

Australian ICT Trade Update 2005

by
John W. Houghton

EXECUTIVE SUMMARY



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Preface

This report is part of a series of statistical updates on the information and communication technology (ICT) industries and their markets. The series aims to provide consistent compilations of statistics on a core set of topics, namely: the information industries, the Australian market for ICT products and services, and Australia's international trade in ICT goods and services.

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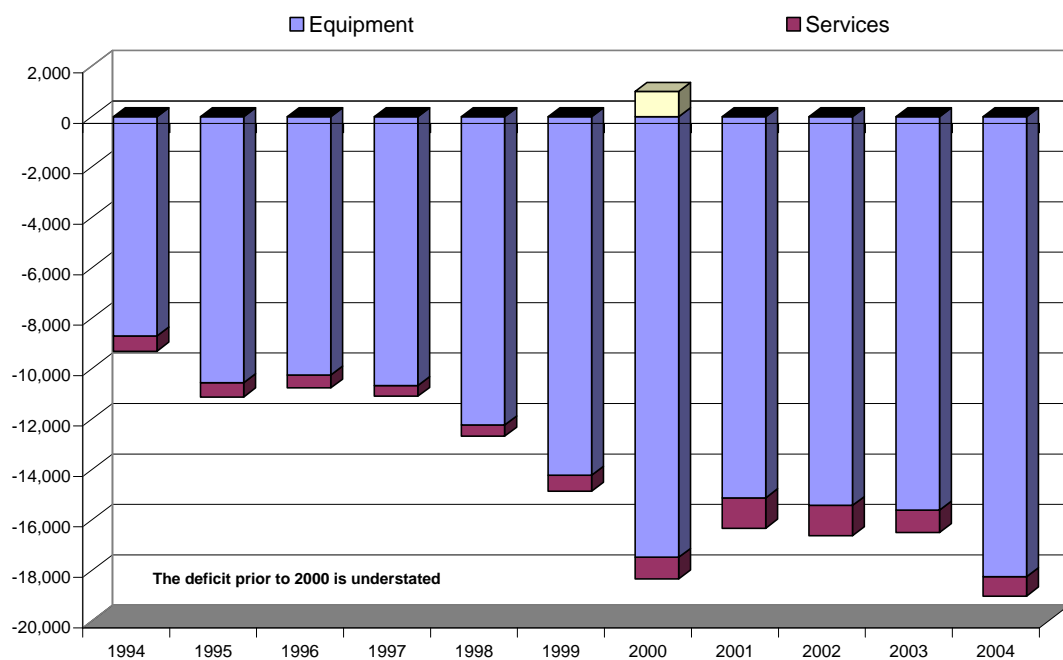
Summary

Australian ICT Trade Update 2005 presents a detailed statistical update on Australia's information and communication technology (ICT) trade over the decade 1994 to 2004. It explores the composition and direction of ICT equipment, content and services trade, and discusses the ICT trade deficit. It also examines ICT trade State-by-State.

ICT trade

In 2004, ICT goods and services exports from Australia were worth more than \$5 billion, well down from the \$7.8 billion exported in 2000. Total ICT imports cost more than \$24 billion, up 10% over the previous year. Consequently, Australia's ICT trade deficit stood at \$19 billion (Figure 1).

Figure 1 Australia's ICT trade balance, 1994 to 2004 (\$m)



Notes: 2000-01 includes the one-off impact of payments for TV rights to the Sydney Olympics. Computer and information services imports, and related totals, prior to 2000 are likely to be understated. Hence, the deficit prior to 2000 is also likely to be understated.
Sources: ABS and TradeData (www.tradedata.net), CSES Analysis.

