

The Whitehorse Report

ICT Industry Survey and Analysis

June 2006



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Centre for Innovative Industries Economic Research Inc

www.whitehorsestrategic.com

A.C.N. 006 784 407

3rd Floor, 45 William St.

Melbourne, 3000

e-mail: admin@whitehorsestrategic.com

Phone: 03 9614 8510

Fax: 03 9614 8201

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Centre for Innovative Industry Economic Research Inc. ABN 64 806 162 996.
Level 3
45 William Street
Melbourne, Victoria 3000
Telephone: (61-3) 9614 8510
Facsimile: (61-3) 9614 8201
Online
Email: admin@whitehorsestrategic.com.au
Website: www.whitehorsestrategic.com.au

About Whitehorse Strategic Group Ltd.

Whitehorse Strategic Group Ltd. is an Australian owned management consulting practice founded in 1987 with a well established reputation in helping Industry and Government achieve success through strategies designed to maximise existing investments and capture efficiencies from new technologies. The Whitehorse Research Services Division produces the *'Top 250' ICT Industry Research Report*, widely recognised as the leading credible indicator of trends in the Australian ICT industry, and conducts detailed analysis and reporting on Information Technology, and equivalent Reports on the Biotechnology Industry. Whitehorse principals specialise in the areas of ICT and Biotechnology Market Research, eGovernment policy and strategy, Business Process Management, and Economic and Community Development.

About the Centre for Innovative Industries Economic Research Inc

CIIER is an Asia-Pacific Centre, formed to create a facility, repository, and think-tank for consistent, competently researched, up-to-date, and analysed data on employment, markets, revenue streams, R&D, processes and management methods, specifically focussed on high technology, innovative, and emerging industries.

STATISTICAL PANEL	4
INTRODUCTION.....	5
RESEARCH BACKGROUND	5
RESEARCH SUPPORT	5
SURVEY AND ANALYSIS PROCESS	6
<i>Structure of our Reports.....</i>	<i>6</i>
NEW "ICT WORKER" MODEL	7
<i>The "ICT Industry"</i>	<i>7</i>
<i>National and State based models</i>	<i>9</i>
THE "T250 DATABASE.....	11
ICT INDUSTRY EMPLOYMENT	13
EMPLOYMENT MODEL	13
ICT INDUSTRY EMPLOYMENT SKILLS DEMAND	18
BROADER ICT SKILLS NEEDS ANALYSIS	21
ICT INDUSTRY FEMALE EMPLOYMENT	24
<i>ICT technical and professional female employment.....</i>	<i>25</i>
ICT INDUSTRY DEMOGRAPHY	28
COMPANY NUMBERS AND SIZING	28
ICT INDUSTRY REVENUE	32
ICT INDUSTRY RESEARCH AND DEVELOPMENT	34
R&D BY INDUSTRY SECTOR	34
ICT INDUSTRY DEVELOPMENT.....	35
ALLIANCES, BARRIERS, GRANTS AND SUPPORT	35
MARKETS, EXPORTS	35

Statistical Panel

Australian ICT	June 2006	Trend
<i>Total ICT workers in Australia</i>	502,000	<i>Not previously measured</i>
<i>Companies in ICT Industry</i>	25, 600	<i>Steady increase</i>
<i>SME's in the ICT Industry(Below 20 staff)</i>	24,400 (95%)	<i>No significant change in % of SME's</i>
<i>Employees in ICT Industry</i>	255,000	<i>Steady growth, State and sectoral variations</i>
<i>Employees in large ICT Industry companies (+100 staff)</i>	140,500 (55%)	<i>No significant change in %</i>
<i>Female employees in the ICT industry</i>	74,000 (29%)	<i>Flat, slight dip in percentage nationally</i>
<i>Revenue of ICT Industry</i>	\$77.5 Billion	<i>Steady growth, sectoral variations</i>
<i>R&D of ICT Industry (T250 only)</i>	\$586 Million	<i>Long term sustained decline</i>
<i>R&D per capita</i>	\$4,280	<i>Flat in last six months, long term decline</i>

Introduction

It is well recognised that the ICT industry in Australia is a key productivity enabler for other industries, but direct ICT employment, both in total and relative to other industries, shows that the ICT industry is also a major employer.

By the broadest definition, ICT employment accounts for nearly 5.5% of total Full Time Equivalent (FTE) employment in Australia, more than many other Australian industry sectors, including Mining; Electricity, Gas and Water supply; Banking and Finance; and TV, Radio, Media.

The ICT industry is also a significant source of export revenue, and accounts for nearly 80% of ICT R&D performed in this country.

This Summary has been prepared to give an overview of the current state of the Australian ICT industry, as of June 2006, based upon the Whitehorse Top 250 survey and methodology (T250), and other statistical sources.

Individual tailored reports by State and Industry sector are also available.

Research background

The conduct of a research task such as this cannot take place effectively without the support and freely given time of many people. The consultants wish to thank all of the individuals and companies who assisted us by providing the data upon which the analysis is primarily based.

Research Support

This research has been greatly assisted by the helpful cooperation of industry bodies, especially the Australian Information Industry Association (AIIA), and Software Queensland, both of which bodies have circulated the Survey questions to their members and encouraged participation.

Survey and Analysis Process

The primary mechanism that is used to provide the data for this Report is a detailed survey of ICT companies in Australia, known as the 'Whitehorse Top 250'. The methodology employed includes a questionnaire both mailed and emailed out to respondents and direct verification telephone contact with a significant proportion of the survey base. The survey is supplemented by web-searches, press reports, Annual Reports, and other public sources of data.

The Whitehorse "Top 250" database contains detailed data for the last six years on now over 760 operating companies with 135,000 staff, \$69 billion in revenue and \$580 million in R&D expenditure. Historical data is also kept on companies which have been acquired, merged, or closed during this period, leading to a database with over 1000 company entries.

The current data, gathered in April/June 2006, represents approximately 62% of total current industry employment and 92% of total current industry revenues in the ICT industry in Australia.

From this data, a series of industry models are developed in a consistent and statistically verified structure. These models allow for the estimation of National and State industry sectoral totals for a number of measures, and for comparison and trend analysis to be performed.

Structure of our Reports

The Report level of our Reports varies, with data able to be presented in National Summary form, for particular States, or particular industry groupings.

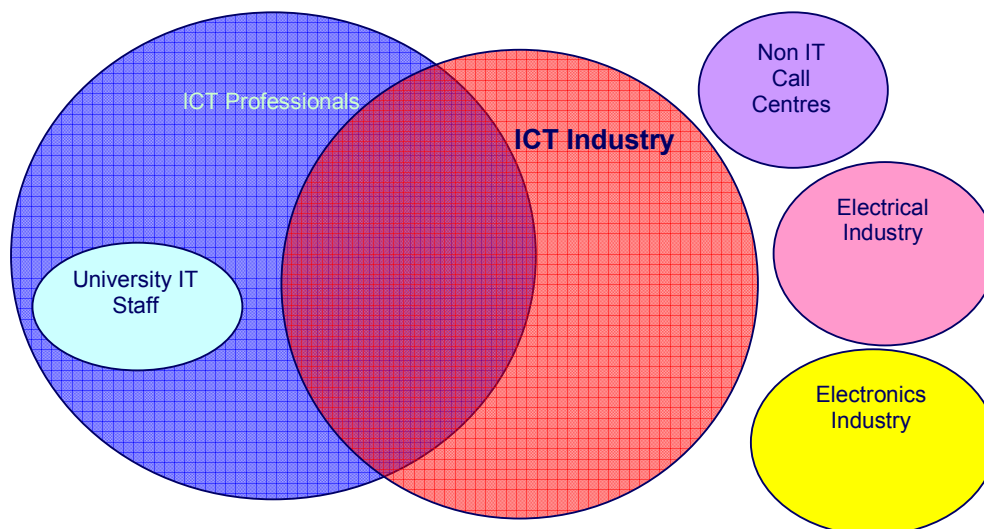
Each of our periodic reports is also different, as the range of data that could be analysed is too much for any one report, and different priorities for concentration may be requested by the recipients, or indicated by the data. Where there is little variation from previous series data, the amount of detailed investigation is diminished as the content of previous reports on the subject matter will tend to apply. Some data may also be analysed at a national or a cross-sectoral level only, as the data density may not justify conclusions made for particular States, or for particular industry sectors or other groupings.

