

EXECUTIVE SUMMARY

Australian ICT Trade Update 2003

by
John W. Houghton



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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 ICTs.

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This report was researched and written by:

Professor John W. Houghton

Ph: +61 2 6282 1981 Mobile: (Australian) 0409 239 109

E-mail: John.Houghton@pobox.com

Published by:

Centre for Strategic Economic Studies

Victoria University

PO Box 14428 Melbourne City MC 8001 Australia

Ph: +61 3 9248 1340 Fax: +61 3 9248 1350

Web: <http://www.cfses.com> E-mail: csesinfo@vu.edu.au

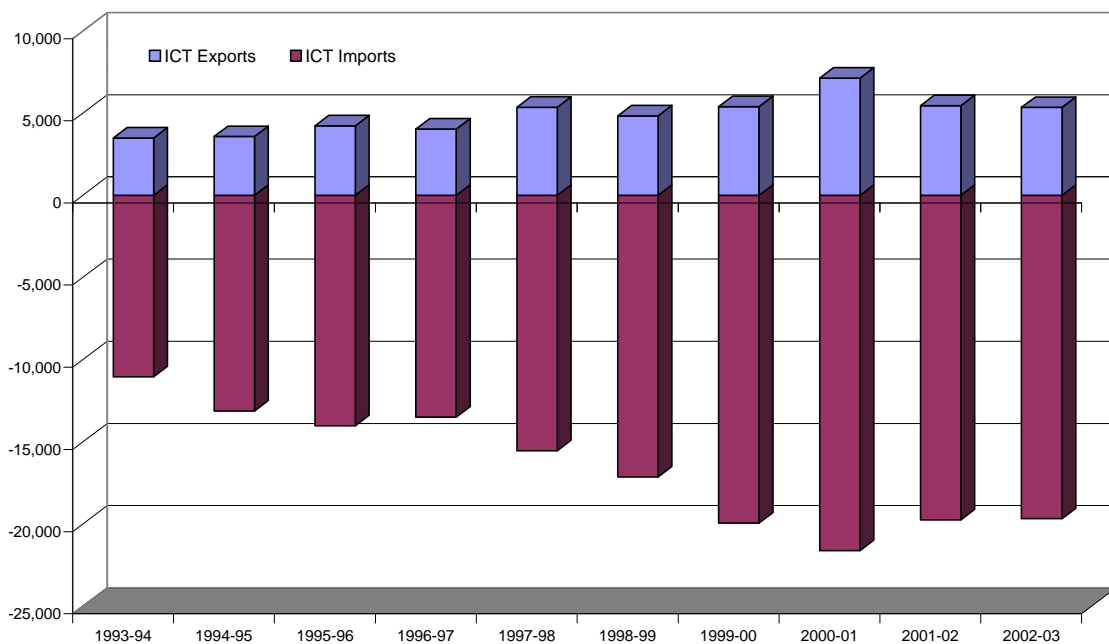
Summary & Conclusions

Australian ICT Trade Update 2003 presents a detailed statistical update on Australia's information and communication technology (ICT) trade over the decade up to and including 2002-03. It explores the composition and direction of ICT equipment, content and services trade, and discusses the ICT trade deficit. It also examines trade State-by-State and looks at the impact of the recent downturn on Australia's ICT trade performance.

ICT trade

Total ICT exports were worth \$5.3 billion during 2002-03, around 2% down on the previous year and well down on the peak of \$7.1 billion achieved in 2000-01. Total ICT imports cost \$19.7 billion in 2002-03, down marginally on the previous year and by almost 9% from the peak of \$21.6 billion in 2000-01.