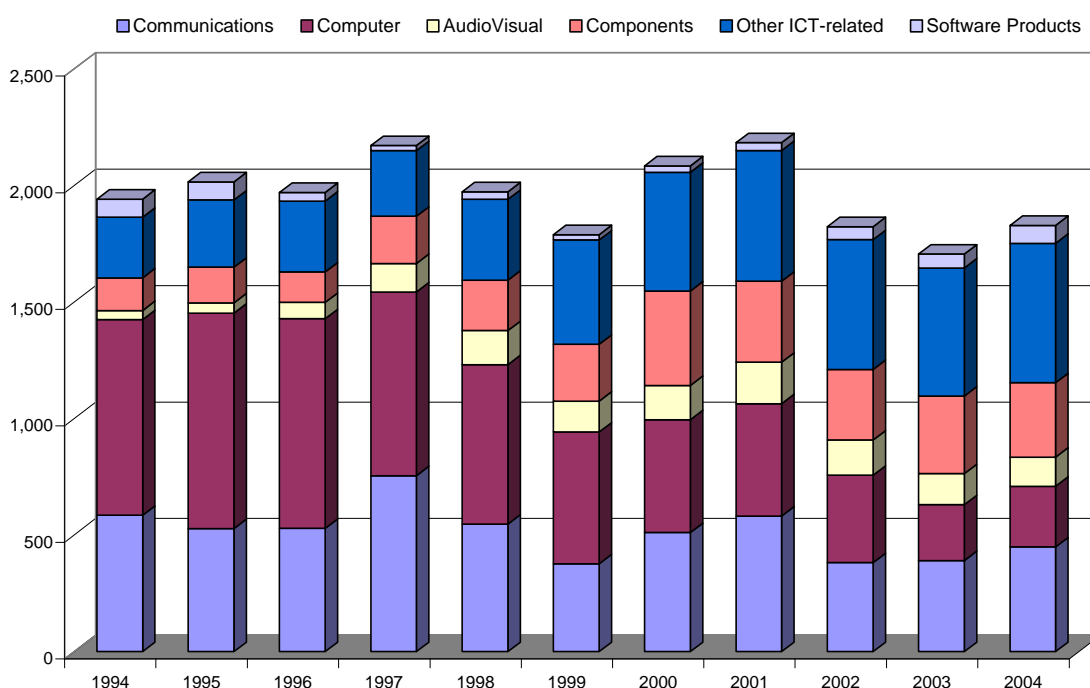
ICT equipment trade

In 2004, total ICT *equipment exports* from Australia were worth just over \$3 billion – around 2.6% of Australia's total merchandise exports. To put that into perspective, Australia's wool exports accounted for around 2.5%.

Re-exports (things brought into Australia and re-exported with little or no value added) amounted to almost \$1.3 billion (41%) of Australia's total ICT equipment exports. Locally produced ICT equipment exports were worth \$1.8 billion in 2004 – \$113 million less than they had been worth a decade earlier.

Locally produced exports of audiovisual equipment, components and other ICT-related equipment have increased over the last decade, while computer and communications equipment exports have declined. Indeed, in the mid 1990s, locally produced exports of computer equipment were worth more than \$920 million. By 2004, they had fallen by more than 70% to just \$260 million (Figure 2).

Figure 2 Locally produced ICT equipment exports, 1994 to 2004 (\$m)



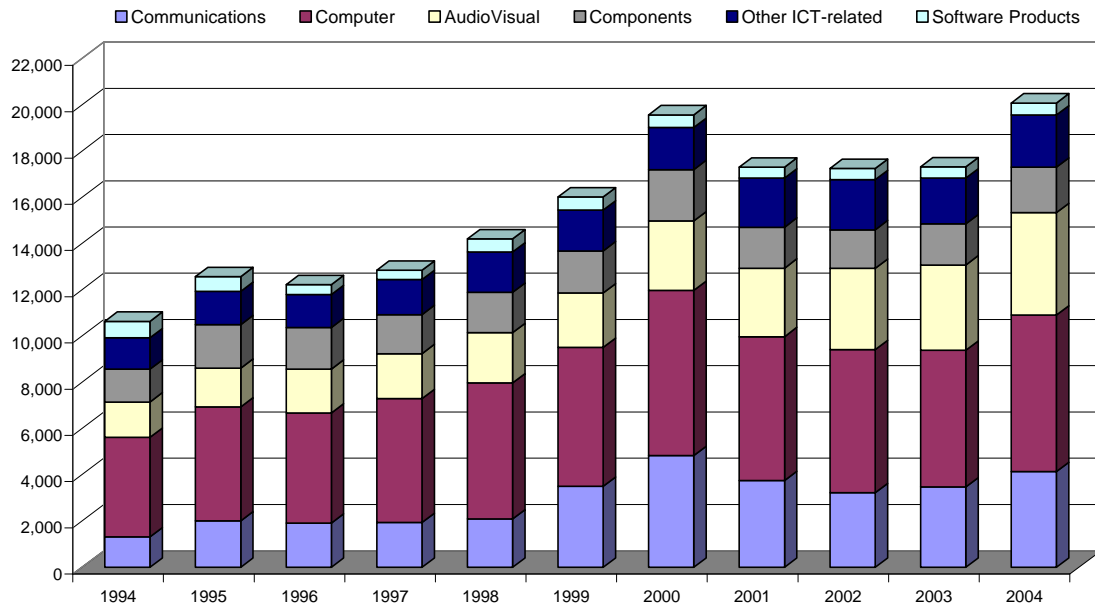
Source: TradeData (www.tradedata.net), CSES Analysis.