New "ICT Worker" Model

One of the significant difficulties in understanding ICT in Australia is the frequent confusion between analysis of the ICT work-force in labour market terms (e.g. what job the individual performs), and analysing the ICT work-force in Industry terms (e.g. what kind of organisation the individual worked for).

ICT broad employment occurs in a number of groupings. These include:

- the providers of ICT goods and services (usually called the ICT industry).
- the purchasers and users of ICT goods and services including the government and private sectors who also employ a large number of specialists to help them apply their ICT purchases.
- the trainers, teachers and researchers into ICT who generally (but not always) operate within the universities and colleges.
- people who provide technical support to ICT, but who might, more properly, be categorised as electrical or electronics specialists
- people working in call-centres, or in desk-top publishing and graphics design



This "bubble" diagram illustrates some of these elements.

There is a significant percentage of ICT professionals in the ICT industry, but ICT industry employment includes not only those professionals but also many ICT non-professional technical, sales, logistical and administrative staff.

The "ICT Industry"

The term "ICT Industry" is also often used in the press, or by other commentators, for a confusing range of different things, ranging from the "tight" definition of companies solely concerned with the provision of ICT products and services, but that includes companies with major units supplying ICT good and services, through a "looser" definition that may include retail ICT, that may include call centres that are mainly parts of other industries (e.g. banking), that may include significant sections of the electronics industries, and of

other professional services (e.g. management consultants and, historically, accountants), to a "broad" definition that can include anyone working on ICT related matters in any industry.

We consider that the "broad" definition is best described by the term "ICT Worker", whereas the term "ICT Industry" is better reserved for the "tight" definition above, as defined by the Australian Bureau of Statistics ¹, but perhaps "loosened" to embrace the other ICT goods and services covered by the more globally accepted OECD (2003 and 2004) definition, in order that international comparisons be made more meaningfully.²

It should be noted that these internationally agreed definitions are not followed by the Australian Bureau of Statistics, which recently stated that:

*"The Working Party on Indicators for the Information Society convened by the OECD has produced a draft 'Classification of ICT Goods' and is working on a classification of ICT services. The ABS had significant input into this work and the classification used by the ABS... **is broadly consistent with, but not identical to the OECD classification as far as it relates to goods. The OECD definition included a broader range of goods than the Australian definition.** The Australian definition only includes ICT goods if they are able to be networked or are components of goods that can be networked. It also excludes a range of medical, scientific and audio visual equipment".³ (emphasis added).*

Obviously, where "goods" are excluded, so are the workers who produce, market, and distribute them, consequently **a more narrow definition of the goods and services involved in ICT necessarily also understates the commensurate employment and revenues involved, and thus the relative "size" and significance of the industry concerned.**

Whilst these overlaps and distinctions have been known for some time, to date there has not been an attempt to reconcile, and, more importantly, to quantify, the various components within a single employment model.

The diagram here illustrates a Model, developed by CIIER and Whitehorse, which allows us finally to reconcile these differences, regardless of the employment and classification paradigm selected, and to calculate the relative proportion of ICT employment that makes up the Australian ICT employment structure, by both Labour market and industry sector measures.

Perhaps as significantly, the Model also demonstrates the significant 65% overlap between ICT industry employment (using the "tight" ABS definition), and ICT professionals and technical staff employed across all industries, thus underscoring the common interests of ICT trade and professional bodies in Australian ICT industry development. (CIIER and Whitehorse include communications and engineering professional and technical staff within this definition of ICT professionals and technical staff)

¹ ABS 8126-0

² A Proposed Classification of ICT goods, OECD, Paris, 2003; Classifying Information and Communication Technology services, OECD, Paris, 2004

³ ABS (2006) *ICT Satellite Account: Australia*, Cat No 5259.0, Canberra, p33.

This new model also allows us to model ICT technical and professional employment, and therefore potential work-force demand, by industry sector. This can help in analysing, and quantifying skills needs, since each industry has some more specific ICT skill-sets among the more generic needs of every industry.

As an example of this, a recent small skills conference was advised of a problem in recruiting a specific developer skill-set. Whilst initially attractive to the six educational bodies present to establish such a course, in later discussion it emerged that the potential national demand for this skill-set was probably under 10 jobs per year. Whilst this might still encourage one educational body to respond, any more would have simply eventuated in unplaceable graduates downstream.

The impact upon "Satellite" accounts of this approach is also significant. The ABS initial, and experimental, ICT satellite account⁴ uses a very "tight" definition, both of ICT employment, in which it only includes 3 job groupings rather than the more usual 10-13, and in its definition of ICT production, where it seems to leave out software products produced by the Australian ICT industry, and draws a number of other definitional conclusions that tend, in our estimation, to understate production..

This leads to the ABS ICT Satellite account conclusion that ICT employment (as defined at around **235,000** persons in 2002-3) was then around **2.5%** of the total Australian employed.

However, using the broader definitions above, "ICT workers" amount to over 500,000 persons in December 2005, or closer to 5.5% of total employed, a 120% larger contribution!

Broadening the definition for this satellite account, in accordance with the international norms above, would therefore also increase the perceived contribution of ICT to the national economy.

An increase from the, to some, already startling 4.6% contribution to GDP indicated by the ABS ICT Satellite Account report to an even more startling conclusion, might sway more conventional economists into truly recognising the economic significance of ICT, and its impact upon the Australian economy.

National and State based models

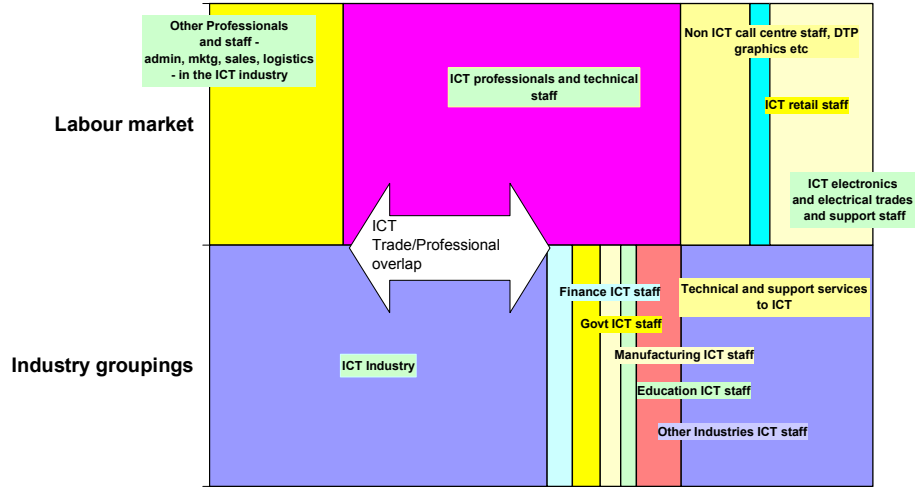
The first quantified Models have now been built, both for the Australian work-force, and for specific States. The paradigms have been constructed for the December 2005/January 2006 period, as some of the necessary data-sets are not yet available for later periods. The Models are, however, constructed in such a way that later data can be systematically added, thus allowing for time-series analysis to be developed.

