ethical procurement policies that:

- preference local suppliers
- require transparent supply chain and monitoring which the TCFUA should be able to audit
- require ethical behaviour regarding labour and environment standards
- require all clothing companies to be accredited to the Australian Homeworkers Code of Practice (HWCP)
- ensure access for small – medium size companies to the tendering process
- develop preferred or approved supplier system which are assessed by a tripartite industry body as ethical
- require Australian Made quotes for tenders.

The Australian Government Procurement Policy Framework (Department of Finance and Deregulation 2008) establishes the principles for the government’s acquisition of property and services. It is based on the principles of value for money; efficient, effective and ethical use of resources; and accountability and transparency in Australian Government procurement activities.

Value for money is the core principle underpinning Australian Government procurement. This requires a comparative analysis of all relevant costs and benefits of each proposal throughout the whole procurement cycle (whole-of-life costing). In assessing value for money, cost is not the only determining factor; in government procurement it is also enhanced by:

- encouraging competition by ensuring non-discrimination in procurement and using competitive procurement processes
- promoting the use of resources in an efficient, effective and ethical manner
- making decisions in an accountable and transparent manner.

The ‘ethical use of resources’ principle does not imply a preference for Australian suppliers, rather:

A procurement conducted in an ethical manner will enable purchasers and potential suppliers to deal with each other on the basis of mutual trust and respect. Adopting an ethical, transparent approach enables business to be conducted fairly, reasonably and with integrity.

(Department of Finance and Deregulation 2008)

The Australian Government has entered into a number of international agreements that include provisions on government procurement. Any undertakings in these agreements are reflected in the framework. For example, the Australia – United States Free Trade Agreement (DFAT 2008a) includes a national treatment and non-discrimination article:

1. Each Party and its procuring entities shall accord unconditionally to the goods and services of the other Party and to the suppliers of the other Party offering the goods or services of that Party, treatment no less favourable than the most favourable treatment the Party or the procuring entity accords to domestic goods, services and suppliers.

2. A procuring entity of a Party may not:
   (a) treat a locally established supplier less favourably than other locally established suppliers on the basis of degree of foreign affiliation or ownership; nor
(b) discriminate against a locally established supplier on the basis that the goods or services offered by that supplier for a particular procurement are goods or services of the other Party.

**Support for small and medium-sized enterprises**

The TCFUA submission commented on prime vendor or whole-of-contract approaches to procurement:

TCFUA argues that the government must avoid a ‘whole of contract’ procurement approach, where such an approach excludes small to medium local suppliers from the tendering process, and should award a greater share of contracts to these businesses.

The Australian Government recognises that Australian SMEs still face challenges in gaining access to global supply markets and major investment projects and as such, it has a number of initiatives to promote Australian industry participation. The approach seeks to assist Australian industry to gain a foothold in major projects by encouraging firms to innovate, develop competitive capability and take advantage of investment opportunities.

The Australian Industry Participation National Framework was signed by federal, state and territory industry ministers in April 2001. It encourages federal, state and territory governments to adopt a consistent national approach to maximising Australian industry participation in investment projects, in Australia and overseas. All governments committed to incorporate in their industry development policies the following principles:

- full, fair and reasonable opportunity, free of interstate preferences
- regional development policies
- competitive neutrality
- value for money
- transparency of process
- policy consistency
- consistency with Australia’s international obligations.

In addition to the Australian Industry Participation National Framework, each jurisdiction has its own policies and initiatives aimed at increasing Australian industry participation in public and private-sector investment projects.

Current Australian Government programs, such as the Enhanced Project By-law Scheme, the Supplier Access to Major Projects program and Industry Capability Network Limited, help Australian companies to access major projects, develop new capabilities and integrate into global supply chains.

The current Australian Government has committed to further reforms on government procurement policy. Before taking office, the Prime Minister, the Hon Kevin Rudd MP, spoke on government procurement in July 2007 stating that he would ‘order an immediate external audit of Commonwealth procurement policies’, which would ‘help small business access the $26 billion Government procurement business’. He stated that ‘only about a quarter of government procurement goes to small and medium sized businesses’ and that he believes ‘that could be higher’ (Rudd 2007).

In addition, the Labor 2007 National Platform encompassed government procurement policy. The platform document (Australian Labor Party 2007) stated that government would ‘use ethically sourced, public procurement as an industry policy tool in ways that are compatible with efficiency and cost effectiveness and local industry development… The policy will provide a price reference advantage for Australian suppliers … and will ensure that all goods are ethically sourced…’ The platform further stated that ‘in order for goods or services to be ethically sourced’ suppliers must comply with ‘laws regarding taxation, trade practices, corporations, industrial relations, consumer affairs, environment and immigration’ (Australian Labor Party 2007).
**Conclusion**

As noted in Chapter 3, compared to manufacturing in general, output in the TCF industries is more concentrated in SMEs. As such, any reforms to government procurement that would reduce impediments for SME participation could affect the TCF industries more than rest of the manufacturing sector. In addition, SMEs in the TCF industries may require additional support to participate in government procurement, given on average that the TCF industries have a less educated workforce and are much more likely to be micro-businesses (with less than 10 people) than other firms within the manufacturing sector (see Chapter 3). There may be a role for Enterprise Connect, working within the Australian Industry Participation National Framework, to provide sector-specific assistance to SMEs in the TCF industries to build the capacity of these firms to apply for tenders.

**EDUCATION AND TRAINING**

The Australian Government, through DEEWR, funds industry skills councils, which cover the skills needs of most Australian industry. The industry skills council responsible for the TCF Training Package is Manufacturing Skills Australia (MSA). The training package includes qualifications that cover a range of industry sectors, as well as qualifications that apply to individual industry sectors.

In its submission to the Review, DEEWR noted that:

> In their 2008 Strategic Plan, MSA highlighted the shrinking workforce, technology, and an increased demand for medical-grade footwear as issues facing the sector that need to be addressed.

A common theme in public consultations and submissions to the Review was that better branding is needed to enable the TCF industries to better compete for skilled labour. It was noted in key stakeholder consultations that the Textiles Human Resources Council in Canada was effective in promoting the textile industry in schools and to job seekers, developing promotional material and marketing the industry.

Many stakeholders acknowledged that the TCF sector employs many new migrants, and many employees do not have good English-language skills. The DEEWR submission noted:

> The TCF manufacturing industry employs a significantly higher proportion (39.1 percent) of persons born in an Other Than Main English Speaking Country … compared with manufacturing overall (21.0 percent) and the average for all industries (15.3 percent).

The Standard Universal Textile Group noted:

> Factory based employment has been a prime vehicle for providing language, social and life skills for the relatively low skilled, including newly arrived migrants to the community.

The Workplace English Language and Literacy (WELL) program encourages employers to invest in language, literacy and numeracy training, integrated with vocational training, to meet the employment and training needs of workers.

The DEEWR submission noted that:

> Since 2005, there have been 14 projects funded through the WELL program to specifically assist approximately 500 TCF outworkers. Benefits for outworkers were:

  - increased learning and practising of English language skills to communicate and address OH&S issues that are endemic to the clothing outworker industry;
  - relieving of some of the stress that goes with chronic work related injuries, meeting deadlines, balancing work and family. Helping to reduce stress and depression and allowing women to discuss and access help for other health and work related issues; and
  - improved foundation skills, leading to higher rates of eligibility for vocational qualifications including Pattern Making, Introduction to Aged Care and English for Home Care, Quality Assurance, OH&S, Accounting, and Computer Aided Design.
The Language, Literacy and Numeracy Program provides basic language, literacy and numeracy training for eligible job seekers whose skills are below the level considered necessary to secure sustainable employment or pursue further education and training.

**Conclusion**

The Review is aware of training initiatives being implemented by DEEWR, such as the Productivity Places Program, to help address skills shortages across the Australian economy. The Australian TCF industries should be encouraged to work more closely with DEEWR and education and training providers and agencies within this framework to ensure that both their immediate and strategic needs are known and met.
CHAPTER 5
CHANGING ROLE OF INDUSTRY POLICY
This Review contends that there is an important role for industry policy in modern developed economies, but that this role has evolved and will continue to evolve in the context of Australia’s emerging national innovation system, with an increasing emphasis on building innovative and competitive capability in firms and organisations. In a recent speech, the Prime Minister, the Hon Kevin Rudd MP, stated that, ‘As a matter of general principle we believe in using market mechanisms and incentives to design innovative approaches to … long-term challenges … [T]he philosophical framework we bring to government—….what we would describe as the reforming centre of Australian politics—[is about] recognising the power of markets, but recognising equally the limitations of markets’ (Rudd 2008). This chapter looks at the way industry policy has evolved in Australia, with a view to providing an account of the rationale for industry policy in the light of recent developments in thinking about technical and organisational innovation, and it proposes design principles for the implementation of industry policy at the enterprise level.

### BRIEF ACCOUNT OF AUSTRALIAN INDUSTRY POLICY

Most histories of Australian industry policy depict Australia’s approach to manufacturing assistance from the late 19th century until the early 1980s as ‘carte blanche protectionism’ (Bell 1993: 25). The prominent role of the state in the initial settlement of Australia and, throughout most of the 19th and 20th centuries, in the monopoly provision of infrastructure, and its central role in other activities such as education and health services, created an ideological consensus around state direction of industrial development. Over this time, a wide range of support mechanisms for manufacturing were established, including tariffs, import quotas, production bounties and government procurement. The objective of industry policy was primarily to establish a large integrated manufacturing base and was justified for multiple—and, in many ways, diffuse—reasons, including:

- **To generate employment to sustain population growth, especially through migration:** It was argued that population growth would be limited if agriculture was the principal economic activity. The demand for labour was restricted by the very high levels of productivity in the Australian agricultural sector that had already been achieved by the end of the 19th century. Interest in population growth was driven primarily by concerns regarding defence of a large land mass. Moreover, the growth of manufacturing, especially enterprises in regional areas that were involved in the processing of agricultural produce or supplying inputs to agriculture, was seen as essential to promote the decentralisation of a growing population and to meet the defence needs of the nation, given Australia’s remoteness from traditional suppliers of defence goods, such as the United Kingdom.

- **To improve wages and conditions of the workforce:** Protection of industry from imports was closely linked with social policies to use the industrial relations system to improve wages and conditions for workers. In effect, the industrial relations system, based on industry level awards and ‘comparative wage justice’, was used to redistribute the rents generated by protection to the workforce. The system of ‘protection all round’ for capital and labour in Australia was explicitly used as a substitute for other income-redistribution mechanisms such as generous state welfare payments (as practiced, for instance, in Northern European countries). Establishing a large manufacturing base in the regions was also seen as a means to reduce geographic income gaps.

- **To redress persistent balance-of-payments deficits,** given the heavy reliance on overseas capital for public and private investment and persistent deficits in manufacturing imports: For most of Australia’s economic history, growth has been subject to a severe balance-of-payments constraint, and the goal of maintaining a positive balance of payments has been central to government policy. In practice this meant maintaining a rate of economic growth that was consistent with a positive, or at least neutral, trade balance. Using fiscal and monetary policy to regulate the balance of payments resulted in ‘stop-go’ economic growth. The ceiling on the rate at which the economy was allowed to grow could be lifted if the trade deficit was reduced through a strategy of developing an import-replacing manufacturing industry.

Throughout the 19th and most of the 20th centuries, manufacturing activity was the defining feature of modernity, with its associations of power over nature and belief that moral progress was not only compatible with material progress but actually found expression in growing personal and community wealth. This commitment to modernity, when combined with an ideology of national development, provided...
a powerful stimulus to state initiatives to develop a manufacturing base, and significantly in the form of tariff protection, was accepted by all governments, whatever their persuasion.

The imposts on agricultural inputs due to protection were, to some extent, offset by rising domestic demand for agricultural produce as a result of rapid population growth and rising incomes generated through manufacturing in industry. It was also offset by extensive government support for the development and diffusion of technology to primary industry through federal and state government agricultural research stations, extension services, the CSIRO and primary industry-based university courses. These initiatives were critical to developing an internationally competitive agricultural base. Having a local manufacturing base also permitted innovations in farm equipment, often developed by farmers, to be quickly translated into new products. In addition, agriculture itself received a broad range of price support through tariffs, domestic production quotas, export price support schemes and collective marketing arrangements.

Protection was highly successful in its own terms in creating an integrated manufacturing sector; establishing a base for the supply of sophisticated defence equipment (this was especially the case during World War II but is much less so currently); raising the ceiling on the balance of payments constraint, and sustaining population growth and decentralisation. Manufacturing also underpinned sustained growth in productivity and per capita income growth, at least until the late 1970s. Indeed, for much of the post-war period the economy was in a virtuous circle of demand growth, stimulated by population growth and a rising supply capacity that was generated by an import-replacement strategy.

However, insufficient priority was given in this approach to issues of efficiency, productivity and quality. While important measures were put in place to encourage productivity, these were greatly outweighed by concerns to promote employment growth. These measures were also strongly resisted by the central economic agencies. At the heart of the system of protection as it developed in Australia from the late 19th century to the early 1980s was a profound paradox. The state intervened in the market in a quite intrusive manner to foster the development of manufacturing industry but did not, with equal force, ensure firms operated close to world benchmark levels of productivity. In other words, the state was prepared to act at a macro level, but not at the micro level of the firm or industry, in matters such as technological upgrading, optimal firm size, quality, design capacity and efficient work organisation methods. This, in turn, reflected a characteristic ambivalence in the Australian economic bureaucracy, given the overwhelming commitment of Treasury and other central agencies to the economic orthodoxy of laissez faire, which implied constraining wherever possible the involvement of the state in the detailed operation of firms and industries. Protection and industry development policy evolved in Australia as a pragmatic political and cultural response to specific historical circumstances. It was advocated by representatives of capital and labour who for the most part did not feel the need to argue their case on the basis of a coherent and well-articulated theory of growth and development.1

By the late 1970s it was evident that the system of protection was acting as a brake on the achievement of productivity, efficiency and quality, including the following.