Total ICT *equipment imports* into Australia cost more than \$21 billion in 2004 – up from \$11.4 billion a decade earlier (in current prices), and higher than the previous peak reached during the ‘dot com’ boom. During 2004, ICT equipment accounted for around 15% of Australia's total merchandise imports.

Imports of ICT equipment for domestic consumption cost \$20 billion in 2004, up from less than \$11 billion a decade earlier (Figure 3). Computer equipment accounted for 34%, audiovisual equipment for 22% and communications equipment for 21%.

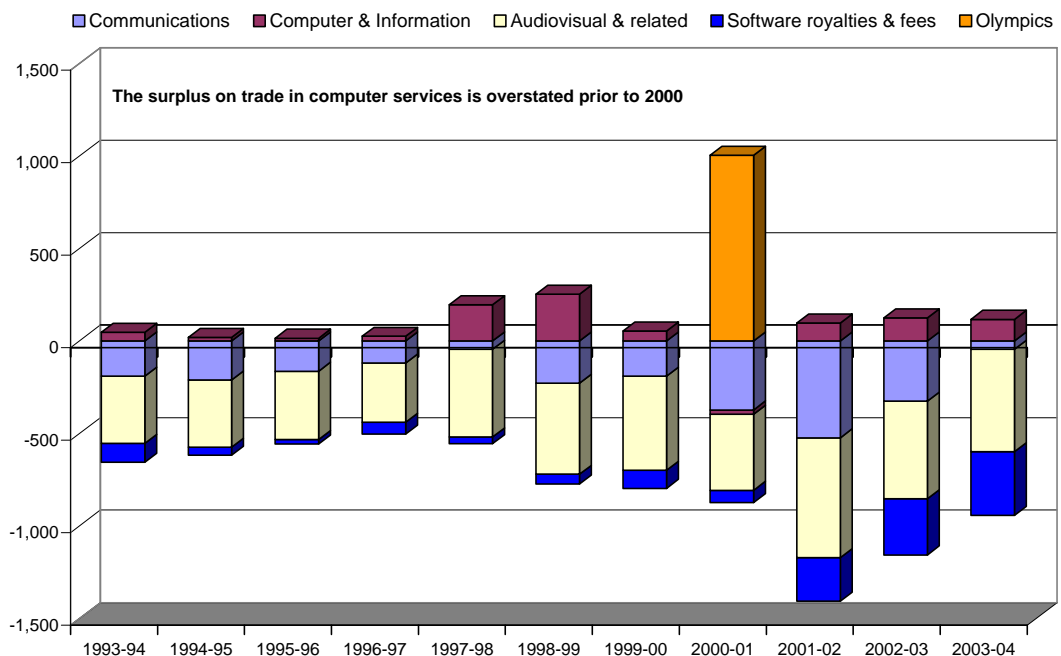
There was a marked resurgence of ICT equipment imports during 2004, with imports for domestic consumption up 16% on the previous year and exceeding the previous peak reached during the high of the ‘dot com’ boom.

Figure 3 ICT equipment imports for domestic consumption, 1994 to 2004 (\$m)



Note: Excluding re-exports.
Source: TradeData (www.tradedata.net), CSES Analysis.

Figure 4 Australia's ICT services trade balance, 1993-94 to 2003-04 (\$m)



Note: 2000-01 includes the one-off impact of payments for TV rights to the Sydney Olympics. The surplus on trade in computer services is likely to be overstated prior to 2000. Hence the overall deficit is likely to be understated.
Sources: ABS and DFAT, CSES Analysis.