⁴ ABS 5259.0 2002-3



ICT Workers in Australia, - by Industry and by Labour market ,

Source ABS Labour force Feb 2006, ABS ICT Satellite account, Mar 2006, CIER/Whitehorse T250 Dec 2005, DEWR Employment by State Dec 2005, Some data unpublished. CIER modelling based on ABS paradigms. Copyright CIER Inc 2006

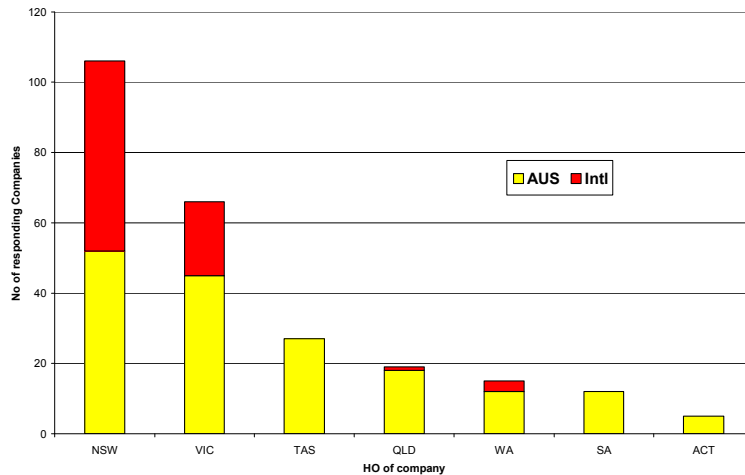


The "T250 database

- Over 1000 total company records
- Data back to 1998 – updated 6 monthly
- Detailed Employment data for over 130,000 staff - 65% of the Australian ICT Industry
- All States and Territories represented
- All industry sectors represented
- Employment and Revenue models based upon ABS paradigms and stringently tested



T250 database local/international mix

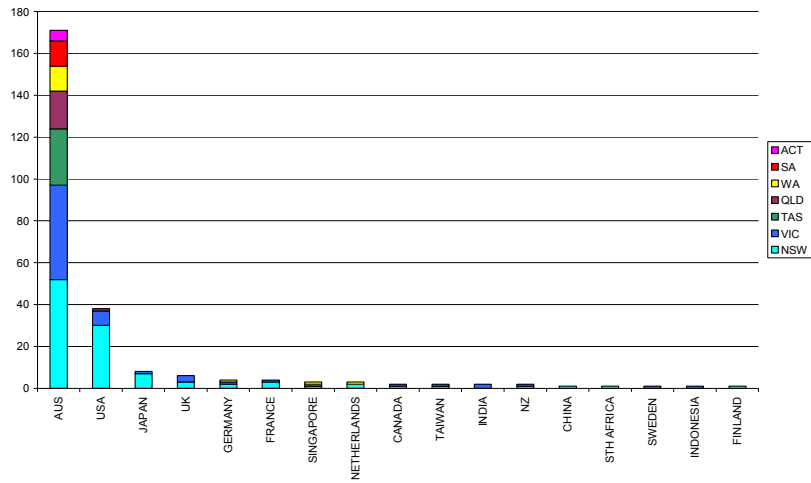


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The "mix" of local and international company data in the database, by necessity, overstates international presence, as a significant number of larger companies are internationally owned. This is statistically compensated within the model.



T 250 database - Head offices



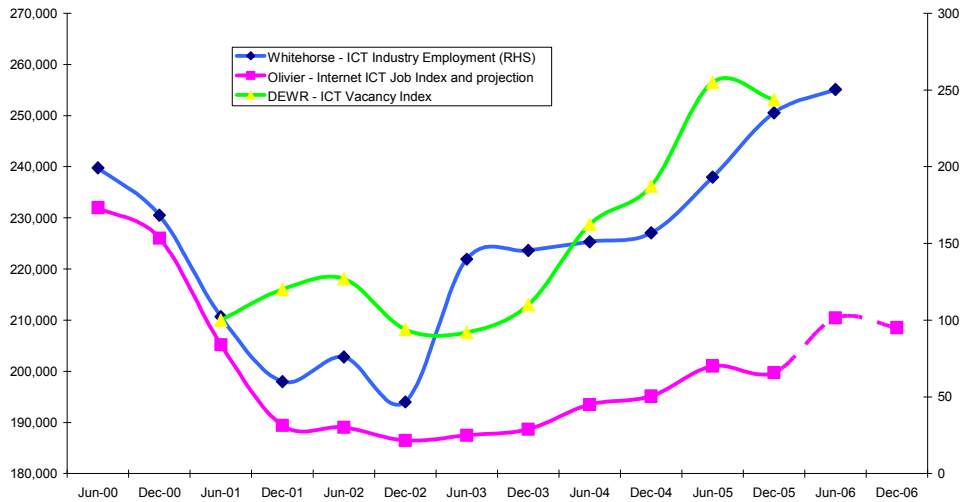
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The database includes companies headquartered in all States and Territories, to ensure a lack of regional bias, however most international companies tend to be headquartered in NSW, Victoria and Queensland.

This same evenness of representation is maintained for the State samples.

ICT Industry Employment

Employment Model



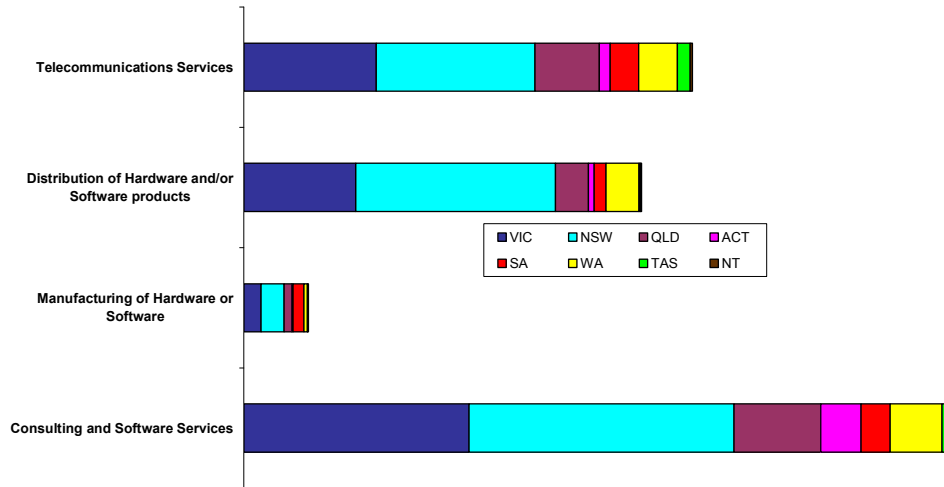
The national ICT industry employment trend continues to rise, lifting in the last two surveys above the previous high of January 2000. The rate of increase is not as high as in the last survey, and this is reflected in the broader base Olivier index, for which our projections are also showing a slight forward decline in job vacancies.