Figure 1 Australia's ICT trade balance, 1993-94 to 2002-03 (\$m)



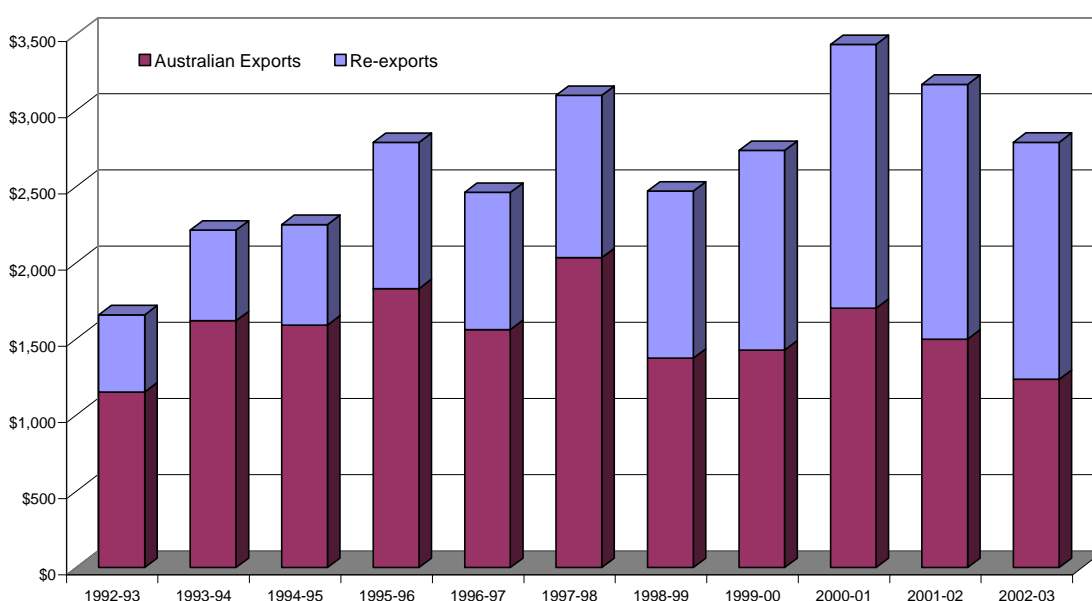
Sources: ABS and TradeData (www.tradedata.net), CSES analysis.

Consequently, in 2002-03, Australia's ICT trade deficit stood at \$14.4 billion. It has grown 7.4% per annum since 1993-94. Trade in ICT equipment was in deficit by \$13.8 billion during 2002-03, while trade in ICT services was in deficit by \$569 million.

ICT equipment trade

Of the \$2.8 billion in ICT equipment exported from Australia during 2002-03, just 44% was produced locally – with re-exports (things brought into Australia and re-exported with little or no value added) amounting to \$1.6 billion. Over the last 5 years ICT equipment exports from Australia declined by 2% per annum, but within that figure re-exports *increased* by almost 8% per annum while locally produced exports *declined* by no less than 9.5% per annum. Locally produced ICT equipment exports have now fallen to levels of a decade ago, and during 2002-03 were worth almost \$800 million less than they were at their peak in 1997-98.

Figure 2 Australia's ICT equipment exports and re-exports, 1992-93 to 2002-03 (\$m)