- Lack of export orientation meant that firms were not required to become internationally competitive in terms of price and quality. Some firms were, in fact, technologically advanced but these were not the norm.
- State government procurement policies encouraged firms to establish plants of suboptimal size in separate states. The small average size of firms also restricted the capacity of firms to realise scale economies and invest in R&D, capital investment and workforce training.
- Governments encouraged foreign investment to promote growth of industry, but did not require the transfer of advanced plant and work organisation methods, so these ‘branch plants’ often used outdated technology. Foreign investors were keen to set up in Australia to access the local market, protected from potential competitors behind the tariff wall. These branch plants did minimal R&D other than that required to adapt overseas designed products and services to local conditions. The head offices of multinational companies also frequently placed restrictions on the capacity of local plants to export. This was done to control the level of intracompany competition in overseas markets.

1 The major exceptions were the 1929 Brigden report on The Australian Tariff and half a century later, the explicit rationale for sectoral assistance, in conjunction with tariff reductions, in the Button Plans of the 1980s.
Post-war North Asian industry policy serves as an important counter-point to the system of protection in Australia over the same period. During this period, policy makers in Japan developed a far-sighted strategy that combined import replacement and export promotion. Japan used an extensive system of tariffs, bounties, quotas, non-tariff barriers, loans to local firms, government procurement and technology diffusion to firms. The apparent paradox of high levels of simultaneous import protection and high levels of exports has been identified by Wade (1990) and others. It was designed to accelerate the process of learning by doing or using, and to realise increasing returns by increasing the size of the market available to firms. Wade (1990: 363) has argued that it is:

misleading ... to present import substitution and export promotion as mutually exclusive strategies ... at the individual industry level, import substitution and export promotion can be complementary.

Key strategies for preventing inefficiency in protected industries were: the temporary nature of assistance; and tying assistance to the achievement of specific performance measures, such as productivity gains or export targets (Wade 1990: 359; World Bank 1993: 9). While the details of North Asian industrial development policies are well established and do not require repetition here, the important conclusion from such a comparison for this Review is that the unconditional protection provided in the Australian model contained neither incentives to perform at the highest standards nor guidance to achieve such standards.

The implementation of what were known as the Button Plans from 1983 to the early 1990s marked a turning point in Australia’s approach to industry policy. These plans combined incremental tariff reductions with measures to lift productivity and export performance. Given the considerable costs to labour displaced by these measures, extensive structural adjustment assistance was also provided, in the form of retraining and interregional labour mobility. Importantly, under the plans measures were tailored to the needs of specific industries. Various performance targets were set for firms, such as productivity levels, exports and R&D, in return for government assistance such as grants for capital equipment upgrading, R&D incentives, import credits, workforce training, improvement of work organisation and rationalising the number of firms in an industry. In addition, other complementary measures were introduced by the government, such as incentives to the venture capital industry, a productivity advisory service to firms through the National Industry Extension Service, and improved links between university researchers and business, for example through the Cooperative Research Centres program. The industry plans and other supporting measures were successful in lifting the international competitiveness of industries subject to the plans (Sheehan, Pappas & Cheng 1994). The demise of most of the plans during the 1990s has been associated with a deterioration in the relative export performance of these industries.

Over the last two to three decades, there has been a major shift in the conduct of national industry policy within the OECD, largely reflecting developments in the understanding of the importance of innovation in productivity and competitiveness. Innovation encompasses a broad range of improvements in production processes, including organisational advances, and improvements in products and services that enter into final consumption. This shift is indicated in the rapid growth of investment, by both the private and public sector, in measures to generate new knowledge and distribute new and existing knowledge across firms and the workforce. Some of the major policy-oriented insights arising from the study of innovation are discussed below.

Innovations are derived from multiple sources. Problem solving and learning that occur in the production process are the most important sources of product and process innovation, not fundamental scientific breakthroughs. Innovation also results from the flow of ideas for improvements from capital-goods producers to users of equipment and software, and vice versa, and from final consumers to producers. The international transmission of new technologies and methods by foreign direct investment is also important. The predominant form of innovation is thus gradual or incremental and depends on the ready flow of information across firms, industries and public and private research facilities. To a large extent, the market facilitates this flow of productive knowledge by providing innovators with economic incentives to distribute their products and services widely and to inform potential purchasers of the benefits of adopting these improvements. The inherent tendency to clustering of related firms also provides technology benefits, such as the development of specialist suppliers and the sharing of learning that occurs through a mobile local workforce and reverse engineering of products and services. These benefits also contribute to the ‘spikiness’ of particular economic regions that have achieved superior competitive advantage in a ‘flatter’, more interconnected world (Green 2008).
However, it has also been shown that there are significant barriers to the production and distribution of productive knowledge. There are high potential costs for individual firms in identifying new technologies, evaluating these technologies and adapting them to the production of their particular goods or services. There is also considerable inefficiency and waste involved in each firm expending resources on these activities, many of which could be more efficiently provided by a limited number of suppliers. Investing in the production of new knowledge is also risky as, by definition, the outcome is uncertain. All of these constraints apply with particular force to SMEs. There are very significant productivity gains to be had by ensuring that the largest possible number of firms are able to introduce incremental improvements. Accordingly, across the OECD, governments have worked with industry to assist firms in overcoming these barriers through technology awareness and diffusion programs, inter-firm information sharing and collaboration and improved linkages between firms and research and educational institutions.

These recent developments are summarised below as part of the analysis of the rationale for industry policy. They also inform the approach to assistance to the TCF industries detailed in Chapter 6.

RATIONALE FOR INDUSTRY POLICY

Industry policy involves interventions: first, to affect the industrial structure of an economy, ie the share of different industries within an economy; and, second, to improve the performance of firms and clusters of firms within and across these industries. This performance is influenced by factors such as the removal of barriers to product and process innovation. In turn, this reflects the technological ‘absorptive capacity’ of firms and the supporting educational, training and research institutions; access to efficient capital markets; access to cost-effective information regarding suppliers and markets, and implementation of work-organisation systems that encourage quality and continual improvement. The goals of industry policy typically include employment growth, per capita income growth, technological advancement, defence, correcting trade imbalances, equity, and community cohesion.
Tascot Carpets Northern Territory Airport Authority Project

Tascot Templeton Carpets Pty Ltd, trading as Tascot Carpets, is a leading designer, manufacturer and distributor of commercial and residential premium-quality carpets throughout Australasia and South East Asia.

Located in Devonport, Tasmania, Tascot is now the last remaining Australian Axminster weaving mill. With a nationwide sales network and a team of world-class carpet designers, Tascot provides visually stunning, top-quality carpets for a wide range of contract installations.

Traditionally, woven carpet designs have been restricted in terms of pattern repeats, machine width and the number of seams. In some cases, to overcome these limitations manufacturers have resorted to cut-and-paste techniques that escalate the cost to install the carpet and also present ongoing maintenance problems. The Northern Territory Airport Authority Project provided Tascot with the opportunity to develop and implement a new concept for managing major carpet contracts. The process, called Uniweave®, provides a complete project management package including design, quantification, creative production planning, detailed floor plan applications, installation plans and maintenance programs.

The technical challenge of the project was to translate a uniquely designed Northern Territory landscape into a precision-fitted carpet. This required Tascot to undertake trials in the manufacturing process and develop and implement new design and manufacturing processes.

Tascot believes that without the support of the Strategic Investment Program it could not have embarked on and successfully executed the Uniweave program in the time frame necessary to maintain its competitiveness in the marketplace.

As a result of the success of this project Tascot has been able to confidently offer Uniweave to the market.

All developed and developing countries pursue forms of industry policy. Indeed, while most countries now express a strong preference for general assistance to all industries, rather than specific assistance to selected industries, no developed country has abandoned all forms of sectoral assistance. Further it is argued below that the goal of removing sectoral assistance is illusory as any government activity, including activities as disparate as vocational training or funding of Cooperative Research Centres, serves to direct resources to the benefit of particular private industries. This section provides a short summary of the arguments that underpin the case for industry policy.

External vulnerability

The principal justification for the international move from fixed to floating currencies over the last 40 years was that the latter would bring trade flows into balance and lessen the effect of terms of trade shocks. The global experience to date is that floating exchange rates do not bring national trade flows into equilibrium. Indeed, several mechanisms have been identified whereby trade imbalances may become self-reinforcing. The failure of exchange rates to produce external trade balance is largely due to the fact that the primary determinant of exchange rate movements is capital flows, be they short-term currency speculation and hedging or long-term debt and equity portfolio flows. These capital flows are not only much larger in volume than trade flows, but are determined by factors that can push a currency in the opposite direction to that required to achieve a trade balance. For example flows of overseas capital into the stock market, domestic banks accessing offshore savings to on-lend for investment and consumption in Australia and the flow of overseas funds into the mining industry have resulted in a significant appreciation of the Australian dollar at a time when the large trade imbalance required a significant depreciation to be corrected. At the same time,
monetary policy directed at reducing inflation through high interest rates has resulted in significant inflows, again appreciating the currency. It has been suggested that:

exchange rate movements are ... a necessary aspect of the process of structural adjustment by which resources are induced to move between sectors within the economy in order to best exploit changing economic circumstances.

(Productivity Commission 2008c: 6.9.)

Such a position is only tenable if it can be demonstrated that currency movements result in an optimal allocation of resources. In light of the global experience with floating currencies and the capacity of exchange rates to be sustained at levels that can damage trade-exposed sectors, it is prudent economic management to ensure that the economy remains broadly balanced. Given the inability of exchange rates to bring national trade and capital flows into balance, other means may be required, such as policies to shape the industrial structure and performance of firms.

Concern over large external imbalances was a consistent theme in Australian economic policy for over 100 years. From the mid-1980s concern over the growing current account deficit—which arose from trade deficits and net payment of interest and dividends on foreign savings—drove Australian economic policy. Policy responses included deflation to reduce import levels (culminating in the ‘recession we had to have’), a heightened role for industry policy to reduce import propensity and lift export propensity, and reducing the public sector borrowing requirement. By the mid-1990s attitudes to the current account deficit had become far more sanguine. Despite this reversal in official perceptions, there are justifiable concerns about the sustainability of such large external imbalances and that the genuine vulnerability that these imbalances represent. It may be argued that the current global ‘credit crunch’ is the result of official policy indifference over many years in many developed countries to the growth of private debt, on the basis that the accumulation of debt represented an optimal global transfer from savers to investors. These private debt levels are now perceived as unsustainable. This demonstrates the rapidity with which market perceptions of conventional economic ‘wisdom’ can change and the profound economic consequences of such altered perceptions.

Non-industry neutrality of government activity

Conventional economic analysis draws a sharp distinction between macroeconomic fiscal and monetary policy on the one hand, which are assumed to operate at an economy-wide level without having a differential effect on particular industries, and industry policy on the other, which are mostly directed at specific industries. In reality this distinction is much less clear cut. Virtually any action of government in terms of regulation, taxation or budgetary expenditures, even action that is explicitly directed at the economy in general, has unintended industry-specific effects, whether minor or major. For example, public expenditure on roads or health has a profound effect on the allocation of private resources, be it consumption or investment. The extent to which the effects of government action on a particular industry, or on the economy more generally, will, on balance, be positive or negative depends on recognition of these effects.

Comparative versus competitive advantage

The principal conventional argument against industry policy is that national welfare is maximised by having production in trade-exposed sectors conform to the principle of comparative advantage. Under comparative advantage it is assumed that countries are endowed with different proportions of factors of production such as capital and labour, and that nations specialise in the production of commodities which intensively use the factor that is relatively more abundant. Under this model it can be demonstrated that welfare gains can be generated if a nation specialises in the production of commodities that embody differences in relative factor proportions, and then it exchanges any surplus for different goods, produced in other nations.

It is also assumed that economies operate under perfect competition, which means that firms in a given industry are assumed to have identical technology and, in turn, production costs. Firms and consumers have perfect foresight, and present and future market changes are efficiently signalled in prices. Further, by definition there can be no ‘trade secrets’, brand loyalty, or product differentiation. There are no barriers
to entry or exit and this ensures that entrepreneurs will rapidly move their capital from less profitable to more profitable industries. The result of such mobility will be to efficiently allocate resources in response to changes in relative factor costs and consumer preferences. An economy is allocatively efficient when the returns to each factor of production are the same across all uses, and the level of output for each commodity exactly matches demand, such that it is not possible to reallocate resources without reducing consumer welfare.

The policy implications of the theory of comparative advantage are clear cut: consumer welfare is maximised when production and exchange is determined solely by unfettered markets. The role of government is limited to the provision of ‘public goods’ and redressing a variety of ‘market failures’, which by definition are assumed to be both limited in extent and remedied through policies such as taxes and incentives that are ‘market conforming’.

However, it has been known for more than 50 years that the gains in per capita income from shifts in the interindustry allocation of resources are quite small. It has also been established that the overwhelming source of gains in per capita income arise from technological change that improves the quality of factors of production and increases the efficiency of production. In addition, comparative advantage is an unsound basis for policy, as both its underlying assumptions regarding the operation of market economies and its predictions regarding international trade are counter-factual. Some of the counter-factual assumptions include the following:

- There are no international capital or labour flows; only final goods are assumed to be traded internationally, as flows of capital goods alter a nation’s factor proportions and it is assumed that there are no quality differences in the ‘same’ commodities across countries.\(^2\)

- The role of intermediate goods and services is problematic. Intermediate goods, which are themselves not directly traded internationally but enter into the production of goods that are so traded, may be produced with factor proportions very different from commodities that are exchanged internationally. In other words, the task of determining the factor proportions of traded commodities is not without ambiguity.

- The definition of capital and the determination of its quantity are assumed to be unambiguous. The concept and valuation of capital is in fact highly contested. For example, capital in money form is valued at the going interest rate. But if it is viewed as heterogeneous capital goods, each having different rates of productivity and subject to arbitrary accounting conventions and rates of depreciation, its aggregate value becomes highly ambiguous.

- The productivity of labour and capital is assumed to be identical across countries (that is, technology is identical) and there are no increasing returns in production. Productivity differences arising from differences in technological capacity across nations and the presence of diminishing average cost as output increases imply that some countries will have an absolute and possibly rising cost advantage across a broad range of commodities that is unrelated to their specific national factor proportions.