Victoria's ICT industry employment percentage has lifted very slightly, back to June 2003 levels.

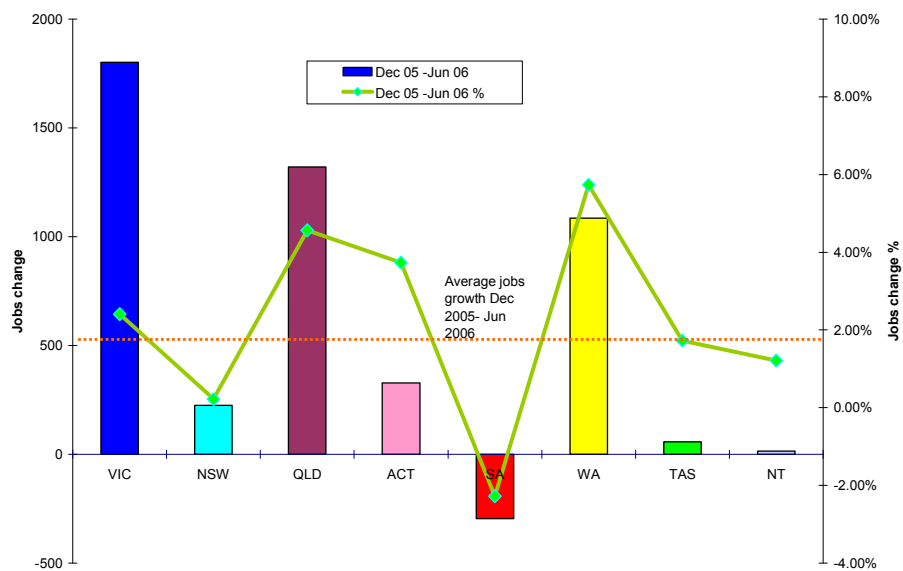
NSW has slipped marginally, with West Australia and Queensland gaining ICT jobs associated with the mining boom.

Structure of the Australian ITT Industry Jun 2006

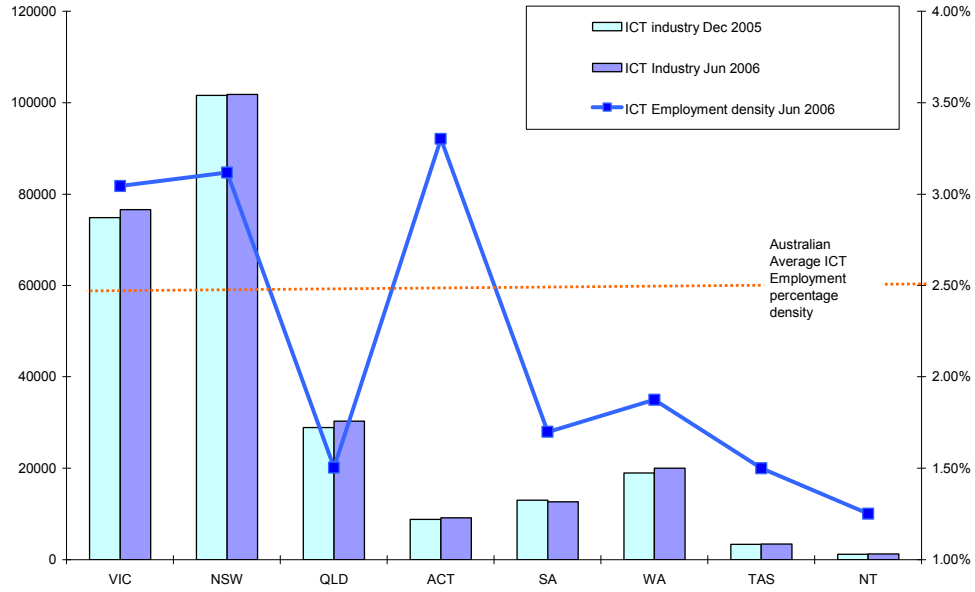
Whitehorse Strategic Group Ltd Top 250 Survey and model based on ABS paradigms



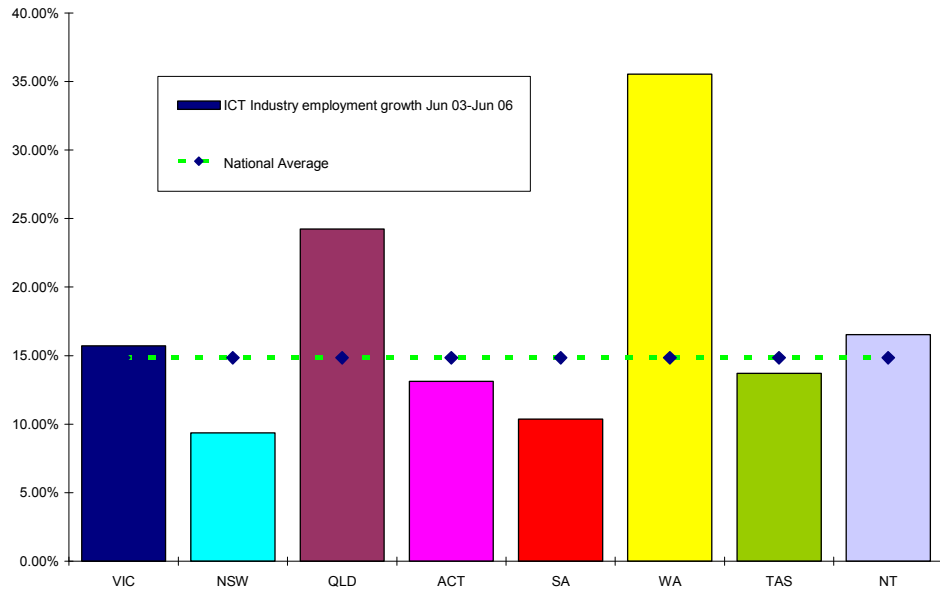
Sectorally, telecommunications, consulting and software and services have recorded flat employment trend since December 2005, whilst manufacturing and distribution have grown employment. This is not uniform, however, as Victoria, Queensland and WA have grown consulting, software and services, Victoria by over 900 jobs, against the national trend.