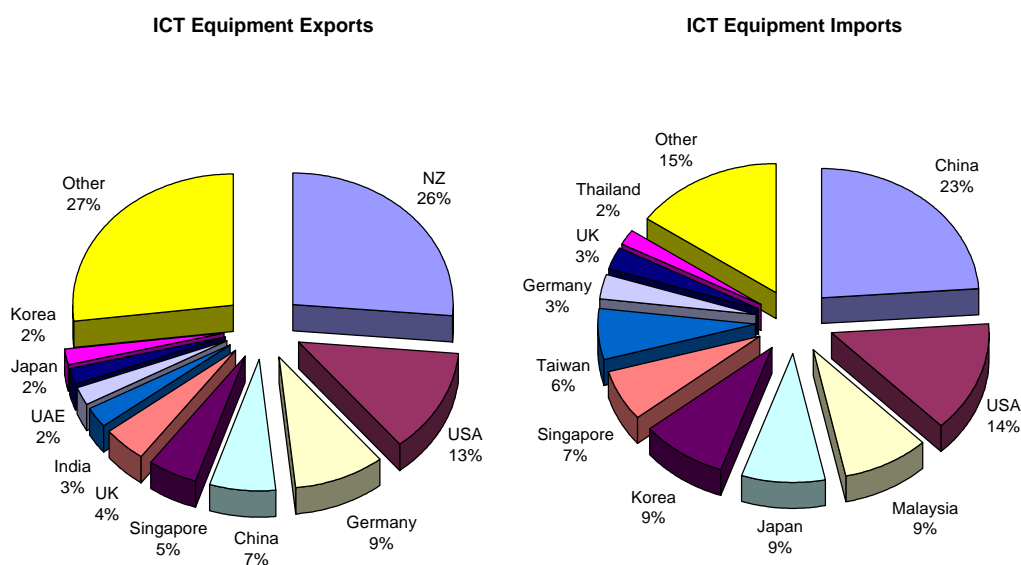
ICT services trade

Australia's ICT related *services exports* were worth almost \$2.3 billion in 2003-04, up from \$1.3 billion in 1993-94 (in current prices). They accounted for around 7% of total services exports. Australia's ICT related *services imports* cost just over \$3 billion in 2003-04. They accounted for 9% of all services imports. Hence, in 2003-04, there was a deficit on trade in ICT related services of \$827 million – down significantly from \$1.3 billion peak of 2001-02, and by 20% during the last year (Figure 4).

ICT equipment export markets and import sources

Throughout the last decade New Zealand and the United States have been the largest markets for Australia's ICT *equipment exports*. In 2004, other major markets include: Germany, China, Singapore, the United Kingdom, India, the United Arab Emirates, Japan and Korea (Figure 5). Germany, New Zealand and the United States were the largest markets for locally produced ICT equipment exports.

Figure 5 Australia's ICT export markets and import sources, 2004 (per cent)



Note: Includes re-exports and re-imports.

Sources: ABS and TradeData (www.tradedata.net), CSES analysis.

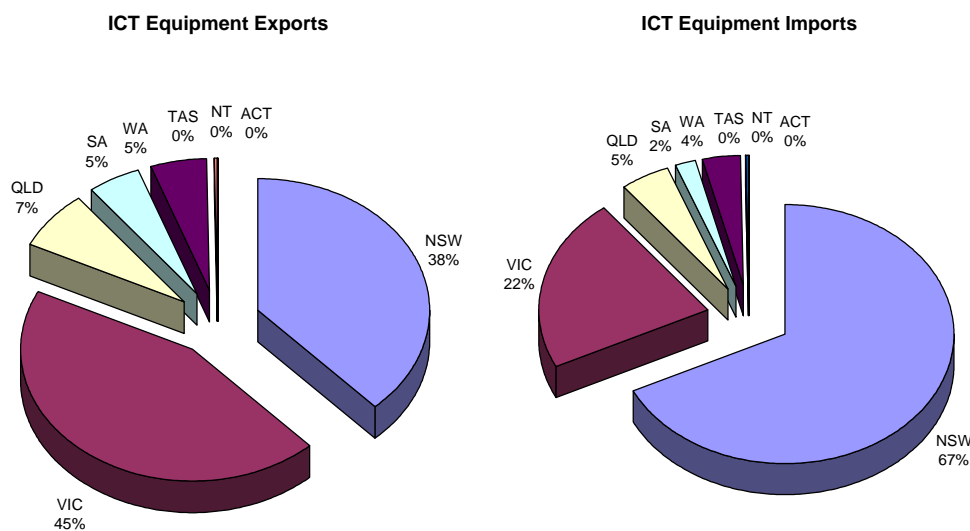
A decade ago the United States and Japan were the two main sources of ICT equipment imports into Australia. In 2004, however, Japan supplied less than 9% and the United States less than 14%. Asian countries, including China and Hong Kong, Malaysia, Korea, Singapore and Taiwan, are now major suppliers (Figure 5). The biggest change is in imports from China (incl. Hong Kong and Macau), which accounted for less than 6% of Australia's ICT equipment

imports in 1994, but is now the largest supplier – with exports to Australia in excess of \$5 billion (approaching 24% of Australia’s total ICT equipment imports).