Comparative advantage predicts that countries specialise in the production of particular commodities, so international exchange should be based on inter-industry trade. However, in manufactures, which dominate world trade, intra-industry trade between developed economies is the overwhelmingly dominant form of exchange. That is, countries produce and exchange ‘similar’ products such as chemicals, processed food, motor vehicles, aircraft components, electronics, furniture, clothing and building materials. The basis of intra-industry trade is that most manufactured commodities are differentiated by features such as technology, design, quality, speed of delivery, degree of customisation to purchaser needs, after-sales support, marketing and price. Such trade is based on differences in competitive advantage at the national, industry and firm level, which in turn is determined by factors such as private and public investments in education and research; capacity for technology transfer across national borders, industries and firms; access to market information; and efficient mechanisms for managing risk and uncertainty. By contrast

\(^2\) Over the last 60 years the Heckscher–Ohlin–Samuelson trade model has undergone many permutations, for example by including internationally mobile factors, differences in the quality of factors across nations (eg skilled and unskilled labour) and monopolistic competition. Each of these is largely in response to the lack of realism in the original assumptions and developments in economic modeling. These permutations typically operate under ceteris paribus conditions, that is introducing one or two less unrealistic conditions while maintaining the remaining unrealistic assumptions.
with comparative advantage, competitive advantage is concerned with dynamic efficiency gains to secure long-term growth in per capita income through investments and policies that promote the generation of productive knowledge, the diffusion of this knowledge across firms and workforces, the renewal of capital investment and the growth of productivity in enterprises through product and process innovation.

While the central policy implication of this approach is that such competitive advantage is created as the result of a complex interplay between private and public action, it is the doctrine of comparative advantage which implicitly underlies comparative static modelling used, for example, by the Productivity Commission in its estimates of the gains from trade induced by the removal of tariffs or other forms of industry assistance. Crucially, it assumes that there can be no productivity benefit from government industry policy, which simply represents a price impost on consumers or a cash transfer from taxpayers to subsidised producers. In addition to the theoretical problems with the pursuit of allocative efficiency through comparative advantage, there is the pragmatic problem identified by the Productivity Commission itself in 2003 that Australia’s tariffs are now so low and the potential benefits associated with their removal so small that it is unclear whether there is any net welfare gain from further reductions.

The following represent some of the assumptions in the modelling undertaken by the Productivity Commission (2008a) for the Review.

- **There are no economies of scale:** The Productivity Commission model is explicitly built on the assumption of constant returns to scale (Productivity Commission 2008a: 24), that is, costs of production are assumed to neither rise nor fall as output levels change. This means that, by definition, there can be no economic benefits associated with policies designed to lower the costs of production via the pursuit of economies of scale.

- **There are no adjustment costs:** While comparative static models such as the one used in the Productivity Commission modelling are much simpler than ‘dynamic’ models, they conceal from policy makers the nature and extent of the adjustment costs associated with the pursuit of a policy goal. The estimated benefits of reduced assistance to the TCF industry are small, but there is no estimate in the Productivity Commission model of the likely adjustment costs. In its 2003 analysis of the TCF industry, however, the Productivity Commission concluded that: ‘Some change, particularly involuntary change, can bring high adjustment costs when an industry or sector is contracting and alternative job opportunities are limited. Firms, their employees, and the regions in which they operate, face not only direct economic costs such as loss of income and employment, but a range of flow on social and economic costs, arising from closure of regional infrastructure, reductions in property values, loss of self-esteem, and family dislocation’ (Productivity Commission 2003: 42).

- **People are highly mobile:** The modelling is based on the assumption that ‘labour moves to jurisdictions in response to opportunities to earn higher wages’ (Productivity Commission 2008a: 25). This assumption is contradicted by the existence of lasting disparities in wages between states and regions. What should be of more concern to policy makers, however, is that models only deal with the behaviour of individuals, and so do not have the ability to predict the behaviour of families. As the Productivity Commission found in its 2003 review of the TCF industry, ‘labour mobility of the TCF workforce as a whole is lower than for industry in general. This is partly explained by the age profile of TCF employment and the high proportion of female and migrant workers’ (Productivity Commission 2003: 46).

- **Export elasticity of demand is very high:** The model assumes that the elasticity of demand for Australia’s exports is very high, whereas others assume it is much lower (Dixon & Rimmer 2008; Econtech 2008; Lateral Economics 2008). It is important to note that the choice of export demand elasticity is central to the Productivity Commission’s conclusion that economic welfare is enhanced by reducing tariffs.

A more detailed analysis of the modelling is presented in Volume 2 of this report.
Innovation

It is now well established that the primary source of growth in total and per capita output is technological change (Scott-Kemmis 2008). In turn, technological change is the result of innovation in production processes, products and services. Innovation lowers input use per unit of output and expands the size of the market by increasing the scope of human wants through the development of new products and services. Innovation is embodied in improvements in the efficiency and performance characteristics of capital, intermediate and consumer goods. Diffusing the stock of existing knowledge across the workforce and developing new productive knowledge are essential for implementation of new production methods and for problem solving.

Just as conventional economic analysis is counter-factual when confronted with the reality of international trade, so, too, its contribution to the understanding of innovation is very limited. The standard economic model assumes that the rate of technological change is exogenous (not determined within the economy); acquiring new knowledge is cost free; and all possible technologies are known and can be represented simply as production functions, which relate different proportions of capital and labour to produce a given level of output. Identifying an optimal proportion of capital and labour for a given level of output simply depends on the ratio of their prices. There are, however, several constraints facing firms and the public sector in generating and diffusing productive knowledge. These constraints arise from the inherent properties of innovation and market economies, and some are outlined below.

Acquiring and assessing knowledge

Any change in production methods—or the development of new products and services—by a firm involves potentially costly search and experimentation. Acquiring, evaluating and implementing knowledge, even knowledge is already widely disseminated, involves significant costs. The linear model assumes that there is a straightforward transfer of codified scientific knowledge to industry. The overwhelming result in the field of innovation studies is that it typically requires the input of enormous resources by firms, and many incremental improvements over several decades, for radical innovations that emerge from scientific inquiry to be translated into new marketable products and services (Rosenberg 1994). These costs are especially a constraint for SMEs, who lack sufficient scale to either develop an internal division of labour (different types of management expertise to acquire and evaluate information) or to buy these services in, by engaging external consultants. There are also significant costs in protecting the intellectual property that is developed by a small enterprise. In contrast, not only are larger firms less constrained by these problems, they also benefit from scale economies such as lower cost access to capital. These factors contribute to explaining the well-established finding that small firms have a far lower propensity than larger firms to engage in product and process innovation.

Risk and uncertainty

It has long been recognised that, because the outcomes of activities such as R&D are inherently uncertain, and consequently the rewards from investing in such activities are risky, either subsidies to firms or direct public expenditure on scientific and technological activity are appropriate responses. In the absence of these interventions, there is a strong bias towards less risky innovation. In other words, as was recognised by the Productivity Commission (2007), the level of private investment in innovation will be lower than is warranted, from society's point of view. It is important to note, however, that while only around one-third of the business sector's total innovation expenditure in Australia is for R&D, firms undertaking non-R&D innovations also report that cost and risk remain the principal constraints on these activities (ABS 2006a).

Risk and uncertainty also arise where a firm is considering a large or ‘lumpy’ investment and the success of the investment requires large complementary investments by other, unrelated firms. This situation cannot be resolved by the unmediated price mechanism alone; rather, explicit planning is required to efficiently coordinate investment decision making. Without explicit planning these situations are subject to coordination failures. In some cases there may be a role for government in redressing such coordination failures. A good illustration of the role of the state in redressing a series of vicious circles is provided by Okazaki (1996). In 1950s Japan, capital goods makers were keen to export, but the price of Japanese steel was high due to the small scale of production and the high cost of both local coal and shipping.
(Most of Japan’s merchant fleet had been destroyed in the war.) The interests of four industries were
linked, namely, machinery makers, steel producers, ship builders and local ship owners. However, due
to the small size of the immediate post-war market, these four industries were unable and unwilling to
make the necessary investments to upgrade capacity, technology and productivity. The way out was to
coordinate investment and consumption decisions across the different industries. The state subsidised a
major expansion of capacity by steel producers, allowing them to achieve international scale economies.
Simultaneously, the state encouraged major expansion of ship building capacity, providing a large market
for steel as well as reducing the cost of shipping, which in turn reduced the cost of imported raw materials
for the steel industry. Machinery manufacturers benefited from both cheaper steel and lower shipping costs.
Ship owners benefited from the increased trade in imports of raw materials and exports of machinery.
Coordination between government and the four industries reduced the risk of investment, enabling the
introduction of larger scale and more technically advanced plants and accelerating the rate of growth.

External economies
External economies are benefits rendered by one firm to another without recompense. The most important
current example is the idea of ‘knowledge spillover’ from one firm to another. Knowledge spillovers involve
the inter-firm transmission of productive knowledge that results from factors such as labour mobility and
imperfections in securing all property rights over inventions. Like risk and uncertainty, external economies
cause a divergence between the private and social returns on private investment, resulting in a lower level
of private investment than is achievable and desirable from society’s point of view. By subsidising specific
private investments in the development of innovative capability, knowledge diffusion and inter-firm linkages
and networks, including those that involve research and educational institutions, the state can seek to
reconcile private and social returns.

Failures in innovation systems
Modern studies of technical change find that the capacity of firms to identify and implement product and
process improvement depends on a set of complex interactions between equipment suppliers, customers,
industry associations, consultants, universities, and public and private research, standards and testing
facilities. These interactions form regional, national and even international ‘innovation systems’ (Nelson
1993). Innovation systems are subject to a variety of problems, which can impede the flow of productive
knowledge (Smith 1998). Just as individual firms face the problem of identifying and processing an ever-
rising volume of market and technical information, so too innovation systems require efficient coordination
to avoid duplication of effort and ensure a ready flow of information.

There are three commonly recognised examples of such coordination failures:

- poor communication of the results of university and public sector scientific research to firms, and the
difficulty firms have in finding researchers who can assist in resolving technical problems
- failures in provision of infrastructure and investment, including those vital for innovation (for example, in
high-speed communications), but without adequate investment in their development. There may be a
key role for public policy in such investment appraisal and investment support
- lack of specialised skills, equipment and market knowledge, which can take many decades to develop.
The specialisation of firms and supporting innovation systems can result in ‘technological lock-in’,
inhibiting firms from exploiting market opportunities that arise from a major shift in technology or
market demand.

Absorptive capacity in SMEs
The capacity of firms to perceive and respond to problems and opportunities, and the ways in which
they respond, are strongly shaped by their internal capacities and their access to external resources—
including the capacities of other firms. Limitations in capability are greatest in smaller firms, which are
more dependent on their interactions with suppliers, customers and other firms for new knowledge. As
the pace of change increases and activity becomes both more knowledge-intensive and more interactive,
weaknesses in the capacity to absorb new knowledge reduce the competitiveness of firms and lower the
dynamism of the overall sector and innovation system. A summary of the particular problems confronting SMEs is provided in Table 5.1.

**Table 5.1: SME disadvantages in innovation**

<table>
<thead>
<tr>
<th>Function</th>
<th>Disadvantages for SMEs</th>
</tr>
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<tbody>
<tr>
<td>Marketing</td>
<td>Market start-up abroad can be prohibitively costly.</td>
</tr>
<tr>
<td>Management</td>
<td>Often lack management specialists, eg business strategists, marketing managers, financial managers.</td>
</tr>
<tr>
<td>Qualified technical manpower</td>
<td>Often lack suitable qualified technical specialists. Often unable to support a formal R&amp;D effort on an appreciable scale.</td>
</tr>
<tr>
<td>External communications</td>
<td>Often lack the time or resources to identify and use important external sources of scientific and technological expertise.</td>
</tr>
<tr>
<td>Finance</td>
<td>Can experience great difficulty in attracting capital, especially risk capital. Innovation can represent a disproportionately large financial risk. Inability to spread risk over a portfolio of projects.</td>
</tr>
<tr>
<td>Economies of scale and scope</td>
<td>Face substantial entry barriers in some areas, due to economies of scale. Inability to offer integrated product lines or systems.</td>
</tr>
<tr>
<td>Growth</td>
<td>Can experience difficulty in acquiring external capital necessary for rapid growth. Entrepreneurial managers sometimes unable to cope with increasingly complex organisations.</td>
</tr>
<tr>
<td>Legal</td>
<td>Lack of ability to cope effectively with the patent system. Cannot afford time or costs involved in patent litigation.</td>
</tr>
<tr>
<td>Government regulation</td>
<td>Often cannot cope with complex regulations. Unit cost of compliance often high.</td>
</tr>
</tbody>
</table>

Source: Dodgson & Rothwell (1994).

Many assessments of innovation policies have concluded that, in promoting innovation in SMEs, there is a key role for government in supporting the availability of knowledge and information:

> [T]he costs of searching for and translating even freely available information into terms useful to local firms are not trivial. And there are great economies in centralizing these activities in organisations with special capabilities to carry them out. Efficiency requires that these costs, separate from the vastly lesser variable costs of dissemination, be borne but once. Otherwise each potential beneficiary of the same information would have to replicate the search and translation costs that would far better be shared, as fixed costs, in some way among all the potential beneficiaries.

(United Nations Industrial Development Organization 2004: 117.)