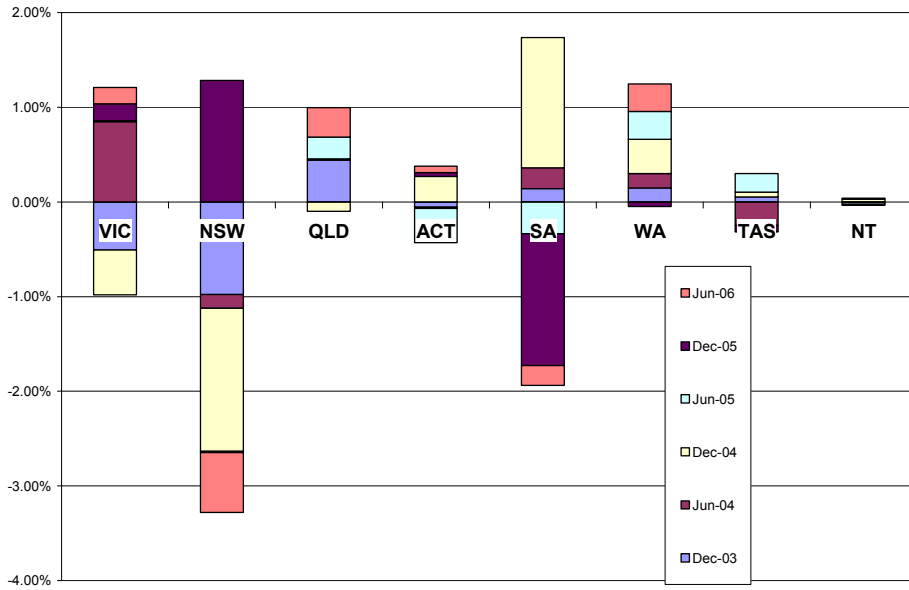
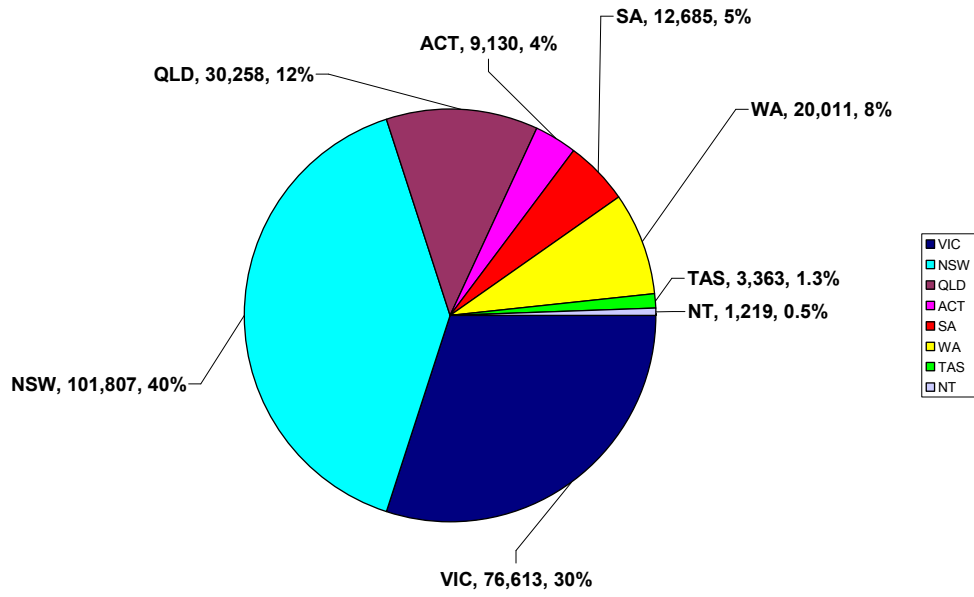
The ICT industry jobs growth contrast between States is shown dramatically in the graph above. Percentile growth has been highest in WA, Qld, and ACT, above average in Victoria, average in Tasmania, a little below in NT, whilst SA has recorded a fall in ICT industry employment in the last six months. Actual jobs, however, have risen most in Victoria, outstripping even the "mining" States.



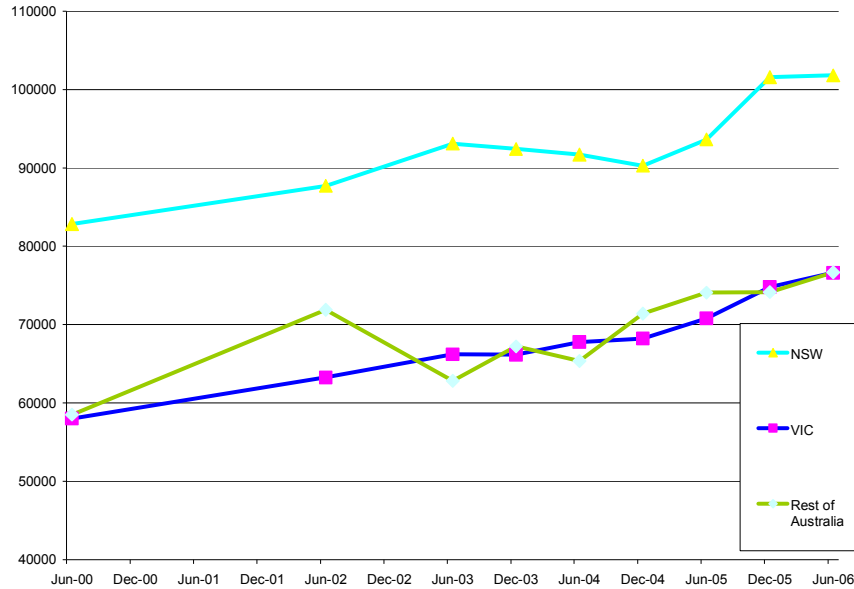
Despite these changes, the ICT density, i.e. the % of IT industry jobs to total work-force, remains highest in the ACT, with NSW and Victoria on almost level pegging.. All other States still record ICT industry densities below 2% of their total work-force.



The three year jobs growth picture maintains the variations, but evens out some of the fluctuations, with industry employment growth evident in every State over the longer haul.

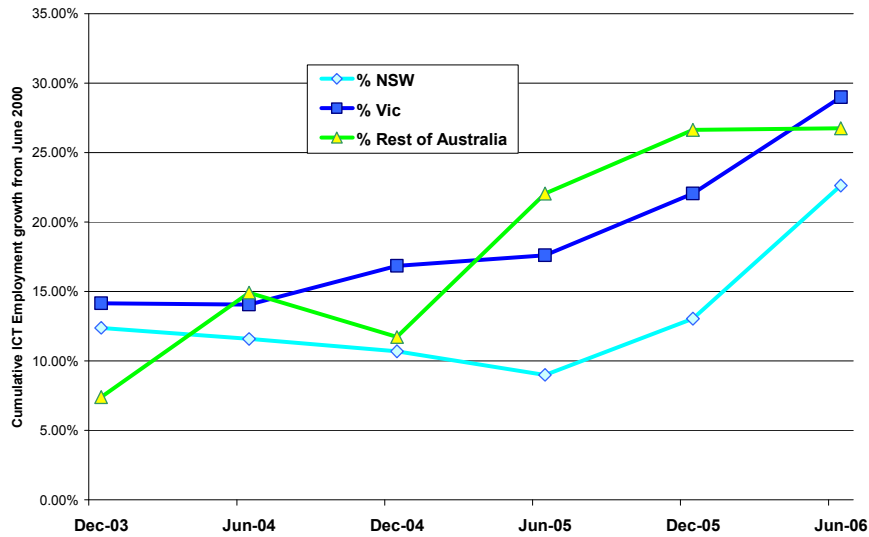


Six monthly employment volatility in the last three years has been most significant in NSW and in SA.