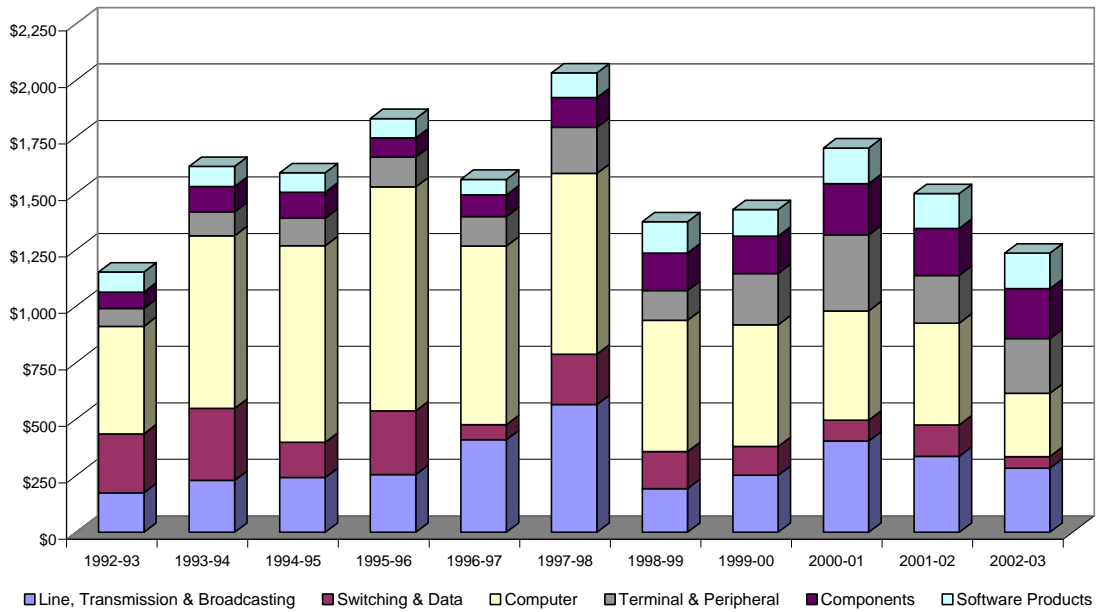


Sources: ABS and TradeData (www.tradedata.net), CSES analysis.

Dividing the last decade into two periods reveals some disturbing trends. ICT equipment exports from Australia grew at a healthy 13% per annum over the 5-years to 1997-98, but *declined* by more than 2% per annum over the 5-years to 2002-03. More disturbingly, locally produced ICT equipment exports grew 12% per annum over the 5-years to 1997-98, but *declined* 9.5% per annum over the 5-years to 2002-03.

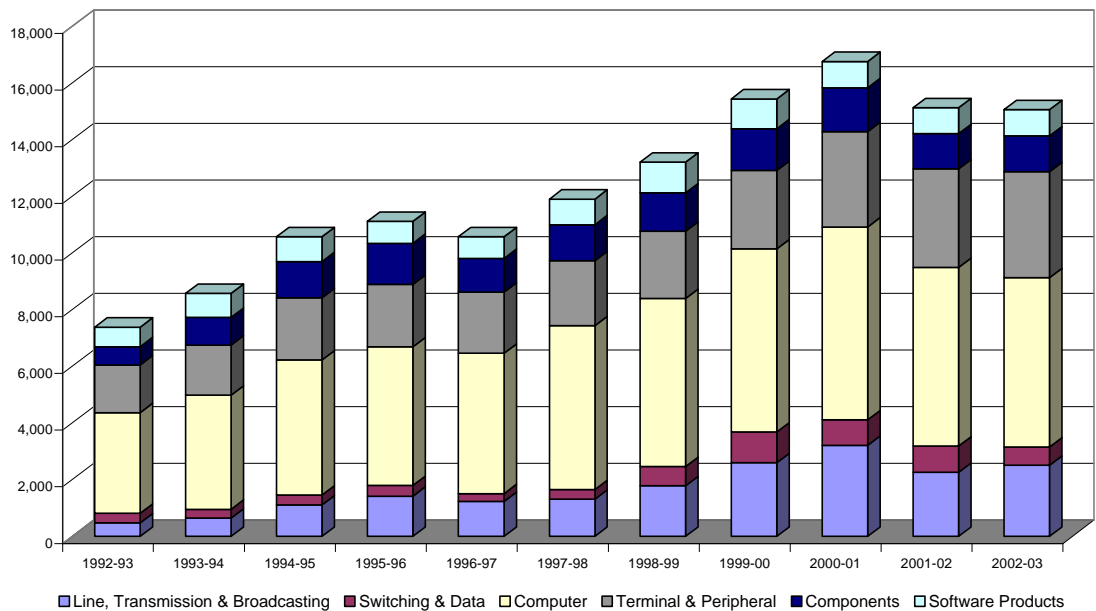
This is indicative of a decline in Australian ICT equipment manufacturing since the mid 1990s. Australian ICT equipment production for export has been hit by the recent downturn. But what is more disturbing, it failed to take advantage of export opportunities during boom years of the late 1990s. The obvious question is what must we do differently to enable Australian manufacturers to participate in the emerging recovery?