Many governments have been pursuing pragmatic policy measures to address these issues, and policy approaches are increasingly influenced by innovation systems perspectives. A summary of the measures used internationally to promote technology diffusion, especially to SMEs, is provided in Table 5.2.
Table 5.2: Technology diffusion programs: a characterisation of objectives and instruments

<table>
<thead>
<tr>
<th>Focus of program</th>
<th>Instruments</th>
<th>International examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness-building and technology demonstration</td>
<td>Raising awareness of potential uses of new technology through demonstration projects, training, pilot plants, performance benchmarking, web pages or electronic information.</td>
<td>Regional Technology Centres (Japan)</td>
</tr>
<tr>
<td>Information search and referral services</td>
<td>Providing technical information to lower the search costs for potential users, via regional centres or the internet.</td>
<td>Technical Information Centres (Denmark; many US states)</td>
</tr>
<tr>
<td>Technical assistance and consultancy</td>
<td>Providing of experts to assess problems and identify technological options for upgrading.</td>
<td>Usually located in regional technology centres (US Manufacturing Extension Partnerships)</td>
</tr>
<tr>
<td>Training</td>
<td>Promoting investment in human capital, by identifying training needs, improving the supply of appropriate training and providing training services.</td>
<td>UK Learning and Skills Council</td>
</tr>
<tr>
<td>Collaborative research and technology projects</td>
<td>Increasing industry involvement in applied research.</td>
<td>Applied Research Centres – Steinbeis and Fraunhofer Centres (Germany)</td>
</tr>
<tr>
<td>Personnel exchange and the support of R&amp;D personnel</td>
<td>Secording staff to technology centres or other firms, subsidising the employment of qualified staff in SMEs.</td>
<td>Regional Technology Centres (Japan)</td>
</tr>
<tr>
<td>Standardisation</td>
<td>Facilitating the development of standards to promote application, eg in ecommerce, ISO 9000 series.</td>
<td></td>
</tr>
<tr>
<td>Financial support</td>
<td>Providing subsidies, low-cost loans and grants for the use of consultants or purchase of new equipment.</td>
<td>US SBIR Program</td>
</tr>
<tr>
<td>Procurement</td>
<td>Creating policies that require offsets to (and support for) SMEs, which can promote technology support.</td>
<td>Regional Technology Centres (eg Minnesota)</td>
</tr>
<tr>
<td>Interfirm cooperation</td>
<td>Sponsoring collaborative industry groups (vertical, horizontal, sectoral) for information sharing, joint production and joint problem-solving.</td>
<td>EU Sprint Program</td>
</tr>
<tr>
<td>Facilities for technology transfer</td>
<td>Linking facilities to research centres and combining demonstration, information provision and other local support.</td>
<td>Advanced Technology Development Centre, University of Georgia; centres in many science parks</td>
</tr>
<tr>
<td>Regional or sectoral cluster measures</td>
<td>Developing ‘social capital’ through interfirm and interorganisational links</td>
<td>Many regional and national cluster development programs</td>
</tr>
<tr>
<td>Macro policy measures</td>
<td>Creating overall framework conditions that influence, for example, cost of capital, protection of intellectual property, labour-market policy or tax policy (eg depreciation for investment in new technology).</td>
<td></td>
</tr>
</tbody>
</table>

Source: Based on Shapira & Rosenfeld (1996).

DESIGN PRINCIPLES FOR INDUSTRY POLICY

The conventional case for industry policy intervention is based on the notion of market failure. However, the case can readily be made that market failures are endemic and pervasive, and that consequently they provide an inadequate basis for decision making. It has been observed that:

[A]n analyst in search of externalities and market failures can find them anywhere he or she looks, providing a universal justification for any sort of government intervention that one might want to undertake. Supporters of the market failure concept avoid this problem by focusing on failures that are ‘big.’ In its worse form, this amounts to little more than the substitution of the ideological biases of the analyst.

(Zerbe & McCurdy 1999: 564.)

Moreover, the underlying assumption of market failure implicitly biases the analysis of causes of the ‘failure’ and the selection of interventions:

The theory provides only general policy implications and tends to support horizontal economy-wide interventions and to focus on the research and invention aspects of innovation. The foundations of the theory rest on assumptions that are unrealistic and as a result give rise to policy interventions that are often ineffective. In particular, the assumptions that knowledge is information and that all economic...
agents have perfect information is at odds with the central dynamic of innovation and competition in a market based economy—competence in all of its forms is clearly unevenly distributed among firms. Where knowledge is the most important resource and learning the most important process, a theory that assumes away such resources and processes is an inappropriate base for policy.

(Scott-Kemmis 2008: 23.)

Historically, nations have devised and implemented industry policy as a pragmatic response to the realities of industry and enterprise development in market economies. Some of these characteristics of market economies were identified above, namely: endemic external imbalances, the non-neutrality of government activity, the oligopolistic structure of many industrial sectors, the dominance of created competitive advantage over comparative advantage, the dominance of technical change in economic growth, and the particular properties of productive knowledge, such as uncertainty, risk, the potentially high cost of identifying, adapting and implementing new technologies, and failures in systems that generate and propagate innovation. These are not market failures in any conventional sense but a description of some important realities of market economies, which leads to a rejection of the ‘crude dichotomies … between free trade and protection’ and the necessity for a pragmatic approach to ‘sophisticated, sector- and country specific-trade and industry policy’ (Deraniyagala & Fine 2001: 821).

While successful industry policy in countries comparable with Australia tends to be pragmatic in accordance with ‘what works’, it can and should be informed by broad design principles. It is proposed, drawing to some extent on the Productivity Commission’s own published guidelines, that these should include the following:

- **Clearly specify the problem to be addressed by the policy:** Describe the causes of the problem and its duration and precisely identify the intended beneficiaries of any government action. ‘Is there potential for leakage of assistance to unintended beneficiaries (such as foreign shareholders and/or local service providers)?... Should the assistance be selective (merit based) or open to all?’ (Productivity Commission 2008c: 6–11).

- **State the intended effect of the policy and establish performance benchmarks:** How will an intervention address the identified constraint? Is the proposed intervention proportional to the problem? Provide a detailed discussion of policy alternatives, including taking no action, to arrive at a ‘first best solution’. Only by clearly specifying a policy outcome can the effectiveness of the policy subsequently be determined. A critical consideration for the design and effectiveness of industry policy is ‘how to induce an increase in the level of the targeted activity, rather than just transferring taxpayers’ dollars to firms for little or no public benefit’ (Productivity Commission 2008c: 6.12). Establishing performance benchmarks for recipients of assistance is a common tool in assessing policy effectiveness. Examples of performance benchmarks include: those based on well-established national and/or international criteria (such as best practice productivity rates); customised benchmarks, where a firm undertakes to do X in return for Y; or incremental assistance, where firms exceed some already established benchmark (such as increasing their known rate of investment, training or productivity) by some agreed factor. It may even be possible to experiment with contingent repayable assistance, where any profits arising from assistance are split between the firm and the state (Productivity Commission 2008c: 6.14; Chapman 2006).

- **Quantify the scope and scale of the constraint to be addressed and the potential benefits of intervention:** Ideally the case for a particular measure should be based on a rigorous analysis of cost and benefits. However, in many cases, information to make these assessments is not readily available or may be impossible to acquire, because of expense or methodological problems that preclude isolating and weighting independent and dependent variables. For example, one of the major arguments in favour of public support for innovation and R&D is the idea of spillover benefits to the economy in general from a higher level of investment in these activities. The Productivity Commission (2007: xx) has observed that:
Aggregate time series studies—often the basis for estimates of productivity effects of R&D—cannot realistically measure spillover rates of return accurately. This reflects the complex causal pathways through which R&D affects productivity growth, an inadequately short span of data, measurement errors, the potentially long lags from the conduct of R&D to ultimate benefit, and difficulties in controlling for other factors that also influence productivity.

Despite these justifiable reservations, the Productivity Commission found in favour of continued public support of private R&D and direct public research, albeit with suggestions for significant change in both.

- **Minimise adverse consequences:** Almost any industry policy intervention will have unforeseen and unintended positive and negative consequences for parties directly targeted by the intervention and those indirectly affected. To minimise unforeseen negative outcomes, there should be wide consultation with potential recipients of assistance, and firms and institutions that contract with or regulate recipients.

- **Make assistance temporary and subject to periodic review:** There is a fine balance between the need to sustain an intervention to elicit a potential change in a firm's behaviour and to minimise the time before an intervention is evaluated. Planned periodic reviews are critical to ensuring taxpayers receive value for money and that interventions are cost-effective and efficient.

We may conclude that the fundamental test of industry policy is whether it raises welfare, be it economic or social, not whether it conforms to an economic theory whose assumptions are unfalsifiable (such as utility maximisation) and whose predictions are 'directly contradicted by observation' (Kaldor 1972: 1238). While the evidence suggests that maximising welfare in a modern economy can no longer realistically be achieved by tariff protection, which is an ineffective instrument for promoting innovation and productivity improvement, or by more recent use of sector-wide structural adjustment in conjunction with tariff reductions, the case for a concerted approach to building innovative capability at the level of firms, organisations and networks is compelling. Left to the market, it is highly unlikely that such capability will be developed in the areas and to the extent required. However, it is also clear to this Review that innovative capability must be the central delivery mechanism by which Australia's emerging national innovation system contributes to the development of a competitive and dynamic knowledge-based economy.
CHAPTER 6
FUTURE DIRECTIONS
This Review has found that the TCF industries in developed, high-wage economies face similar, but not insurmountable, challenges. These include the challenge of low cost competition in high-volume commoditised market segments, pressure for constant and creative evolution of value-adding fashion products and a relentless demand for new technologies and skills across the industries, especially in technical textile production and ‘smart fabrics’, where competitive advantage is increasingly driven by knowledge and innovation. However, TCF industries around the world have responded to these challenges in different ways.

In some countries, these industries have contracted to the point where the critical mass of industry linkages, capabilities and skills necessary for viable manufacturing have almost ceased to exist; in others, they have successfully repositioned in the context of globalisation, to take advantage of new and emerging market opportunities through an emphasis on factors such as uniqueness, product quality and design, branding, quick response and new approaches to supply chain management, with corporate social responsibility in the application of labour and environmental standards playing an increasing role.

DEVELOPMENT OF INNOVATIVE CAPABILITY

Commissioned work for this Review and other evidence demonstrate that the common thread in these success factors for the TCF industries—as for industries more generally in high-wage, globalised economies—is the development of innovative capability at the level of the enterprise and workplace. This is driven not only by research and technology development but also by the increasing emphasis on business model transformation, market-led organisational change and the integration of firms into external collaborative networks and supply chains. For example, according to IBM’s global CEO survey (IBM 2006):

> companies that have grown their operating margins faster than their competitors were putting twice as much emphasis on business model innovation as underperformers.

This was also well understood in a recent European study (Europe Innovia 2008), which advocated a strategy for the TCF industries based on three priority areas:

- a move away from commodities and towards specialty products using flexible high-tech processes; the establishment and expansion of textiles as the material of choice in a variety of industrial sectors and new application fields; and the replacement of an era of mass manufacture of textile products with a new industrial era focused on customisation and personalisation of products.

(Probert 2008: 23.)

Recent Australian survey evidence (ABS 2006a) indicates that two-thirds of innovation spending by firms is directed towards activities other than R&D, such as new business models and systems integration. This is consistent with international evidence, which identified ‘organisation structure changes’ and ‘major strategic partnerships’ as key features of business model innovation (IBM 2006). As we have seen in this Review, many TCF firms have deployed knowledge and innovation, with exemplary effect, to achieve competitive advantage in their markets, but many others have yet to comprehend and meet this challenge. This was reflected in an international survey of manufacturing firms, which concluded in relation to the Australian sample:

> while there is evidence of manufacturers engaging in some innovative business practices, especially towards achieving production efficiencies, they generally fail to appreciate and employ innovation as a decisive competitive strategy.

(Dodgson & Innes 2006: 4.)

In this context, the case for a major shift in the organising principle of industry policy has become compelling. Left to the market, especially in an extended commodity boom with a high exchange rate, it is likely that the decline of much of Australia’s trade-exposed TCF industries will accelerate, at a significant cost to the nation’s manufacturing capability, skills base and trade balance. This poses the question of whether public policy has a role in enabling these industries to reposition in global markets and, if so, what form policy measures should take.
During the 1980s and 1990s, in recognition of the fact that high levels of tariff protection restricted the ability of and incentive for manufacturers to compete in global markets, previous federal governments devised and implemented policies for structural adjustment of the TCF industries. These combined a major program of tariff reductions with industry plans, to provide firms with the opportunity either to restructure for international competition or, in the event that this proved unattainable, to exit their industries with a package of retraining, labour-mobility and adjustment measures for their employees. The result was unprecedented growth in Australia's manufacturing productivity and exports of elaborately transformed manufactures during the 1990s, although with little overall improvement in more recent years. This phase of industry development policy was led by what was known as the ‘Button plan’, which evolved into the TCF Post-2005 Assistance Package, encompassing the Strategic Investment Program (SIP) and a number of related measures.

SIP has been effective in facilitating structural adjustment and the survival of many firms in the TCF industries, especially through support for expenditure on capital equipment. However, the central argument of this Review is that SIP has now reached the limits of its rationale and has been superseded by the increasing emphasis on innovation, design and creativity as key sources of competitive advantage in domestic and global markets. This is reflected in the survey of SIP grantees undertaken for the Review, who embody in their own strategies and practices the anticipated shift in public policy to a new emphasis on the development of innovative capability in firms and organisations across the economy, specifically in the TCF industries.

Of course, it may be asked why the TCF industries should receive more policy attention than others, as the issues and challenges are much the same and, significantly, there is general acceptance and understanding among the stakeholders themselves that, ultimately, it will make sense to ‘mainstream’ or integrate the TCF industries into broader economy-wide measures. (This contrasts with the automotive industry, which faces an entirely different set of challenges driven by the exceptionally high cost of investment and the lead times required for each new model developed.) However, supported by the findings of the Productivity Commission in 2003 and 2008, the Review is persuaded that there is a case for continuing special assistance for the TCF industries from 2010 to 2015, to enable these industries to complete the process of adjustment to scheduled tariff reductions and to generate longer term gains in productivity and competitiveness.

The major difference with the past is that any new assistance program should be informed by the priorities of the evolving national innovation system, which will encourage a ‘joined up’ approach to global challenges (Green 2007) and a more widespread recognition that, ‘Creativity and design aligned with strategy tends to generate more successful outcomes’ (DTI 2005). It is therefore recommended that this program should shift the focus, away from structural adjustment assistance for a narrowly defined group of medium to large manufacturing firms, to the development of innovative capability across an expanded range of firms and organisations. This would include TCF manufacturing, design and business services, wholesale and retailing, and related research and educational institutions. The proposed total budget for this new program, the ‘TCF Innovation Assistance Package 2009–2015’, is $250 million, which subsumes previously allocated monies over this period, and which has a number of components (outlined below). An evaluation of the package should be conducted in 2014.

Recommendation 1: The approach of public policy to the development of Australia’s TCF industries should take the opportunity of this Review and the wider Review of the National Innovation System to manage a shift in the organising principle of industry assistance from structural adjustment to a new focus on building innovative capability at the level of the enterprise and workplace. It is recommended that a new ‘TCF Innovation Assistance Package 2009–2015’ be introduced with a budget of $250 million.

EXPANDED DEFINITION OF THE TCF INDUSTRIES

The broader definition of the TCF industries is depicted in Figure 6.1, a diagram of the TCF innovation system, which identifies the dynamic capabilities and attributes that should underpin assistance criteria for a new program for the TCF industries—and possibly for other programs where public funding is made available.
In the diagram, textiles includes all natural and technical fibres and fibre products; fashion includes all types of clothing and apparel; and accessories includes shoes, hats, bags, scarves and other textile- and leather-based products. The participants and influences within the TCF innovation system—which is a microcosm of the broader national innovation system—comprise development of skills and R&D in firms and in collaboration external to firms; supply chain management and logistics in customer–supplier relationships; and the role of markets and branding in the strategic positioning of the industries.