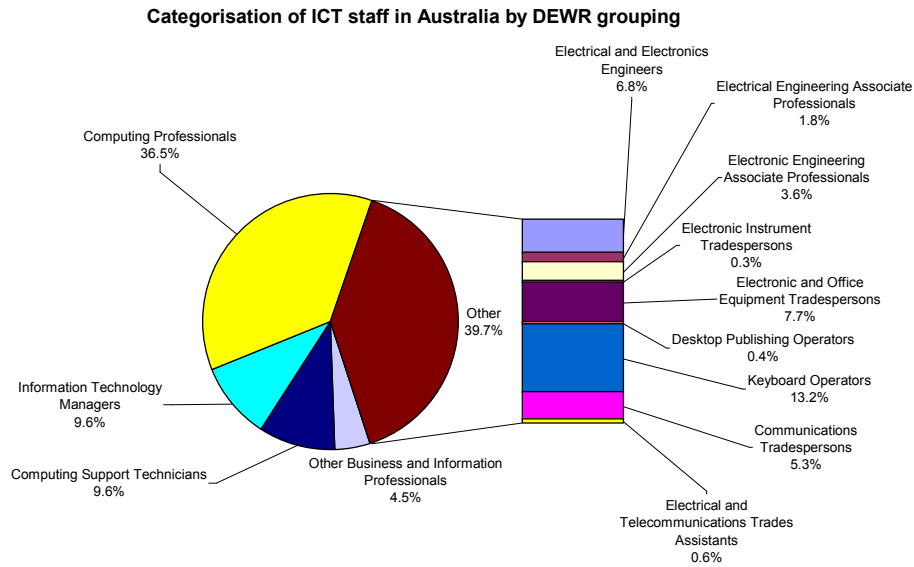
This is shown here, where the relatively smooth growth in Victorian ICT industry employment can be contrasted with the more "bumpy" NSW trajectory, indicating a more "stop-start" employment market in that State.

Cumulative ICT Industry employment growth since Jun 2000



Over the long haul, since June 2000. Victoria has recorded higher growth than NSW, and the cumulative "Rest of Australia" has surged since June 2005 in ICT industry jobs growth.

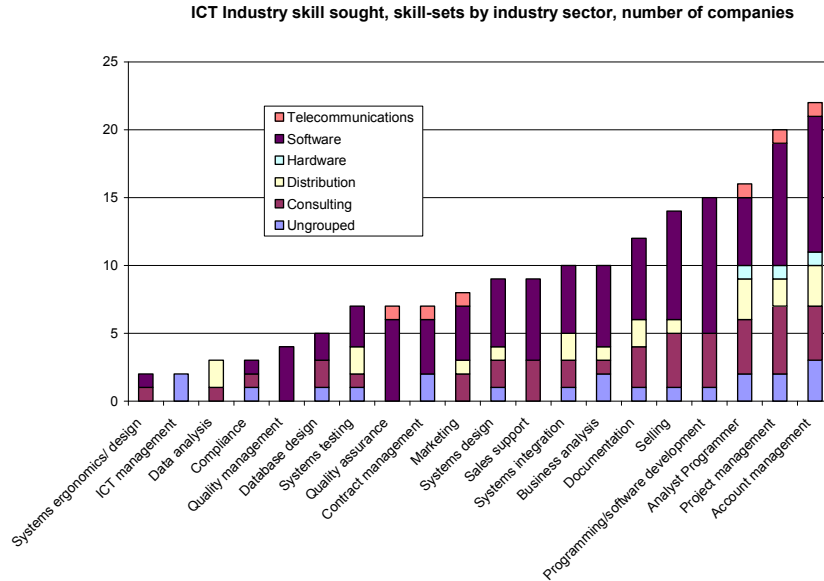
ICT Industry Employment Skills demand



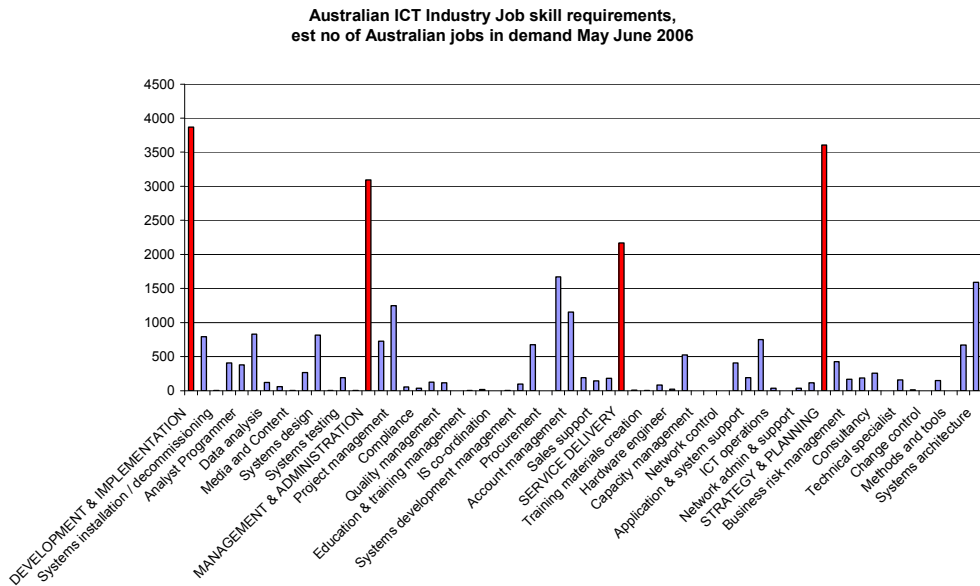
When evaluating skills demand, it is useful to look first at the relative significance of particular skill-sets. This chart shows the March 2006 DEWR grouping of ICT worker categories (using a "broad" definition, across all industries in Australia showing that nearly half are categorised as either "Computer professionals", or "IT managers".

For the purpose of the analysis below, ICT skills have been categorised into a standardised structure, developed originally for the ICT Skills Snapshot project, but since applied to a number of other ICT labour market studies by CIIER and others.

Skill Category	Subcategory	Skill designation	
Development & implementation	<i>Human factors</i>	Documentation	
	<i>Installation & integration</i>	Systems installation/decommissioning	
		Systems integration	
	<i>Systems development</i>	Analyst Programmer	
		Business analysis	
		Data analysis	
		Database design	
		Media and Content	
		Programming/software development	
		Systems design	
		Systems ergonomics/design	
		Systems testing	
		Technical authority	
	Management & administration	<i>Project management</i>	Programme management
Project management			
Project office			
<i>Quality management</i>		Compliance	
		Quality assurance	
		Quality management	
<i>Resource management</i>		Asset management	
		Education & training management	
		ICT management	
		IS co-ordination	
		Service delivery management	
		Systems development management	
		Supply management	
Contract management			
Procurement			
Sales & marketing	<i>Sales and marketing</i>	Account management	
		Marketing	
		Sales support	
		Selling	
Service delivery	<i>Education and training</i>	Education & training delivery	
		Training materials creation	
	<i>Engineering</i>	Communications & network engineer	
		Hardware engineer	
		Systems engineer	
	<i>Infrastructure</i>	Capacity management	
		Configuration management	
		Network control	
		Security administration	
		<i>Operation</i>	Application & system support
			Database administration
	ICT operations		
	Service level control		
	<i>User support</i>		Network administration & support
		Other	
		User support	
Strategy & planning	<i>Business/IS strategy and planning</i>	Business process improvement	
		Business risk management	
		IS strategy & planning	
	<i>Information management Advice</i>	Consultancy	
		Information resource management	
		Technical specialism	
	<i>Technical strategy and planning</i>	Business continuity planning	
		Change control	
		Emerging technology monitoring	
		Methods and tools	
Network planning			
Systems architecture			



This orientation to management and professional requirements noted in the DEWR pie-chart is reinforced in the "Skills-set sought" analysis shown here, in which ICT industry T250 respondents were asked to indicate what skills etc were in demand for them.