ICT trade State-by-State

NSW and Victoria dominate ICT equipment exports and imports – with Victoria the largest exporter of ICT and related equipment in 2004. ICT equipment exports from Queensland, South Australia and Western Australia were also significant (Figure 6). NSW attracted no less than 67% of all ICT equipment imports during 2004 – although more than \$1 billion worth were re-exported. NSW also accounted for more than 60% of Australia’s trade in ICT related services.

Figure 6 State ICT equipment trade shares, 2004 (per cent)



Note: Exports exclude re-exports, but imports include them.
 Source: TradeData (www.tradedata.net), CSES Analysis.

In 2004, NSW exported \$614 million worth of domestically produced ICT equipment, less than half the \$1.3 billion exported from NSW a decade earlier; whereas Victoria’s domestically produced ICT equipment exports were worth \$712 million, up from \$400 million a decade earlier. Of the other States, Queensland accounted for 7% of Australia’s locally produced ICT equipment exports, and South Australia and Western Australia each accounted for just over 5%. The contribution of the other States and Territories to ICT trade is relatively small.

Can Australia just be a user of ICTs?

ICT imports underpin productivity gains, but realising the benefits of being a user of ICTs should not blind us to the potential benefits of being a producer. Strong productivity increases have been realised by countries that are ICT producers and by the ICT producing industries.

There are also job growth and cluster development opportunities associated with ICT production.

Those OECD countries with significant ICT producing sectors enjoyed the fastest productivity growth during the 1990s.¹ The OECD's Pilat and Wolfi (2004) concluded that: "In Finland, Ireland and Korea, close to 1 percentage point of aggregate labour productivity growth over the 1995-2001 period was due to the strong productivity performance of the ICT manufacturing sector. In the United States, Japan and Sweden, the ICT-producing sector also contributed significantly to productivity growth."² Productivity in ICT production has been a significant driver of overall productivity growth in many developed countries.

ICT production and use may also have different employment impacts. For example, Edquist *et al.* (2001) suggested that new product technologies tend to create jobs, while new process technologies tend to be job destroying – with their benefits accruing through increases in productivity rather than through new employment opportunities.³ By failing to gain a leading position as a creator and producer of ICT and related product technologies, and becoming instead an adopter of process technologies to enhance efficiency, Australia has missed the creation of new streams of high value employment that have been associated with the ICT industries in some other countries and has seen much of its employment growth concentrated in relatively low paid, casual jobs.

Lack of ICT production capabilities may also limit innovative cluster development opportunities. As General Purpose Technologies, ICTs can form the basis of innovative clusters, wherein a process of continual innovation within ICTs and innovation spawning in related areas (eg. medical equipment, instrumentation, bio-informatics, etc.) can contribute to local and regional development.

What does a large and growing ICT deficit show?

A growing ICT deficit can be seen as an indicator of decline in the local ICT industry, and a sign of declining international competitiveness in some areas of ICT production. This has implications for ICT using as well as ICT producing industries.

The *Future Framework* report recognised that Australia cannot simply be a user of ICTs, and must also be a producer. The F3 Committee stated that:

World-class ICT capabilities (eg. in terms of skills and innovation) are fundamental to the ability to apply ICT in other industries and achieve broader national economic and social goals. A significant ICT production capability in the economy creates a symbiotic relationship between users and producers such that the level of sophistication of users

¹ OECD (2001) *Science, Technology and Industry Scoreboard 2001: Towards a Knowledge-based Economy*, OECD, Paris.

² Pilat, D. and Wolfi, A. (2004) 'ICT Production and ICT Use: What Role in Aggregate Productivity Growth?' in OECD (2004) *The Economic Impact of ICTs: Measurement, Evidence and Implications*, OECD, Paris.

³ Edquist, C., Hommen, L. and McKelvey, M. (2001) *Innovations and Employment: Process versus Product Innovation*, Edward Elgar, London.