Figure 6.1: TCF innovation system

Recommendation 2: The definition of the TCF industries, for the purpose of future public policy and greater connectivity among TCF firms and organisations, should be modified and expanded to encompass a broader range of activities in textiles, fashion and accessories in the context of a TCF Innovation System that is driven by more collaborative approaches to design, research, technology, branding and supply chain management.

INDUSTRY ASSISTANCE AND TARIFFS

Programs of industry assistance have enabled the TCF industries in Australia to adjust to the lowering of quantitative trade barriers (such as tariffs, bounties and quotas) and the growth of international competitive pressures—although these pressures have also led to the closure and downsizing of many TCF businesses, with production moving offshore and consumers switching to cheaper imports.

The analysis in this Review leads to the conclusion that the challenges facing the TCF industries are not dissimilar to those faced by the manufacturing sector as a whole, and that, in order for these industries to grow and compete effectively in global and domestic markets, the policy emphasis must now shift from structural adjustment to the development of innovative capability at the level of the enterprise and the workplace. As this conclusion also reflects the direction of policy thinking in developed economies around the world, and increasingly in Australia, the clear implication for the TCF industries is that the process of integrating special assistance into the broader framework of the Australian Government’s evolving industry and innovation policy should now commence.
Textor Technologies

Background
Textor Technologies, a producer of non-woven textiles, was facing closure in late 2000 when it was purchased from an English multinational and then run as a family business. The emphasis initially was on surviving in a difficult market and servicing the debt that was needed to purchase the business. The first 12 months were difficult as the company had been losing $1 million per year for the past four years. The first priority was stemming the losses and conserving cash.

There was no silver bullet, but a number of factors helped turn the company around, including:
- support and guidance from the Commonwealth Bank
- the introduction of ‘open-book management’ to focus all staff on the issues facing the business
- financial support from the Strategic Investment Program
- a close liaison with CSIRO Textile Division
- a decision to focus on the medical and personal hygiene markets
- technical support from Siemens on process controls and automation
- a low valued Australian dollar (particularly around 2002), which favoured local manufacture
- a demanding but ethical customer in Kimberly-Clark
- a culture that focuses on cash generation rather than the traditional ‘profit and loss’.

The present
In 2000 the business was turning over $7.6 million with 46 employees from five very old production lines. By 2008/09 the turnover has increased by 250 percent with 44 employees now operating two state-of-the-art, automated production processes. The business runs 24 hours by five days and operates with six employees per shift. There are now 11 engineers and scientists on permanent staff working on product and process development. Over $17 million has been invested in equipping the business over the past eight years. The new assets have been purchased with help from the Strategic Investment Program and have been fully funded by the Commonwealth Bank. The processes have been designed by the company’s own engineers and purchased as separate modules. The systems integration and automation has all been completed in house and is a key part of the intellectual property of the business.

Despite all the changes it has made, the company avoids dramatising the past. Its focus is on the future and whether the business has the ability to survive and grow. The business model is unique and challenges some of the principles claimed by Australian manufacturers that survival depends on high-margin niche products. Textor has created a model that can compete in the chosen markets of medical and healthcare with low-cost Asian competitors. Because the labour cost as a percentage of sales is now reduced to 7 percent, the company's survival and growth now depend on factors other than labour costs. Success is a function of process and product optimisation and the ability to innovate new materials and applications. In the company’s chosen markets, ethical standards and work processes are critical.

Textor imports all raw material fibres from specialised suppliers around the world. All fibres are purchased in US dollars, which has allowed the business to develop a sustainable export market in the Asian region. The business has two advantages in that it is not exchange-rate dependent (since all goods are sold in US dollars) and shipping rates from Australia to Asia are 25 percent of the import rates (a major proportion of containers leave Australia empty). The business now exports 15 million square metres per year into the region and so competes directly with the other Asian suppliers.

Since the beginning of the SIP scheme, Textor has been aware that the incentives would cease in June 2010. The financial models indicate that once the business reaches its projected turnover by 2010, it will be able to generate enough cash to sustain itself into the future. The key issues going forward will be innovation and better access to technology partners, including the universities and CSIRO.
Textor has had an amazing journey with a wide range of support from many organisations. By June 2010, the business will be debt free and sustainable. The objectives of the SIP scheme, at least with this company, have been achieved.

The case made for this policy approach in Chapter 5 suggests that there will continue to be a role for industry assistance in the form of more generic measures targeted at business innovation, strategic management and high-performance work systems. However, this Review was tasked with considering the efficacy of such assistance in the context of the TCF industries. To better inform this consideration, the Productivity Commission was requested to model various scenarios for tariff reductions and industry assistance, with an additional sensitivity analysis of pass-through price effects following tariff reductions, productivity increases as a result of industry assistance and impediments to labour adjustment after job losses.

According to this modelling, the potential benefits to the TCF industries, and to the Australian economy as a whole, of a well-designed assistance package are substantial. For example, while the potential benefits of reducing tariffs to 5 percent and removing all budgetary assistance are estimated by the Productivity Commission to be at most $71 million per annum, policies that led to just a 1.5 percent increase in productivity in the TCF sector would deliver an additional 70 percent increase in benefits to the economy, with the total gain of these combined measures amounting to $121 million.

It is important to note that the potential gains from tariff and assistance reductions are highly contingent on the modelling assumptions used, with the estimated increase in GDP resulting from these measures more likely to be an overestimate than an underestimate. For example, if it is assumed that 30 percent of unemployed TCF workers do not find new work, then the benefits to the economy of reduced assistance fall from $71 million to $23 million. Similarly, if it is assumed that most of the benefits of reduced tariffs are captured by retailers as higher profits rather than passed on to consumers as lower prices, the benefits of reduced assistance decline from $71 million to $58 million. Finally, if an export demand elasticity of 5 is used, instead of the Productivity Commission’s preferred figure of 10, then the gains to the economy from reduced assistance fall from $71 million to $55 million.

As the results presented above show, the $71 million increase in GDP is best seen as an upper bound for the potential economic benefits associated with tariff and budgetary assistance reductions. As broader assumptions are added to the Productivity Commission’s estimates, the benefits of assistance reductions fall significantly. The potential benefits associated with an increase in the productivity of the TCF sector, on the other hand, are likely to be an underestimate. The $50 million in GDP estimated to flow from this is generated from a very small increase in productivity of 1.5 percent. To put that figure into perspective, productivity in segments of the steel industry was calculated to have more than doubled as a result of well-designed industry policy during the 1980s (Button 1987).

The Productivity Commission’s modelling clearly demonstrates that the potential benefits to the economy from increased productivity are substantial when compared to the potential benefits from tariff reductions and the removal of budgetary assistance. That said, the modelling also makes clear that, while there are small economic benefits to be gained from continued tariff reductions, this is not the case for the provision of budgetary assistance. The Productivity Commission (2008: 45–46) states:

> [U]nlike a tariff reduction, it [budgetary assistance] does not bring about the extra benefit of reducing prices to consumers and business. This is because, compared with a tariff, removal of a producer subsidy does not decrease, and may even increase, consumer prices. Thus, subject to being able to source government revenues in a way that minimises deadweight losses from raising taxes—an important proviso—reducing budgetary assistance can be expected to be less beneficial than reducing equivalent assistance through tariffs.
Further,
removing budgetary assistance alone is projected to result in a very much smaller increase in GDP (less than $1 million per year). The main reasons for this are that the assistance provided to the TCF sector through budgetary assistance is one quarter that provided by tariffs and, as noted, there are not the price distortions associated with tariffs.

(Productivity Commission 2008: 50.)

To conclude, the Productivity Commission’s modelling shows that there are small gains to the economy associated with continued tariff reductions, and trivial gains from the removal of budgetary assistance. Increases in productivity, on the other hand, have the capacity to deliver significant benefits, even when only very small increases in productivity are modelled. These findings have helped to shape the recommendations of this Review, although other elements of the Productivity Commission’s modelling are the subject of a more comprehensive evaluation in Volume 2 of this report. That evaluation takes account of the outcomes of alternative modelling of tariff reductions in the TCF industries with a different set of assumptions, by the consulting firm Lateral Economics (2008) and Peter Dixon and Maureen Rimmer (2008) of the Centre for Policy Studies at Monash University. These economists argue that:

At high levels of tariffs, efficiency gains from tariff cuts tend to outweigh terms-of-trade losses. However, at low levels, efficiency gains tend to be outweighed by terms-of-trade losses. Consequently, while it is clear that Australia benefitted from the initial movements in the 1970s towards free trade from high levels of protection, it is not clear that Australia would benefit from unilateral cuts in protection from the present low levels.

(Dixon & Rimmer 2008: 1.)

However, there is little disagreement with the view that tariff protection is a less than optimal approach to industry and innovation policy, and may indeed be of marginal significance to the TCF industries in the context of large and volatile exchange-rate movements. Certainly, it was not a major feature of the Review’s public consultations, where other approaches to improving productivity and competitiveness in the TCF industries were widely canvassed. In this light, the Review recommends that, unless unforeseen events intervene, the current scheduled tariff reductions to 2015 should take their course.

Recommendation 3: The scheduled tariff reductions for the TCF industries to 2015 should be allowed to take their course, as it is widely recognised that tariff protection is a blunt instrument for the promotion of innovative and competitive capability at the enterprise level and can in any case have only marginal impact in the context of large exchange-rate movements. On the basis of evidence provided to the Review, it is recommended that the emphasis of future policy should instead be on well-designed industry assistance measures.

TCF INNOVATION COUNCIL

The federal government is committed to the establishment of sectoral innovation councils to develop strategic priorities and directions for industries and services across the Australian economy. The Review of the National Innovation System is considering how this should occur in the context of a new framework for setting national innovation priorities.

This Review recommends that a TCF Innovation Council be established, as one of the proposed sectoral innovation councils and an integral part of this new framework, to develop and submit priorities to government. The proposed TCF Innovation Council would take account of data and research on TCF market trends; technological and organisational innovation, management and workforce capability; skill gaps and training needs; labour and environmental standards; regional development issues; and the key role of supply chain management and logistics. The TCF Innovation Council would, in effect, become the centre of excellence for the TCF industries, as proposed in a number of submissions to the Review, and would be well placed to take lead responsibility for initiatives such as the introduction of an annual Australian Fashion and Design Award. The structure and composition of the TCF Innovation Council would be
determined by the Minister for Innovation, Industry, Science and Research on advice from stakeholders and should include leading representatives of the TCF industries, trade unions, independent experts and senior officers of the Department of Innovation, Industry, Science and Research (DIISR). In order to be effective, the TCF Innovation Council would require support from a dedicated, capable secretariat with high-level policy skills, which would be provided by the department. The council should have a budget allocation of $12 million to conduct its work.

Recommendation 4: A TCF Innovation Council should be established, with funding of $12 million to commence in 2009, as one of the proposed sectoral innovation councils with the task of advising the Australian Government on key priorities for the TCF industries in the context of the broader National Innovation System. The TCF Innovation Council would include appropriate representation from TCF industry stakeholder groups.

TCF INNOVATION CAPABILITY PROGRAM

The TCF industries will have access, on an equivalent basis with other industries, to the federal government’s innovation and industry policy framework, including Enterprise Connect, the Industry Capability Network, Business Enterprise Centres, the Climate Ready program and measures to support R&D and other business improvement activities. However, in the context of further tariff reductions and associated challenges facing the TCF industries, it will be appropriate to continue industry assistance in the 2010 to 2015 period of transition, but in a new form superseding current assistance measures. It is recommended that this assistance be provided in a $200 million TCF Innovation Capability Program (TCF ICP), and be:

- accessible to all firms and organisations in the expanded definition of the TCF industries
- provided on a contestable basis to applicant firms and organisations
- targeted at building innovative capability both within individual firms and among groups of firms in networks and supply chains.

More specifically, it is proposed that program priorities should be reflected in clear and comprehensive categories for project funding allocation (discussed further below), with a guaranteed allocation within the program of $15 million for small and micro businesses. It has recently been noted that access for such businesses requires ‘governments, multinational enterprises, business associations and international institutions … [to] play a significantly greater role in assisting SMEs to enter and to rise to the challenges of active participation in global value chains’ (OECD 2007: 2). It will be appropriate for the TCF ICP to be administered by DIISR, within parameters and guidelines approved by the Minister, after consultation with the TCF Innovation Council. In addition, the council will also be in a position to monitor funding allocations and the outcomes of approved projects. Consideration should be given in this context to provision of funding in some cases not simply as grants but as ‘income contingent loans’ (Chapman 2006).

Among the requirements for cost-effective public policy set out in the previous chapter, a key requirement for the proposed program will be additionality: it should not replicate functions of other agencies or programs in its allocations, and it should result in firms and organisations undertaking initiatives that would not otherwise be feasible or likely to occur in the marketplace. However, this should not be interpreted in such a way as to rule out matching contributions by applicants. Indeed, there is merit in requiring such contributions, as these would be a tangible demonstration of commitment by firms and organisations to the implementation of their chosen projects.

The criteria for operation of the TCF ICP follow from the shift in policy emphasis from structural adjustment to building innovative capability at the organisational level. In the TCF context, this means building the capability to:

- develop new products and services, drawing on sources of knowledge both within and outside the enterprise
- introduce new operational processes, including new relationships with customers and suppliers, both in the domestic market and globally
implement new business models within the enterprise and in the extended enterprise of networks and regionally based clusters
organise production and service delivery in a new way, including high-performance work and management systems
device new approaches to marketing, branding and sales management as part of a strategic repositioning.

While this is a broader definition of innovation and innovative capability than is conventionally adopted, it is justified by the range of activities through which firms may improve their productivity and competitiveness as they move up the value chain, while taking full account of the objectives of social inclusion and environmental sustainability. International experience and research suggest that these latter objectives should not be seen as separate from productivity improvement, but rather as central to achieving them. This sometimes occurs through what has been depicted in the literature as ‘disruptive innovation’, but more often than not through incremental changes that contribute to the transformation of entire organisations, industries and communities.