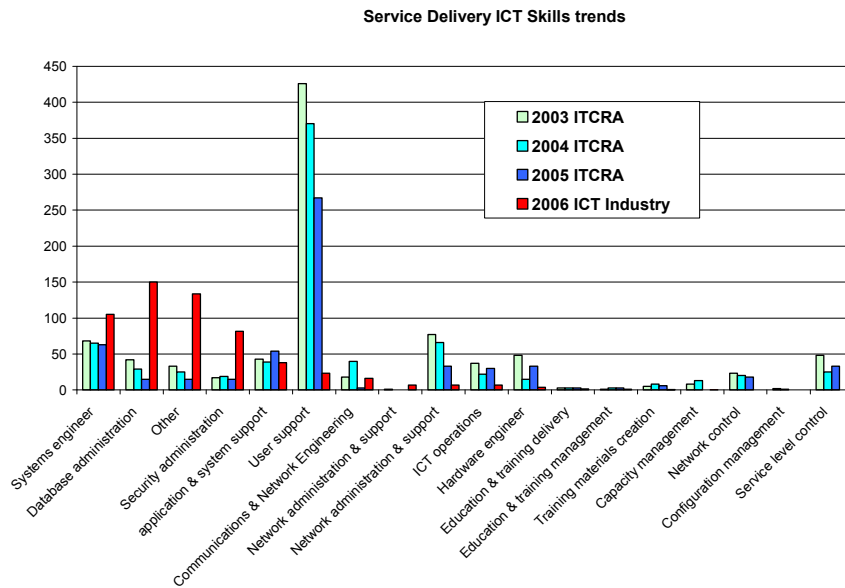


This data was then analysed individually for each company, and based upon the size of each company's work-force and turnover ratios, an estimated "vacancies" calculation was made. The red lines indicate primary job-group aggregates, the blue lines are the individual job skill-sets in demand. It is interesting that "development and implementation" jobs and "strategy and planning" jobs well outpace "service delivery".

Broader ICT Skills Needs analysis

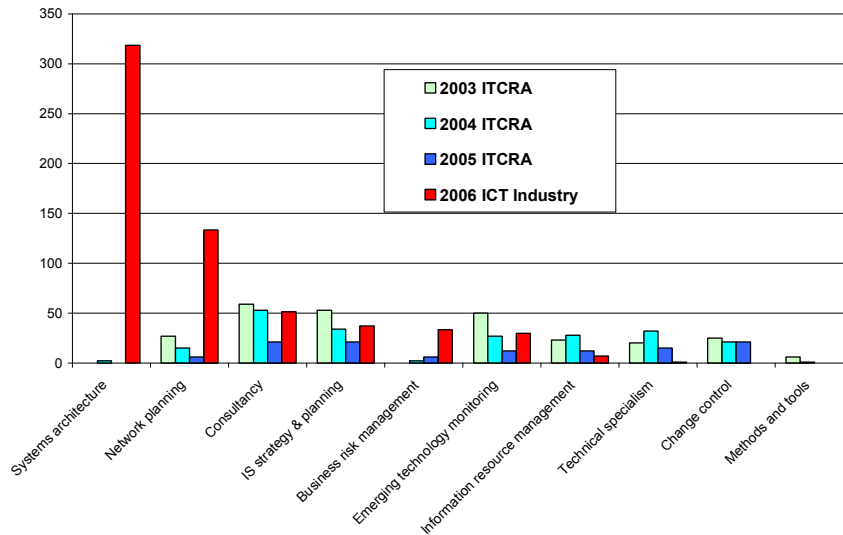
This section of the report contrasts reported skills needs in the broader marketplace with those for the ICT industry. The charts contrast data obtained from analysis of ITCRA members information, in 2003-5, with the CIIER ICT industry survey data from May-Jun 2006. Approximately 2-3000 jobs per year are involved. The data is proprietary to ITCRA and CIIER. Some of the ITCRA data was referenced in the Victorian Government MMV "Skills Snapshot" report released in November 2005.

ITCRA is made up of recruitment companies, so the jobs concerned come from those advertised by a wide range of employers, some differences of skills emphasis are obviously therefore present, e.g. ICT sales and account management jobs are entirely within the ICT industry, so have not been included in this comparison.



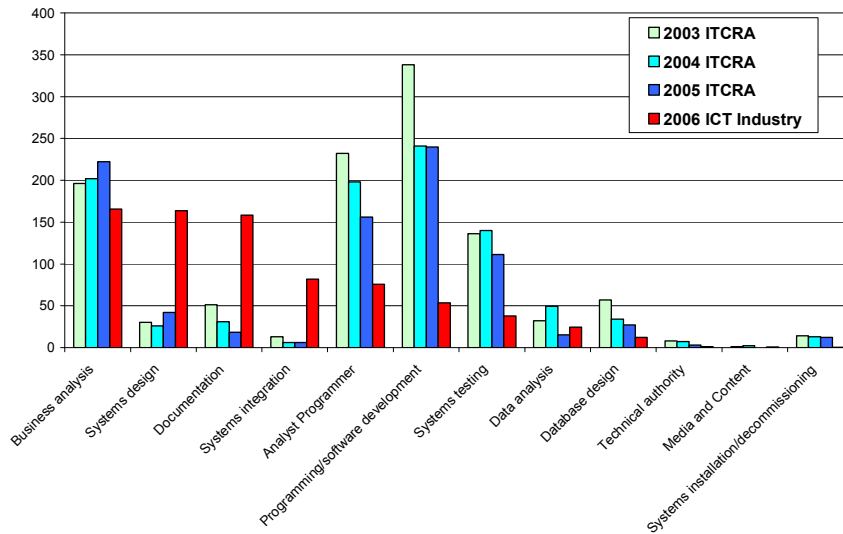
Service delivery jobs are important to graduates as they often provide more entry level employment. It can be seen quite clearly that the ICT industry continues to require systems engineers, database administrators, and security administrators, however the strong user support requirements identified by ITCRA in previous years are not reflected in our ICT industry analysis.

Strategy & Planning ICT Skills trends

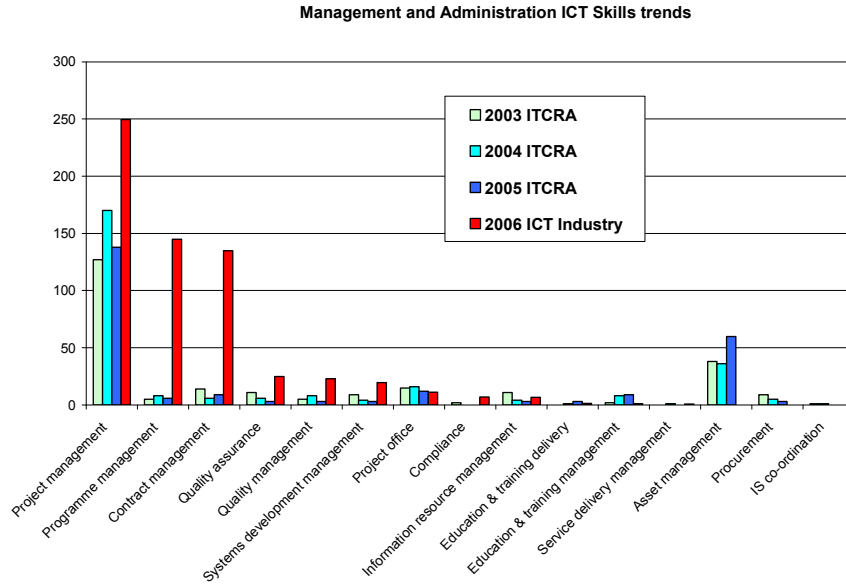


The ICT industry continues to need systems architects and network planners, most other strategy and planning requirements are at lower levels.