Figure 3 Australia's locally produced ICT equipment exports, 1992-93 to 2002-03 (\$m)



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

Figure 4 Australia's ICT equipment imports for local consumption, 1992-93 to 2002-03 (\$m)

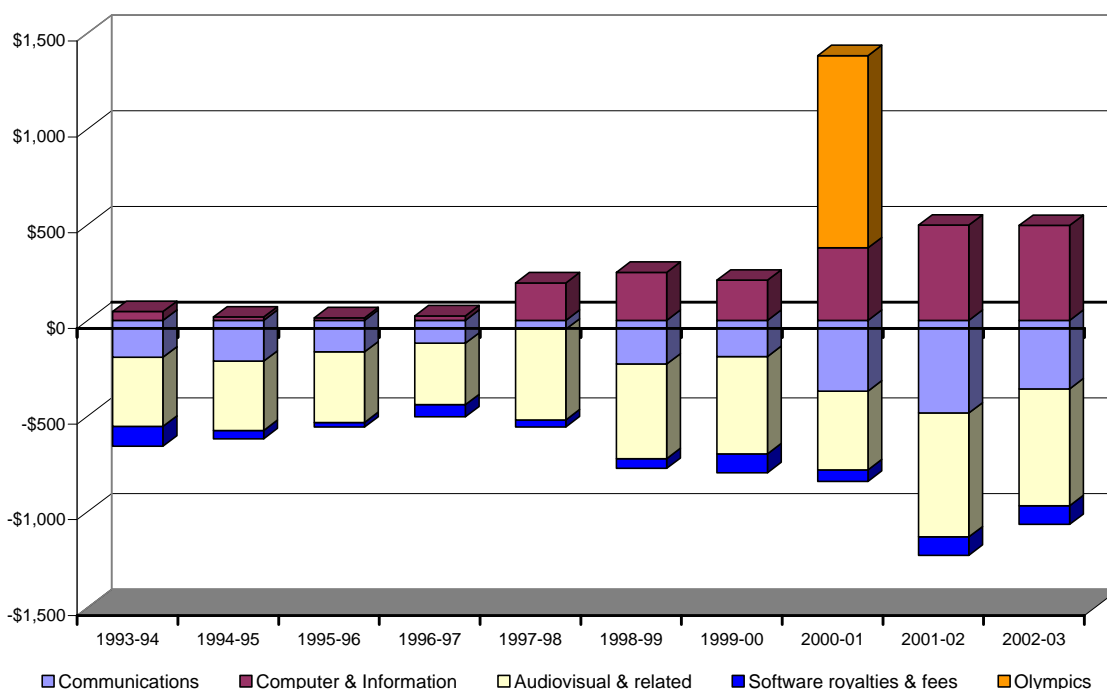


Sources: ABS and TradeData (www.tradedata.net), CSES analysis.

ICT services trade

Australia's ICT related services exports amounted to almost \$2.6 billion during 2002-03. Computer and information services are an area of relative strength, with exports growing more than 18% per annum since 1993-94, to \$1.1 billion. ICT related services imports cost \$3.1 billion, and have increased by almost 6% per annum since 1993-94. Hence, despite a strong positive contribution from computer services, there was an overall deficit on trade in ICT services in 2002-03 of \$569 million.

Figure 5 Australia's ICT services trade balance, 1993-94 to 2002-03 (\$m)



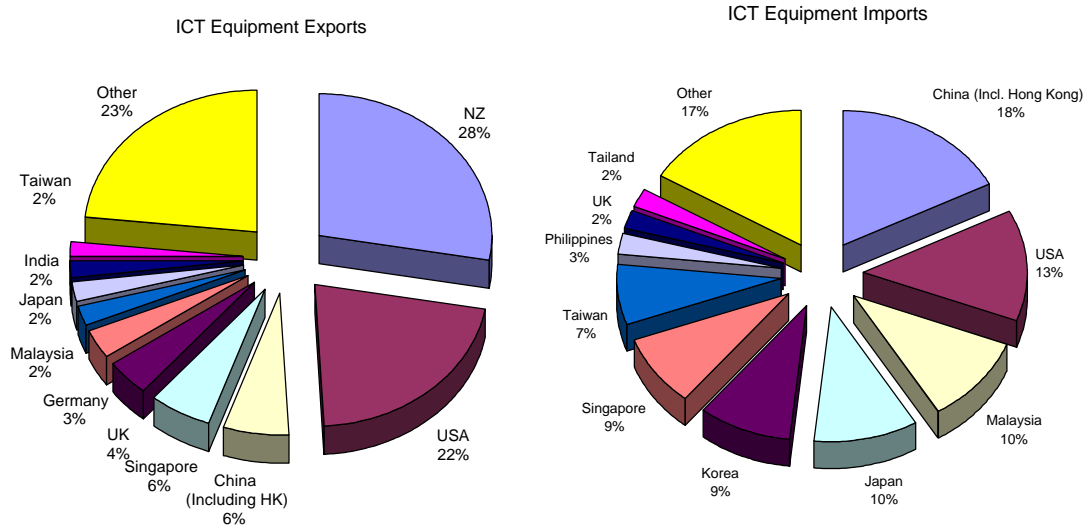
Note: 2000-01 includes the one-off impact of payments for TV rights to the Sydney Olympics.
Source: ABS, CSES analysis.