The Review recommends that the criteria for allocation of funding under the TCF ICP be developed by DIISR and approved by the Minister in the form of either legislation or an executive authority, with advice from the TCF Innovation Council against the rubric of funding categories set out below, which essentially comprises categories for project funding and criteria for awarding funding over specific periods. Applicants for funding may be individual firms, representative bodies, research and educational institutions or other organisations with a role in the development of innovative capability in the TCF industries. In some cases, it will be advantageous for consortia to seek funding support for innovation partnerships, innovation networks and supply chain activities, especially those that link TCF firms with research, design and marketing expertise, business development services, and training and skills development. While a key factor in the success of such arrangements is that they are facilitative rather than prescriptive, applicants will be required to meet the criteria of the program to gain funding for projects, and also to fulfil their own agreed commitments in the implementation and delivery of the projects. These obligations will be established in a contract and subject to audit by DIISR, with advice from the TCF Innovation Council on compliance and risk management.

Recommendation 5: A new $200 million TCF Innovation Capability Program (TCF ICP) should be introduced to support the development of innovative capability in the TCF industries at the enterprise and workplace level, with an allocation of at least $15 million for small businesses. This program would supersede current assistance measures in the final transitional period of tariff reductions—2010 to 2015—and make funding available to individual applicants or consortia on a contestable basis.

ELIGIBILITY CRITERIA FOR THE PROGRAM

It is recommended that two types of criteria should be employed for the administration of the TCF ICP: basic eligibility criteria, and operational criteria relating to specific funding objectives. For the former, the first key requirement is that the applicant should be undertaking relevant domestic value-adding activity, within the expanded definition of the TCF industries adopted in this Review. By contrast with most previous programs of assistance to the TCF industries, the applicant organisation may be large or small and engaged in manufacturing or services, but, in common with previous programs, its application must relate directly to activity that adds value to the domestic economy. In other words, projects would not be eligible for funding if the effect was to support offshore manufacturing operations, or design or branding services that are based outside Australia. These may be worthy projects in their own right, but support from public funding would not be appropriate in such circumstances.

The second eligibility requirement is that applicants should have undertaken reasonable compliance with ethical standards, both in their own businesses and in relation to their supply chain. This will be reflected in a proposed new TCF ‘quality mark’ or form of certification (see ‘Australian Ethical Quality Mark’ later in this chapter). The concern here is that standards accepted and implemented in Australia do not necessarily apply to imported products and services, which have in many cases become a source of unfair competition in the markets of developed economies. It is recommended that such a quality mark should be introduced.
not only to enable consumers to make an informed choice about TCF products, but also as evidence that applicants under the program comply with relevant standards—including an environmentally sustainable and ethical supply chain, which evidence suggests may also contribute to a clean and green ‘Brand Australia’ advantage in export markets.

The third eligibility requirement is that of additionality, mentioned above, which obliges applicants to seek funding only for projects which would not otherwise have occurred and whose objectives cannot be met through advice and assistance from other government programs and agencies. For example, applicants without a credible business plan who wish to develop one would automatically be referred to the appropriate business advisory services of Enterprise Connect, which will be the entry point for the program.

The fourth requirement applies to firms pursuing funding for objectives related to organisational change and improvement. It is proposed that eligibility for such firms should depend on their compliance with relevant industrial legislation and codes of practice, and on their taking reasonable steps to involve employees in the decisions that lead to adoption of a change program, and in its implementation. Such steps might include the company and its employees taking a partnership approach to the application, and the development of workplace representative structures to facilitate employee involvement in the planning and implementation of the program.

The fifth and final requirement relates to performance and accountability, in the delivery of project objectives and in the diffusion and dissemination of project outcomes. Applicants should not only demonstrate fulfilment of the terms of any previous funding but—even more importantly, for the spread of best practice—they must commit to public scrutiny of the funded projects and to wide dissemination of key learning outcomes (excepting aspects of research and development that may be deemed commercial-in-confidence).

Recommendation 6: Eligibility criteria for the TCF ICP should include (1) value-adding to the Australian economy; (2) ethical production and supply chain standards; (3) additionality of program funding; (4) employee involvement in change projects; and (5) accountability for delivery of project aims, with dissemination of key learning outcomes.

OPERATIONAL CRITERIA FOR THE PROGRAM

As indicated above, project funding decisions under the TCF ICP will be administered by DIISR in categories that reflect the key priorities of the program. These priorities will be reviewed from time to time by the Minister on advice from the TCF Innovation Council, guided at a higher level and with a more encompassing economy-wide view by the new framework for national innovation priority setting. It is proposed that the seven categories for funding allocation listed below should apply from 2010 to 2015. These would subsume the remaining narrowly focused expenditures foreshadowed under the TCF Post-2005 Assistance Package (which—apart from Part 1 of TCF Structural Adjustment Program—should be discontinued). Funding decisions made in each of the categories, in response to competitive applications from eligible firms and organisations, should be based on published, transparent operational criteria. In this context, it is important that the application process also take account of the disproportionate burdens faced by smaller firms in dealing with additional paperwork; therefore, the process should be as straightforward as possible, with advice and support on hand from DIISR and its agencies, particularly Enterprise Connect and the network of Business Enterprise Centres. The following funding categories for the program are recommended:

1. **Innovation, research and design capability**: To support projects that will build innovative capability, increase intensity of research and technology development and contribute to market leading design.

2. **Collaboration, networks and supply chain participation**: To foster networks and partnership activity among firms, including with research and educational institutions, and develop their role in local and global supply chains.

3. **Accessing global market opportunities**: To provide support for firms and organisations to access global markets on the basis of unique design, innovation and knowledge-driven competitive advantage.

4. **New business models and strategic repositioning**: To enable firms and organisations to reposition themselves in response to changing market conditions and opportunities with new, innovative business models.
5. **High-performance work and management systems:** To provide an opportunity to develop in the workplace an inclusive, partnership approach to productivity-enhancing organisational change and improvement.

6. **Education, skills and employment services:** To fund employment services and skills development initiatives both within firms and in partnership with external education and training providers.

7. **Environmentally sustainable and ethical practices:** To enable firms to pursue environmentally sustainable practices and to ensure ethical supply chains for both the domestic market and exports. This is an increasingly important category.

**Recommendation 7:** Operational criteria for the TCF ICP should be developed by the Australian Government on advice from the TCF Innovation Council in the following funding categories:

1. innovation, research and design capability;
2. collaboration, networks and supply chain participation;
3. accessing global market opportunities;
4. new business models and strategic repositioning;
5. high-performance work and management systems;
6. education, skills and employment services; and
7. environmentally sustainable and ethical practices.

**ROLE OF ENTERPRISE CONNECT**

While decisions on funding applications under the TCF ICP will be made by DIISR, guided by the strategic priorities of the program and the TCF Innovation Council, it is recommended that Enterprise Connect should become the primary gateway both for TCF business advisory services and for access to funding under the program. This will require the provision of additional resources for Enterprise Connect, including additional business advisers with specific responsibility for the TCF industries across the Enterprise Connect system. These additional advisers would constitute a TCF Innovation Network within the system, reporting to the Managing Director of Enterprise Connect but with a regular interchange both among themselves and with the TCF Innovation Council, DIISR, the Industry Capability Network and other relevant bodies. The TCF Innovation Network, in exemplifying networking principles in its own activities, would have the role not just of assisting individual firms but also of encouraging and providing informed support for the development of collaboration and linkages across the TCF industries and with the research, education and training communities. In undertaking this role, it might assist, merge with or absorb the existing Victorian-based TCF Technology Network—whose work is highly regarded—and extend its operation to a national scale. It could also learn from overseas examples such as the Canadian Government–funded CTT Group, which provides a range of services to textile firms in strategic positioning, business and technology development, market research, training and communications, and from recent initiatives in New Zealand.

The Review would not wish to preclude any options in the implementation of this expanded role, which is a matter for further discussion, but the weight of submissions and other evidence clearly point to the urgent need for a national collaborative network and database of business, education and research activities to overcome current geographical barriers and functional segmentation among TCF firms and organisations.

Significantly, a major study titled *Collaboration and Other Factors Influencing Innovation Novelty in Australian Businesses* (DITR 2006) found that firms that collaborated for innovation had a much greater chance of achieving a “new to the world” degree of novelty, especially in technology-intensive sectors. This confirms international research findings to the effect that “collaboration works in conjunction with strategic orientation and opportunities inherent in the market environment … to improve business performance”, and that collaboration was more than twice as significant for performance than these other factors (Frost & Sullivan 2006). It also anticipates recent US analysis of industry innovations over a 40-year period, which concluded that the trend to collaboration has now reached the point where, today:

- approximately two-thirds of the award-winning US innovations involve some kind of interorganizational collaboration – a situation that reflects the more collaborative nature of the innovation process and the greater role in private sector innovation by government agencies, federal laboratories and research universities.

(Block & Keller 2008: 3.)
The IBM global CEO survey (IBM 2006) also showed that ‘extensive collaborators outperformed the competition in terms of both revenue growth and average operating margin’, but it found that many CEOs were ‘lacking the skills and expertise needed to collaborate and partner externally’. This Review also identified many examples of what might be termed a ‘collaboration deficit’ in Australia’s TCF industries, which has restricted the potential for growth and innovation through value-adding connectivity among their diverse but complementary activities, including access to global supply chains and market opportunities.

Recommendation 8: While decisions on funding under the TCF ICP will be made by the Department of Innovation, Industry, Science and Research, the business advisory services of Enterprise Connect should be provided with additional funding to constitute both the primary access point for TCF firms and organisations and the focus of a nationally coordinated TCF Innovation Network.

AUSTRALIAN ETHICAL QUALITY MARK

The Review acknowledges growing consumer awareness and demand in developed economies for products that have been designed and manufactured in accordance with ethical standards relating to labour conditions, animal welfare and environmental sustainability. Recent negative examples brought to the Review’s attention include Vietnamese migrant workers in Malaysia producing sports apparel for a global brand in conditions of forced labour, and Sri Lankan refugees in India, including children, making garments for a major UK fashion retailer for payments of a few cents a day. Even in Australia, despite a higher level of public scrutiny, the Review noted that many outworkers in the TCF industries are still employed in conditions that fall far below accepted community standards.

The Review must also take account of growing concern about animal welfare, which has become a competitiveness issue as well as a moral one. For example, following consumer activist campaigns, some large European brands are refusing to use products made from Australian wool until the industry phases out the mulesing of sheep. This is both a challenge and an opportunity for Australian Wool Innovation in its efforts to re-launch the Woolmark brand. International attention has also been drawn to the conditions under which ultrafine wool is produced in some Australian facilities.

Finally, while the carbon footprint of the TCF industries is comparatively low, there are a range of related environmental challenges for producers, consumers and public agencies, such as the relative environmental impact of various types of raw materials (cotton, wool, hemp, synthetics, etc), use of chemicals and other inputs, water use and management, effluent and waste products, transport and logistics and the disposal of clothing and other products through landfill or recycling.

While it is not easy to define ethical standards, and even harder to monitor and enforce them in global supply chains, the Review heard from Australian firms that seek tangible recognition of their commitment to ethical principles in the sourcing, manufacture and distribution of TCF products, through certification of such operating standards based on the model of quality certification for other business processes. With the introduction of certification, firms would gain legitimate competitive advantage in both Australian and overseas markets where consumers wish to be assured of ethical production standards and to have the opportunity to make an informed choice about purchasing. These firms would be less exposed to competitive disadvantage than organisations whose business processes are based on undercutting or ignoring such standards.

The key to providing choice and realising additional consumer value in this context is a means of differentiating ethically produced goods and services from those that fall short of defined standards. Already in Australia considerable efforts have been devoted to the development of the Homeworkers Code of Practice and its ‘No Sweat Shop’ label for the fashion industry, which facilitates consumer choice in relation to ethical employment standards. Similarly, the impressive, corporate-led ‘Green Leader’ and other labelling initiatives have demonstrated the feasibility of establishing environmental standards for TCF products and services. Other countries have gone further. For example, the German government recently announced plans to ‘make the country’s first trademark for good business behaviour… [T]he trademark would be voluntary and would cover social and environmental standards, plus good labour practices and governance issues, such as anti-corruption policies… This [will] be part of German companies’ efforts to maintain their
good international reputation” (*Financial Times*, 30 April 2008). Internationally, standards are being discussed and developed through the United Nations, the International Labour Organisation and the International Standards Organisation in the areas of corporate social responsibility, labour conditions and environmental sustainability, with the participation of Standards Australia.

It is recommended that the Australian Government now proceed to build on these important efforts and initiatives in consultation with key stakeholders in the TCF Innovation Council, and, with the assistance of Standards Australia, establish a comprehensive Australian Ethical Quality Mark, with a budget allocation of $8 million, to reflect the preparation required for world’s best practice labour and environmental standards in the TCF industries. To be effective, the introduction of such certification must be accompanied by a major consumer-awareness campaign, and credible self-regulation and monitoring arrangements.

**Recommendation 9: A new Australian Ethical Quality Mark should be devised, with a budget allocation of $8 million, to reflect the incorporation of defined ethical standards relating to labour conditions, animal welfare and environmental sustainability in TCF production and supply chains. This will enhance consumer choice and confer competitive advantage on firms that achieve certification.**

**AUSTRALIAN NATIONAL SIZING STANDARD**

Representations to the Review pointed to the potential gains in competitiveness and value for consumers that would result from offering more accurate, consistent and reliable sizing and fit of clothing and footwear. As the current sizing standard is more than half a century old, a variety of standards are in use, which are specific to different firms. It was noted that the lack of an up-to-date national sizing standard has meant lost sales because customers experience frustration with sizing labels and consequent difficulties in assuring a good fit. The Review was made aware of body-sizing standards activity being pursued among Australia’s trading partners and that this country’s lack of a sizing standard will increasingly harm its competitiveness. The prospect of developing such a standard has been enhanced by technologies that allow the quick and accurate scanning of body shapes, and several clothing and footwear firms have employed the technologies on a small scale in their own target markets. While some limited work on sizing is taking place in Australia through the stakeholder group—the Sizing Consortium of Australia Landmark Evaluation—the development of a standard will require the gathering of detailed information about body shape and size, spanning different stages of the human life cycle. It is recommended that the development of a contemporary Australian National Sizing Standard for clothing and footwear should commence as soon as practicable, in consultation with the TCF Innovation Council, with a budget allocation of $5 million, which includes appropriate investment in data collection and management. The information derived from this investment would also have wide-ranging applicability, beyond the TCF industries and across the Australian economy, with spill-overs benefiting sectors such as health, sport, retail, defence, furniture and automotive.