*is enhanced by the presence of producers of ICT goods and services. Without an industry producing such products and services, it would be more difficult for Australia to keep up internationally in terms of their adoption and use.*⁴

Similarly, OECD (2004) concluded that:

*Having an IT-producing sector can be important, since IT production has been characterised by rapid technological progress and has been faced with very strong demand. The sector has therefore grown very fast, and made a large contribution to economic growth, employment and exports. Moreover, having a strong IT sector may help firms that wish to use IT, since the close proximity of producing firms might have advantages when developing IT applications for specific purposes. In addition, having a strong IT sector should also help to generate the skills and competencies needed to benefit from IT use.*⁵

The concern is not so much, or not primarily, about the deficit *per se*, but rather about what a large and growing deficit indicates about Australia's underlying ICT capabilities, high value job growth opportunities and innovative cluster development possibilities.

What are Australia's strengths?

Trade and specialisation are economically beneficial. Not all countries will have a comparative advantage in all areas of ICT production. Nevertheless, the ICT industries are a highly diverse range of industries. Comparative and competitive advantages in areas like electronic equipment assembly are very different from those in such areas as consulting services. Given the enormous range of the ICT industries, and the diversity of their underlying inputs and cost structures, one could reasonably expect almost all countries to have strengths in some aspect(s) of ICT production, and comparative advantage in some part of the ICT industries.

In Australia's case, modest surpluses on trade in IT consulting and implementation services stand out as a bright spot among what is otherwise a rather disappointing trade performance. It is the only area of ICTs in which Australia is running a surplus on trade. This suggests that IT services may be one area of local advantage. Despite the overall picture, there are also areas of electronics production in which Australia is competitive and actively participating in global production systems (eg. automotive electronics, some areas of ICTs, medical devices, instrumentation, etc.).⁶ The challenge for Australian policy makers is to build on these capabilities.

⁴ Framework for the Future Steering Committee (2003) *Enabling Our Future: A framework for the information and communication technology industry*, DCITA, April 2003, p19.

⁵ OECD (2004) *Understanding Economic Growth*, OECD, Paris, p23.

⁶ Houghton, J.W. with Thorburn, L. (2004) *The Victorian Electronics Industry Cluster*, Prepared for the Victorian Department of Industry, Innovation & Regional Development on Behalf of the Australian Electrical and Electronic Manufacturers Association, August 2004. Available http://www.cfses.com/documents/CSES_Victorian_Electronics_Cluster_Study.pdf

What could be done?

The globalisation of the ICT producing industries and the emergence of international production systems reflects the responses of multinational firms to technological change, policy and trade liberalisation and increased competition. Increasingly, global markets involve competition between entire production systems, orchestrated by multinational firms – rather than between individual factories or firms.⁷ A long term weakness in Australia's ICT industries has been the tendency to invest on a relatively small scale, to supply the local market. What other countries have done, and what Australia has failed to do, is to attract significant export-oriented investment that links local producers into global production systems.

Looking at worldwide ICT trade patterns, the activities of various countries in global production systems is evident.⁸ For example, there are some countries with large surpluses on trade in computer equipment and deficits on trade in electronic components, indicating extensive assembly activities (eg. Mexico); and others with surpluses in electronic components combined with deficits in computer equipment, indicating the maintenance of a central role in key technologies (eg. the United States). So, it is not simply a case of hardware manufacturing moving to lower wage locations, but rather one of relatively labour intensive assembly moving to lower wage locations, while relatively capital intensive and intellectual property intensive electronics design and manufacturing remains in higher wage locations. A similar split applies to services, and has led to the emergence of offshoring.

Australia should not simply give up ICT and related electronics manufacturing and look to a future in services. Manufacturing makes a substantial contribution to productivity growth.⁹ Moreover, many ICT related services activities may disappear offshore just as quickly as ICT manufacturing has, if not faster. The challenge for Australian policy makers is to take a more 'fine-grained' view of local capabilities, competitive and comparative advantages than has hitherto been the case, take account of the emergence of global production systems, and focus coherent and consistent policy attention, *inter alia*, on attracting export-oriented investment while developing local capabilities that do, or can, further engage local producers in global production systems.

⁷ UNCTAD (2002) *World Investment Report 2002: Transnational Corporations and Export Competitiveness*, United Nations, New York and Geneva, pxxi.

⁸ OECD (2004) *OECD Information Technology Outlook 2004*, OECD, Paris, pp46-53.

⁹ OECD (2004) *Understanding Economic Growth*, OECD, Paris, p56.

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