ICT export markets and import sources

The major markets for Australia's ICT equipment exports in 2002-03 were New Zealand (\$774 million) and the United States (\$602 million). Other national markets were significantly smaller. China and Hong Kong \$167 million, Singapore \$159 million and the United Kingdom \$123 million are the other top 5 markets.

China (including Hong Kong) is now the largest supplier of imported ICT equipment to Australia, accounting for almost 18% of total imports or close to \$3 billion during 2002-03. The United States, Malaysia, Japan, Korea and Singapore are among our other major ICT equipment suppliers.

Figure 6 Australia's ICT export markets and import sources, 2002-03 (\$m)

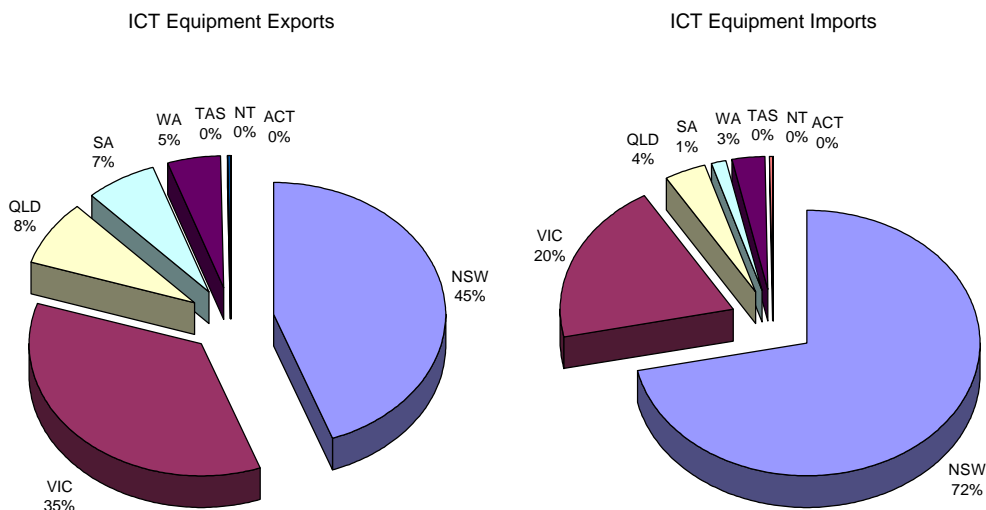


Sources: ABS and TradeData (www.tradedata.net), CSES analysis.

ICT trade State-by-State

Looking at ICT trade State-by-State, we find that NSW accounted for a declining 45% of Australia's locally produced ICT equipment exports during 2002-03 and a remarkable 72% of

Figure 7 State ICT equipment trade shares, 2002-03 (per cent)



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

all ICT equipment imports. ICT equipment exports from NSW have declined by more than 5% per annum over the last decade, and are now less than half their level of the mid 1990s.

Victoria accounted for around 35% of Australia's locally produced ICT equipment exports during 2002-03. The exit of such manufacturing activities as those in Wangaratta have seen a significant fall in computer equipment exports from Victoria.

Of the other States, Queensland accounted for just over 8% of Australia's locally produced ICT equipment exports during 2002-03, South Australia for almost 7% and Western Australia for just less than 5%. The contribution of the other States and Territories to ICT trade was relatively small.

Impact of the recent downturn

The recent downturn had a major impact on both ICT exports and imports. Significant variation in trends between specific equipment and services categories are a major feature of the recent downturn and emerging recovery.