In addition, concern has been expressed to the Review from the Australian Association of Leather Industries, representing leather processing firms, about the cost of compliance with the regulatory requirements of the National Industrial Chemicals Notification and Assessment Scheme (NICNAS). The problem appears to be that, while the international chemical suppliers do not wish to cover the costs of certification of low-use chemicals in Australia, NICNAS must still implement its legislated obligation to certify that chemicals are safe. These regulatory requirements exist to ensure the safety of the Australian population so, clearly, it would not be appropriate for this Review to recommend that leather processing firms be exempt from them. However, it can suggest that the Australian Association of Leather Industries continue to apply pressure on chemical suppliers to pursue certification of the chemicals its members wish to use, and to take advantage of the options within NICNAS to reduce the costs of certification, on the grounds that the relevant chemicals have been certified in other countries with similar standards.

**Recommendation 10: A new Australian National Sizing Standard for clothing and footwear is long overdue and should be developed as a matter of urgency, with a funding allocation of $5 million, to meet the changing needs of customers and ensure that Australian TCF firms and organisations are not placed at a competitive disadvantage.**
PUBLIC PROCUREMENT

Current Australian Government procurement policy is appropriately based on achieving value for money. However, it may be noted that cost is not the only determining factor in this assessment, and that whole-of-life costing also includes promotion of competition and ethical considerations in the use of resources. Given the size of the Australian Government procurement business, at around $26 billion, both the TCF industries and the Australian economy could derive significant benefits from greater local-industry participation. The local industries are in a position to offer value for money over the life cycle of a project, including supply chain partnerships and access to a technologically literate, skilled and talented workforce, supported by superior business infrastructure. However, many Australian firms, especially small and medium-sized enterprises, are often at a disadvantage in the procurement tendering and compliance process, as a result of lack of critical mass, inability to deal with the complexity of the process and a failure to develop credible collaborations and partnerships.

The Review was particularly impressed by the new approach of the Defence Materiel Organisation, which has established funding and institutional support to build the technological and organisational capability of local firms to tender successfully for procurement contracts in the defence sector. This is a model that has operated effectively in the United States and some other countries. It could potentially translate well into a more supportive environment for the TCF industries if Enterprise Connect were to be given the additional task of facilitating the development of capability among TCF firms with an interest in accessing procurement business, either individually or as part of networks and consortia, especially where tenders are required to be coordinated and submitted by prime vendors. It is recommended that this issue be considered in the context of the proposed review of Australian Government procurement policies.

A further issue raised by submissions to the present Review is the prospect and desirability of including labour and environmental standards in considerations for the awarding of government tenders. Again, the application of such standards may benefit not only the firms that meet relevant standards in the domestic procurement market, but also those moving into export markets, where standards compliance is becoming increasingly critical to competitive success. It is recommended that the Australian Government consider strengthened guidelines for public procurement, which incorporate labour and environmental standards, with the proposed Australian Ethical Quality Mark as evidence of compliance.

Finally, considerable concern was expressed about the use of the so-called ‘Berry Amendment’ to exclude non-US tenderers from the US defence apparel procurement market. While the extent of the impact of this measure is not clear from the evidence so far, it is a topic that should be raised by Australian trade negotiators with their counterparts in the US administration as an unfair and unjustified trade barrier, especially in the context of the recently concluded United States – Australia free trade agreement.

Recommendation 11: Australian Government procurement policy should encompass capability building for Australian TCF firms and organisations so that they are in a better position to tender successfully for contracts both individually and in broader networks. In addition, consideration of value for money in tendering should take account of labour and environmental standards, as evidenced by the Australian Ethical Quality Mark. The Review notes and supports concern expressed about the US Berry Amendment, which excludes Australian TCF firms from the US defence apparel procurement market.

RESEARCH AND DEVELOPMENT

While this Review has adopted a broad definition of the development of innovative capability at the level of the enterprise, the role of technological innovation—especially in technical textile production and fashion and design—remains central to the performance and competitiveness of the TCF industries. In commissioned work for the Review, Jocelyn Probert concluded that, ‘for all firms in developed countries, survival on the basis of cost-cutting is not a viable option’, and that ‘technological innovation is… central to the organisation and development of the modern textile and clothing industries’ (Probert 2008: 25, 22). Drawing on international evidence, the advice for developed economies is ‘to cultivate technical textiles or another niche strategy’, and it was noted in this context that ‘nearly half of the textile production in Germany, Belgium and the Nordic countries is reported to be of technical textiles’ (Probert 2008: 10, 23).
In its submission to the Review, the CSIRO commented that:

“It is in these segments of the market where Australia’s TCF industry can potentially be competitive if the industry is able and willing to embrace radical innovation. Success can only be achieved by increasing innovation intensity in material science, process engineering, supply chain management and product design and by moving away from the notion that textiles are only about clothing.”

Currently, innovation is being driven by the sophisticated R&D emanating from CSIRO, universities such as Deakin and RMIT, the International Fibre Centre and a number of globally connected companies. However, as noted in Chapter 2, R&D intensity in Australia’s TCF industries still lags many other developed countries. While the TCF Post-2005 (SIP) Scheme has lifted R&D expenditure, with firms registered for the scheme spending around $120 million a year, TCF business expenditure on R&D still accounts for only 1 percent of the total manufacturing sector.

The Review endorses the commitment of public funding to improve R&D performance in the TCF industries. As Dr Nigel Johnson of the CSIRO and member of the Reference Panel commented to the Review:

“Market failure exists (and therefore government investment is justified) because the existing companies are too small to fund the necessary transformational research in a cohesive way, and the industry is currently too diverse to support the breadth of skills and expertise needed to cover the range of activities in sufficient depth to achieve globally competitive positions in more than a few niches.”

However, due to the availability of the TCF Post-2005 (SIP) Scheme, the take-up by TCF firms of broader measures available to all firms, such as the R&D tax concession, has been low. As previously indicated, it will be important, as part of the implementation of measures resulting from the Review of the National Innovation System, to clarify that, during the period from 2010 to 2015, industry-specific assistance in this and other areas is to be integrated into a broader framework of assistance and that, in the medium to longer term, TCF firms will need to become familiar with the new R&D funding sources. In the short term, however, if the recommendations of this Review are accepted, TCF firms and organisations, including research and educational institutions, will have access to funding under the TCF ICP for the purpose of building innovative capability in the TCF industries. In its submission to the Review, the CSIRO stated:

“A Government program which supports a TCF network with the aim of establishing innovation clusters with incentives for collaborative research including the necessary market research could be effective in increasing innovation intensity and is worthy of consideration. The incentives must bring together a critical mass of researchers and industry to prosecute research aimed at the development of pre-competitive technology platforms.”

It is recommended that support for a network of this kind should be eligible for funding under the TCF ICP. Consideration should also be given to upgrading and co-location of the Belmont Labs facilities with those of Deakin University at its Waurn Ponds campus.

Recommendation 12: The TCF ICP should have as a priority the improvement of R&D performance in Australian TCF firms, especially technical textiles, both through individual projects and through broader innovation partnerships and networks with research and educational institutions. There should also be an opportunity for TCF firms and organisations to access programs resulting from the Review of the National Innovation System.

EDUCATION AND TRAINING

The Review recognises the important role of the education and training system in the development of viable and competitive TCF industries with a skilled and capable workforce at all levels. Representations were made to the Review about skills gaps and shortages across both skilled and semi-skilled areas of these industries, and the consequent impact on the ability of companies to innovate, expand and commercialise new products and processes. Some pointed to difficulties in obtaining specific technical skills, accompanied by problems in finding trainers in some areas. These problems were not only exacerbated by contraction of parts of the TCF industries but also further contributed to this contraction in a potentially destructive...
spiral of atrophying skills and competencies. It was submitted that skills requiring a higher level of formal education in areas such as mechatronics, materials science and process and chemical engineering are also needed in the TCF industries, to help transform the sector into a modern materials-processing industry. This would include the development of skills in biotechnology, nanotechnology, materials and product design, environment and sustainability matters, and supply chain management.

It is widely recognised that the challenges of skills development in the TCF industries require the strengthening of linkages between firms and education and training institutions, so that the required skills are provided in accordance with informed and agreed priorities, taking account of the wider needs of the TCF industries. For example, in addition to creative skills and ability, designers also need business and management skills and a conceptual understanding of elements of the manufacturing process, so that creative ideas can be turned into commercial products in the marketplace. This type of knowledge-building and integration could result from better links between manufacturers and vocational and higher-education institutions. In particular, there is a role for business schools to work more closely with design faculties in the development of graduate capabilities for the TCF industries, as well as for manufacturing more widely.

The nature of education and training models, in the context of skills shortages and changing industry dynamics, must also be further considered so that people are equipped to work across sectors, thus helping to reduce the impact of these shortages. This should involve attention to ‘reimaging’ the TCF industries to attract young people. As far as present policy developments are concerned, the Commonwealth, state and territory governments have agreed on a new framework for educating and skilling the nation. At the Commonwealth level, the Department of Education, Employment and Workplace Relations (DEEWR) recently introduced the Productivity Places Program, a new initiative to help Australians develop skills that meet current and emerging industry needs. This program, along with the Industry Skills Councils, the National Skills Shortages Strategy, the Workplace English Language and Literacy Program and the Language, Literacy and Numeracy Program, are part of DEEWR’s suite of programs designed to address emerging skill shortages and to support appropriate recruitment and training strategies.

As part of the process of integrating into the national policy framework, the TCF industries are encouraged to work more closely with DEEWR, and with education and training providers and agencies within this framework, to ensure that both their immediate and strategic needs are known and met. It is recommended that, in the period from 2010 to 2015, TCF firms and organisations should also have an opportunity to submit applications under the proposed TCF ICP, in relation to industry- and firm-specific training projects that contribute to innovative capability at the enterprise level.

Recommendation 13: A further priority of the TCF ICP is to provide additional targeted support to TCF firms and organisations in meeting their needs for training and skills development, where this is required over and above the expanded range of programs available through the Department of Education, Employment and Workplace Relations.

LABOUR ADJUSTMENT

It was noted in the Review that the earlier Productivity Commission Review of TCF Assistance in 2003 found that there was a case for specific assistance to TCF employees where, as a result of tariff reductions, large-scale or regionally significant job shedding occurred and there was a risk of disruptive adjustment. The Productivity Commission recommended that, given the likelihood of further firm closures, the characteristics of the sector’s workforce and the importance of TCF activity in some regions, special labour adjustment support was warranted during the tariff-reduction transition period, from 2005 to 2015. This support was implemented as the TCF Structural Adjustment Program (SAP), which provides support to retrenched TCF employees and assists TCF firms to restructure in the context of market pressures. TCF SAP is now three years into the ten-year transition period and the outlook for these TCF employees has not materially changed.

In its submission to the Review, DEEWR concluded that the outlook for employment in the TCF manufacturing industries for the period ahead remains uncertain. It forecasts that, over the five years to 2012/13, employment in the TCF industries will continue to decline, while employment generally is likely to
grow. The Review heard serious criticisms of the effectiveness of TCF SAP, but must interpret these against a background in which the program has provided an Australia-wide avenue of specialised assistance to retrenched TCF employees, over and above that available to retrenched employees in other industries. However, TCF SAP could benefit from further enhancement to ensure that it provides the best possible outcome for TCF employees affected by rationalisation in the industries.

The Review therefore recommends such enhancement, to identify ex-TCF employees who are suitable for participating in the Productivity Places Program, the Workplace English Language and Literacy Program and the Language, Literacy and Numeracy Program. For this purpose, the definition of a retrenched TCF employee should remain as currently defined: an employee (including a casual employee) retrenched from a business that is currently, or was, involved in the manufacture of TCF products in Australia, or involved in the design for manufacture in Australia of those products. In order to get maximum benefit from this program, the industries will need to ensure that specific skills needs and priorities are known.

It is widely understood that the TCF industries will continue to require specialised labour adjustment support through the final tariff transition period until 2015. TCF SAP has operated as the mechanism by which this assistance has been provided and should continue to do so in an improved and enhanced form. The guidelines for TCF SAP should be revised by removing Part 2, the Restructuring Initiative Grants Scheme and Part 3, the Regional Partnerships Program, which ceased in May 2008. To maximise the effectiveness of TCF SAP in assisting TCF employees, it should facilitate close linkages between the TCF industry parties, particularly the industry associations and unions, and the Job Network members. This will ensure a ready flow of information on industry changes that may result in redundancies. The revised TCF SAP should be a mechanism that makes use of the expertise in the Job Network to work with retrenched TCF employees and industry parties to ensure that:

- retrenched TCF employees are quickly identified and advised of the assistance available to them
- their individual skills and experience are identified
- opportunities for employment and additional training are identified
- employment opportunities are facilitated where applicable
- the placement of ex-TCF employees suitable for the Productivity Placement Program or other industry training programs is expedited.

In addition, as mentioned in Chapter 3, a TCF group training company could play an important role in assisting with labour adjustment arising from job losses and in addressing skills shortages. Such an initiative, comprising industry associations and unions and linked into TCF SAP, could facilitate training placements, provide labour-hire facilities and assist with recruitment. It is recommended that the government provides support for a feasibility study into the potential for a TCF group training company involving the TCF industry parties and the TCF Innovation Council, which will be in a position to advise on and monitor its implementation.

Recommendation 14: The commitment to Part 1 of TCF SAP, which provides assistance to retrenched workers in the TCF industries, should continue to 2015, with a budget allocation of $25 million, but preferably in an enhanced form to meet concerns expressed about its operation. There should be a greater role for the industry stakeholders in facilitating access by workers to employment and training services, and a feasibility study should be conducted into the potential contribution of a TCF group training company.