During 2000-01, ICT equipment exports from Australia increased by 25% – although locally produced equipment exports increased by a somewhat slower 20%. Boosted by the one-off impact of the Olympics, ICT related services exports increased by 39%. During 2001-02 the full force of the downturn was felt, with ICT equipment exports falling 8% and ICT services exports falling 39%. A recovery in services during 2002-03 saw the declines halted, despite a further 12% fall in ICT equipment exports.

Because of the relative strength of Australian investment spending during the downturn imports were affected somewhat less than exports, with equipment imports down 9% during 2001-02 and stabilising during 2002-03. ICT related services imports declined during 2000-01 and 2001-02 – by 3% and 5%, respectively. During 2002-03 they rebounded, growing 4.2%. The net result has been small declines in the ICT trade deficit during 2000-01 and 2001-02, and a small increase in the deficit during 2002-03.

Does an ICT deficit matter?

While it is true that a deficit in one area of trade is not a concern if there are surpluses to pay for it in others, the ICT deficit is a cause for concern for a number of reasons. For one thing, the sheer size of the ICT deficit is now such that the question of whether we *can* afford it must be raised – especially in an environment in which Australia's overall trade position is declining. ICTs could be making a positive contribution to Australia's trade position, rather than a negative one.

Some argue that the ICT deficit underpins productivity gains in other sectors. While true, realising the benefits of being a user of ICTs should not blind us to the potential benefits of being a producer. Looking at productivity growth for the decade of the 1990s (adjusted for the business cycle) the OECD revealed that those countries with the largest growth in GDP per hour worked (*ie.* labour productivity) were Korea, Ireland and Luxembourg. Australia ranked 9th and the United States 12th, both well behind the leading three. Ireland and Finland experienced the highest multifactor productivity growth during the 1990s, well ahead of all other OECD

countries. Looking at ICT production the OECD revealed that the three countries with the highest share of ICT value added in business sector value added in 1999 (*ie.* of ICT production in total production) were Ireland, Finland and Korea; the top two countries in terms of ICT equipment share of manufacturing trade were Ireland and Korea; and the three countries with the highest trade surplus in ICTs were Ireland, Korea and Finland.¹ Obviously, Finland, Korea and, to a lesser extent, Ireland are advanced users of ICTs. But is it a coincidence that the OECD's leading producers of ICTs during the 1990s experienced the highest labour *and* multifactor productivity growth during the decade?

There is emerging evidence of the productivity benefits of being an ICT user, but the benefits of being an ICT producer should not be overlooked.² The U.S. Department of Commerce noted that the ICT producing industries in the United States "contribute disproportionately to overall economic growth." Over the period 1996-99, the ICT producing sector accounted for an average of just 7% of U.S. GDP, but was responsible for an average 29% of the country's overall real economic growth. During 2000, the ICT producing sector accounted for 8% of U.S. GDP and 26% of real economic growth.³ In his most recent work, leading U.S. academic Dale Jorgenson concluded that: "a powerful surge in investment in information technology and equipment after 1995 characterizes all of the G7 economies. This accounts for a large portion of the resurgence in U.S. economic growth, but contributes substantially to economic growth in the remaining G7 economies as well. Another significant source of the G7 growth resurgence after 1995 is a jump in productivity growth in IT-producing industries."⁴

Moreover, recent analysis has shown 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.⁵ By failing to gain any serious position as a creator and producer of ICT and related product technologies, and becoming only a defensive 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 employment growth over the last 5 years or more concentrated in low paid, casual jobs.

Nor is there a clear distinction between ICT producing and ICT using. Because of the synergies between production and use, it is often the ICT producing industries that are best able to use ICTs productively. What has made Dell more successful than other PC producers in recent years

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

² See, for example, McKinsey (2001) *U.S. Productivity Growth 1995-2000: Understanding the contribution of Information Technology relative to other factors*, McKinsey Global Institute, Washington, D.C. which demonstrates that U.S. productivity growth in the second half of the 1990s was attributable to six sectors, of which three are ICT producing (*ie.* semiconductors, computer equipment and telecommunications).