LABOUR MARKET REGULATION

While employment arrangements in the Australian TCF industries were not intended to be a major issue for this Review, they were inevitably the subject of a number of submissions. As previously indicated, these industries are made up of over 9,000 businesses (ABS 2007d) with over 48,000 identified jobs (ABS 2008c), and the workforce is regulated through awards, collective agreements and individual agreements. Advice from DEEWR suggests that employment arrangements within the TCF industries have changed significantly since 2000 and are now based largely on individual contracts, which cover 66.8 percent of employees,
with award coverage extending to 16.9 percent of employees, registered collective agreements covering 10.7 percent of employees and the remaining 5.6 percent covered by state collective agreements and unregistered federal and state agreements. DEEWR advised the Review that the Australian Industrial Relations Commission is undertaking a review of TCF awards as part of the award modernisation process, whose purpose is both to simplify awards and to ensure a proper balance of flexibility and fairness in the workplace. While collective agreements extend to a relatively small proportion of the TCF workforce, they tend to be utilised by larger companies within the industries. Research in a number of countries has shown that these agreements, when structured to enhance collaboration in the workplace, contribute to improvements in productive performance (Bevan 2008).

In addition to the 48,000 TCF employees in the regulated workforce, it is estimated that there are potentially anywhere between 30,000 and 200,000 outworkers available to undertake home-based TCF manufacture, predominantly in clothing. However, the Senate Economics Reference Committee Inquiry in 1996 concluded that it was impossible to state with any accuracy the number of people directly engaged in home-based manufacture in Australia. The Review understands that the federal government is working with the states and territories to ensure that all TCF outworkers engaged in home-based manufacture are properly protected through a safety net of legislation and relevant award conditions. The 1996 Senate inquiry into outworkers in the garment industry and the Ethical Threads report (Diviney & Lillywhite 2007) found that outworkers experience poor working conditions and underpayment, rarely receiving the employment conditions available to those in the regulated workplace. Outworkers are often encouraged to identify themselves as subcontractors with Australian Business Numbers (ABNs) to get around a definitional description of an employee; or they might operate in the ‘black’ or cash economy.

The Homeworkers Code of Practice and ‘No Sweat Shop’ label were developed by the Homeworkers Code Committee to address the inequity facing outworkers, by educating and encouraging ethical and transparent clothing manufacture in Australia. The code of practice is a self-regulation system that monitors the TCF production supply chain to help ensure that minimum legal wages are paid to outworkers and employment standards are met. Businesses accredited under the code of practice are entitled to use the ‘No Sweat Shop’ label to promote their products. On 1 May 2008, the federal government announced it would provide $4 million over four years to support the promotion of the code of practice and the ‘No Sweat Shop’ label. The purpose of this initiative is to promote a higher level of awareness and compliance with the existing federal, state and territory legislative framework for outworkers in Australia, including occupational health and safety protection. It will be assisted in this by the development of an Australian Ethical Quality Mark, along the lines recommended in this Review and increasingly supported by international standards (Arthur 2006).

As indicated, the Australian Government has put in place measures to modernise the award structure and promote flexibility and productivity in the workplace. It is also working cooperatively with the states and territories to provide redress for the unethical treatment and exploitation of outworkers. One important policy development that could contribute to the elimination or restriction of unethical practices is to clearly define what is meant by an ‘employee’ in respect of home-based manufacture. The Review recommends that the government consider defining as an employee a person undertaking home-based TCF manufacture for a single customer or business, regardless of the existence of an ABN or claimed subcontracting arrangement. Such a person could be ‘deemed’ to be an employee, with appropriate entitlements to apply in this case. On the other hand, where a person undertakes home-based TCF manufacture for two or more customers or businesses, it would be reasonable to treat this activity as a microbusiness, operating in a contracting or subcontracting relationship. Clarification of the anomaly whereby home-based manufacture can be used to avoid obligations to employees will not only contribute to the development of ethical supply chains but, as the Review heard from one major fashion retailer, may also help to improve quality assurance and response times, in the context of a well-managed, high-performance work system, especially if it encourages co-location of homeworkers, where appropriate, in an organisational environment.
Recommendation 15: Better protection should be provided to workers engaged in home-based manufacture of TCF products through both legislation and industrial awards, and steps should be taken to ensure that homeworkers whose work is performed for a single customer or business are deemed to be employees for the purpose of legislative and other entitlements.

CONCLUSION

This Review has consulted widely, received submissions and commissioned research on the challenges facing the TCF industries in Australia. While it is acknowledged that these industries have experienced overall decline in recent years as a result of tariff reductions and exposure to international competition, the Review detected a sense of optimism about future prospects in the context of the federal government’s commitment to the development of a national innovation system and, aligned to it, a high-productivity, knowledge-intensive manufacturing sector. Two years ago, a major Business Council of Australia report expressed concern about policy inaction and contended that:

Ultimately, the purpose of a national innovation system is to transform knowledge and resources into dynamic capabilities at the level of firms and organisations, which are then better placed to contribute to the innovation performance of the economy as a whole.

(Business Council of Australia 2006: 25.)

Today, this is the unifying theme not only of the submissions of key stakeholders to the Review, but also of the recommendations in this report for the Australian Government. The recommendations provide an important opportunity for the government to work with Australia’s TCF industries in meeting the challenges of globalisation, environmental sustainability and social inclusion. While these challenges are formidable, the message of this Review is that they can successfully be met with a partnership approach by industry stakeholders to the development of agreed priorities for the TCF industries and a shift in policy focus to building innovative capability at the firm level and in broader collaborative networks of firms, research organisations and education and training providers.

Table 6.1: TCF Innovation Assistance Package, 2009–2015

<table>
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<tr>
<th>Program</th>
<th>2009 $ million</th>
<th>2010 to 2015 $ million</th>
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<tr>
<td>TCF Innovation Capability Program, including Enterprise Connect business advisers</td>
<td>200</td>
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<tr>
<td>Structural Adjustment Program, including group training company feasibility study</td>
<td>25</td>
<td></td>
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<td>Australian Ethical Quality Mark</td>
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<td>6</td>
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<tr>
<td>Australian National Sizing Standard</td>
<td>2</td>
<td>3</td>
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<td>TCF Innovation Council</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>TOTAL</td>
<td>6</td>
<td>244</td>
</tr>
</tbody>
</table>
APPENDICES
APPENDIX 1

TERMS OF REFERENCE

1. The Australian Government has commissioned Professor Roy Green to undertake a comprehensive review of the Australian textile, clothing and footwear (TCF) industries.

2. This review is to be conducted within the context of a concurrent broad-ranging review of Australia’s national innovation system. It is to take account of the Australian Government’s desire to:
   a. ensure that there are no impediments to the TCF industries benefiting from new technologies and innovation;
   b. foster globally competitive industries based on Australia’s strengths and capabilities; and
   c. optimise the overall economic performance of the Australian economy.

3. The review will consult broadly among industry stakeholders and interested parties to examine and make recommendations in relation to:
   a. the changing nature of the industries in the TCF sector and their current performance and prospects;
   b. the scope for the industry to take advantage of research and development, new technologies and innovation in textiles and design, to build on its existing strengths and move into new areas where the sector can be competitive;
   c. the sector’s access to and use of government programs aimed at promoting innovation and productivity;
   d. the future skills needs of the industries, current skill shortages and the availability and appropriateness of education, training and professional skills development opportunities within and for the sector;
   e. the appropriateness and effectiveness of assistance provided through sector-specific assistance and trade measures, including current tariff rates and the reduction schedule;
   f. any other issues that affect the competitiveness of the sector, including regulation, industry/research collaboration, and the need to address environmental challenges; and
   g. the effectiveness of existing structural adjustment assistance in ensuring that:
      i. the sector is able to take advantage of the future industry possibilities identified;
      ii. an appropriate level of support is provided to better assist TCF workers to improve their English and language skills, engage in vocational education and training and find secure employment following redundancy; and
      iii. regional impacts of structural change are appropriately addressed.

4. In examining these matters and making recommendations, the review will consider the broader economic environment and all issues affecting the sector, including:
   a. the Australian TCF industries’ competitive strengths and weaknesses;
   b. the impact of global and domestic economic developments on the TCF industries;
   c. the likely social impact of significant further industry adjustment, including the impact on TCF workers, regional Australia and the broader community;
   d. the international trading environment, and opportunities for access to global markets and supply chains;
   e. Australia’s existing international trade obligations and the implications for Australia’s current trade negotiations at the multilateral, regional and bilateral level;
   f. the regulatory environment; and
   g. the need to respond to the challenges of climate change and drought with environmentally sustainable practices.

5. The review is to present a final report to the Minister by 31 August 2008.
APPENDIX 2
CONSULTATIONS

STAKEHOLDER CONSULTATIONS

Ambassador Clothing
Asian Women at Work
Austrade
Australian Association of Leather Industries
Australian Fashion Partners
Australian Industry Group
Belmont Business Enterprise Centre
Bonds
Business Council of Australia
Carpet Institute of Australia Limited
Clear Edge Filtration (Australia) formerly known as Madison Filter
Council of Textiles and Fashion Industries Australia Limited
CSIRO
David Jones
Department of Defence—Defence Materiel Organisation
Department of Education, Employment and Workplace Relations
Department of Foreign Affairs and Trade
Footwear Manufacturers Association of Australia
Godfrey Hirst Australia
Innovation & Business Skills Australia
Just Group
Kreitals Consulting Group
Manufacturing Skills Australia
Materialbyproduct
New South Wales Department of State and Regional Development
New South Wales Premier’s Department
New Zealand High Commission
Productivity Commission
Rag Trader
Review of Australia’s Automotive Industry
Review of Australia’s Export Policies and Programs
Review of the National Innovation System
RM Williams Pty Ltd
RMIT University
Small Business Centre Belmont
Standard Universal Group
TCF Services
Technical Textile and Nonwoven Association
Texskill
Textile Clothing and Footwear Union of Australia
Textile Distributors Association
University of Technology Sydney
Victoria University
Victorian Department of Innovation, Industry and Regional Development
Victorian Education Department
Victorian Premier’s Department
Victorian Treasury Department

PUBLIC CONSULTATIONS
Sydney—14 May 2008
Brisbane—20 May 2008
Adelaide—21 May 2008
Melbourne—22 May 2008
Perth—23 May 2008
APPENDIX 3

LIST OF SUBMISSIONS RECEIVED

Submissions from organisations

Aerosail
Alpaca
Animals Australia
Aunde Textiles Pty Ltd
Australian Academy of the Humanities
Australian Association of Leather Industries
Australian Canvas and Synthetic Products Association
Australian Council of Wool Exporters and Processors Inc
Australian Country Spinners Pty Ltd
Australian Fashion Partners Pty Ltd
Australian Knitting Mills Pty Ltd
Bambi
Beaulieu of Australia
Bras and Things
Brotherhood of St Laurence
Bruck Melba
Canon Fashions (Australia) Pty Ltd
Carpet Institute of Australia Limited
City of Greater Geelong
Colorcorp Group of Companies
Committee to Protect Vietnamese Workers
Composite Group
Council of Textile and Fashion Industries of Australia
CSIRO
Deakin University
Defab Weavers
Department of Defence—Defence Materiel Organisation
Department of Education, Employment and Workplace Relations
Department of Foreign Affairs and Trade
DR Manufacturing Pty Ltd
Edwardstown Carpets
FairWear Campaign
Footwear Manufacturers Association of Australia Inc.
Geelong Manufacturing Council
Geofabrics Australasia Pty Ltd
Godfrey Hirst Australia Pty Ltd
Homeworkers Code of Practice Committee
Interface
Just Group
Justice and International Mission Unit
Manufacturing Skills Queensland
Michel Pty Ltd
Mongrel Boots
New Wave Leathers Pty Ltd
NSW Business Chamber
Oxfam Australia
Pacific Brands
Queensland Government
Queensland Hosiery Mill
Ripe Pty Ltd
RMIT University
SafeWork SA
Seaborne Clothing
Smitten Clothing
Sportsgrass Pty Ltd
Standard Universal Textile Group
TAFE NSW
TALK creative
Tasmanian Government
Technical Textiles and Nonwoven Association
TexSkill
Textile Clothing and Footwear Resource Centre of Western Australia Inc.
Textile Distributors Association
Textiles Clothes and Fashion Association of Queensland Inc.
Textiles Clothing and Footwear Union of Australia
Travellers Apparel
Universal Canvas Products Pty Ltd
Victoria Carpets
Victorian Government
Wilderness Wear Australia

Submissions from individuals
Gregory Bolton
Pauline Crosbie
Michael Cunningham
Emer Diviney and Serena Lillywhite
William Ellis
Cheryl Kneebone
Humphrey Law
Colin Scott
Jane Stoddart
Sue Thomas
Ruth Trigg
Chris Van Tarrling
Roslyn Verity
LB Williams
### APPENDIX 4

#### REVIEW PARTICIPANTS

**Reviewer**
- Professor Roy Green

**Economic Advisers to the Reviewer**
- Dr Phillip Toner
- Associate Professor Richard Denniss

**Reference Group**
- Mr Brian Rush
- Mr Phillip Butt
- Professor Peter Forsyth
- Mr Rod McKenna
- Ms Michele O’Neil
- Mr Barry Tubner
- Dr Nigel Johnson
- Professor Suzi Vaughan

**Secretariat**
- Mrs Cecilia Wood (Manager)
- Ms Linda Drummond
- Mr Luke Murray
- Ms Rachel Searl
LIST OF SHORTENED FORMS
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<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>ABN</td>
<td>Australian Business Number</td>
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<tr>
<td>ABS</td>
<td>Australian Bureau of Statistics</td>
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<td>ANZSIC</td>
<td>Australian and New Zealand Standard Industrial Classification</td>
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<td>CPI</td>
<td>consumer price index</td>
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<td>CSIRO</td>
<td>Commonwealth Scientific and Industrial Research Organisation</td>
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<td>DEEWR</td>
<td>Department of Education, Employment and Workplace Relations</td>
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<td>DFAT</td>
<td>Department of Foreign Affairs and Trade</td>
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<td>DMO</td>
<td>Defence Materiel Organisation</td>
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<td>EOAP</td>
<td>Expanded Overseas Assembly Provisions</td>
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<td>GDP</td>
<td>gross domestic product</td>
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<td>HWCP</td>
<td>Homeworkers Code of Practice</td>
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<td>IFC</td>
<td>International Fibre Centre</td>
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<td>IT</td>
<td>information technology</td>
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<td>Manufacturing Skills Australia</td>
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<tr>
<td>n.e.c.</td>
<td>not elsewhere classified</td>
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<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<td>Product Diversification Scheme</td>
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<td>Restructuring Initiative Grants Scheme</td>
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<td>Royal Melbourne Institute of Technology</td>
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<td>Workplace Research Centre</td>
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