³ Department of Commerce (2002) *Digital Economy 2002*, U.S. Department of Commerce, Washington D.C., pp23-26.

⁴ Jorgenson, D.W. (2003) *Information Technology and the G7 Economies*, Harvard University, November 4, 2003.

⁵ See, for example, Edquist, C., Hommen, L. and McKelvey, M. (2001) *Innovations and Employment: Process versus Product Innovation*, Edward Elgar, London.

is not its PCs, but its use of the internet for ordering, and the consequent enabling of building to order rather than to inventory as a business model, and its coordination of global sourcing and delivery. It should not be surprising, then, that NOIE's recent report, *Productivity and Organisational Transformation*, noted that the largest productivity impacts from using ICTs in Australia are expected in electronics manufacturing and communications (*ie.* ICT producing industries).⁶

More importantly, the growth of the ICT deficit is an indicator of decline in the local ICT industry and a clear sign of declining international competitiveness in some areas of ICT production. The recently released 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 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.*⁷

Hence, the main concern over the ICT deficit is that if Australia is losing ground in the production of ICTs for the market, then it is likely to be losing ground in the production of ICTs for in-house use (*ie.* in the application of ICTs). This is because many of the same factors underpin ICT production for market and ICT in-house, non-specialist production and application. 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.

There are some positive signs regarding application in the growing surplus on trade in ICT services – the most important area of capability for the local application of ICTs. However, it is clear that many areas of ICT manufacturing, software and services are losing ground. Electronics has become a generic technology, used in and supporting many areas of manufacturing. Innovative and competitive local electronics equipment and systems producers are essential to enabling innovative design and manufacturing across a wide range of industries. The growing deficit on trade in ICT and related electronic products and systems points to a potential decline in Australia's capacity to support high-technology manufacturing.

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 advantage in areas like equipment assembly are very different from those in such areas as consulting services. Given the enormous range of

⁶ OVUM (2003) *Productivity and Organisational Transformation: Optimising investment in ICT*, NOIE, February 2003, p151.

⁷ Framework for the Future Steering Committee (2003) *Enabling Our Future: A framework for the information and communication technology industry*, DCITA, April 2003, p19.

the ICT industries, and the diversity of their underlying inputs and cost structures, one could reasonably expect almost all developed countries to have strengths in some aspect of ICT production, and comparative advantage in some part of the ICT industries.

Arguments that treat ICTs like wheat and suggest that Australia need not worry about being an ICT producer are misguided. They fail to take account of this diversity in the ICT industries. Not all countries can or should produce wheat. Amongst other things, to do so requires particular environmental conditions. However, all developed countries can and do produce ICTs (for market and/or internal use), and they should specialise in specific areas of ICT production for the market in which they have a comparative advantage.

In Australia's case, long term and rapidly growing *surpluses* on trade in IT consulting and implementation services stand out as a bright spot among what is otherwise a rather depressing trade performance. In 2002-03, Australia exported more than \$1 billion worth of computer and information services, while importing just over \$600 million. It is the only area of ICTs in which Australia has consistently run a surplus on trade, and that surplus has been growing strongly – albeit from a low base. This suggests that IT services are an area of local advantage.

The challenge for Australian policy makers is to build on such advantages. But it is not simply a case of focusing on services rather than hardware. International trade patterns suggest that a more subtle approach is required, and recent globalisation of services and such phenomena as offshoring to India should serve as a wake up call to the need for a more sophisticated approach.

What could be done?

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 the 'Asian Tiger' economies and Ireland have done, and what Australia has failed to do, is to attract *export-oriented* investment.

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.⁸

Looking at worldwide ICT trade patterns, the activities of various countries in global production systems is evident. 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 electronic components manufacturing remains in higher wage locations. A similar split applies

⁸ UNCTAD (2002) *World Investment Report 2002: Transnational Corporations and Export Competitiveness*, United Nations, New York and Geneva, pxxi.

to services, and as trade in services is liberalised is leading to the emerging phenomenon of offshoring.

Australia should not simply give up ICT and related electronics manufacturing and look to a future in services. Many ICT related services activities will disappear offshore just as fast 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, and focus coherent and consistent policy support, *inter alia*, on attracting *export-oriented* investment.

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