Development and Implementation Skills demand trend



Both the ICT industry and broader groups need business analysts, the industry, however, also sees the need for systems designers and systems documenters, whereas the broader market has a diminishing need for analyst-programmers and developers, logically because of outsourcing of much of these functions..

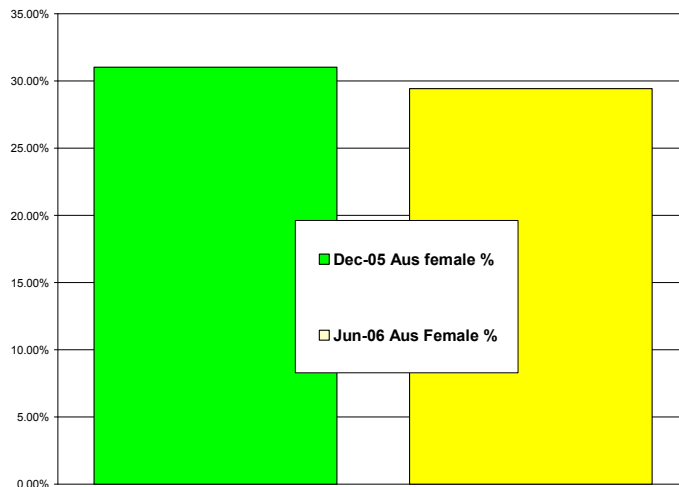
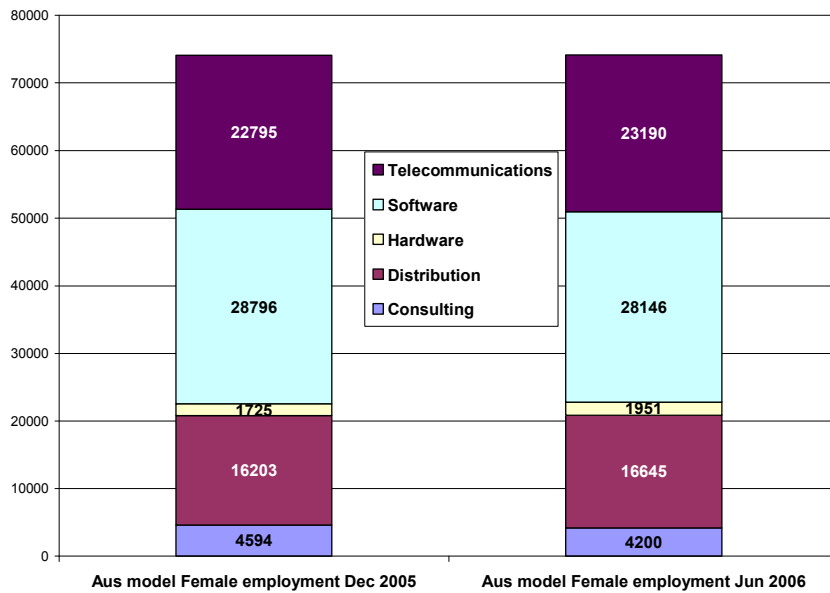


Project and programme management skills are in high demand. Whilst the ICT industry wants skilled negotiators for contract management, the user community is apparently willing to maintain their trust in their suppliers.

ICT Industry Female Employment

This model draws upon a Statistical base of 150 responding companies across all industry sectors and HO locations, employing 105,000 Australian staff between them, a 41% industry sample. Data is then modeled separately for each industry sector by State and re-aggregated to sectoral totals.

Whilst the total number of women employed in the ICT industry has grown slightly in the last six months to over 74,000, the female % of total employment has reduced slightly, to under 30%, over the same period.



ICT technical and professional female employment

In previous reports we have included significant evaluation of female ICT industry employment. The analysis has created two related questions,

a: How many women are there in the total IT workforce

b: how many ICT technical and professional women are there in the IT industry.

A number of commentators have suggested recently that the rate of employment of ICT technical and professional females is declining, based, in the main on falling ICT course enrolments by women. We charted this decline, and its outcomes, in our Skills Snapshot report last year.

The first question " How many women are there in the total IT workforce', is complicated by the decision on who you include in the IT work-force, as the inclusions and exclusions impact significantly upon the female %.

For example if you include call-centres then female participation goes up, if you include electronics then it goes down.

DEWR data from March 2006 on the size of the total ICT specific workforce, indicates the following (all numbers in thousands), adding to 386,000.

26.1	Electrical and Electronics Engineers
7.0	Electrical Engineering Associate Professionals
13.8	Electronic Engineering Associate Professionals
1.2	Electronic Instrument Tradespersons
29.9	Electronic and Office Equipment Tradespersons
1.6	Desktop Publishing Operators
51.0	Keyboard Operators
17.5	Other Business and Information Professionals
37.2	Computing Support Technicians
20.4	Communications Tradespersons
2.3	Electrical and Telecommunications Trades Assistants
37.0	Information Technology Managers
140.8	Computing Professionals

This total, however, leaves out a further 116,000 workers in ICT peripheral occupations, of the total Australian ICT related Work-force of around 502,000 illustrated in the CIIER model.

A more restricted data set from ABS, covering specific ICT technical and professional employment and including :

Information Technology Managers	Computing Professionals
Electronic Engineering Associate Professionals	Computing Support Technicians
Communications Tradespersons	Electronics Engineers

had May 2005 data of 232,600 males, 51,700 females, adding to 284,300 FTE.

This is only 18.2% female participation, and, according to ABS, there appears to have been no significant variations in this percentage since August 02.

On question b., "female employment in the ICT industry", we can be a lot more accurate.

ABS in their latest report on the ICT industry 2002-3 (ABS 8126.0 Sep 2004) had an ICT industry of 235,696, of which 32.3% were female.

The female % of "ICT employees", (i.e. technical and professional staff), was given in the same report as 24.1%, indicating that a higher percentage of admin and other non-professional staff are female.

Our own analysis suggests that the ABS overall percentage of 32.3% may have been a little overstated, possibly through the inclusion in the ABS data of some non-ICT call centres with a very significant female presence.

As of Dec 2005 we estimated, based upon a sample size of 46% of total Australian ICT employment (larger than the ABS sample) 74,000 women in an Australia ICT industry of 250,500, (29.54%), and we believe this to be slightly understated, as empirical evidence suggests that smaller firms tend to employ a slightly higher percentage of females, and a higher proportion of "sole traders" may be female.

Industry sectors within this sample also vary in their female percentages, with hardware manufacture the lowest at 21%, and Telcos the highest at 32% total female work-force.

Our June 2006 data above, from a slightly larger sample, confirms these overall numbers, with some slight State and industry sectoral variations.

The conclusion therefore is that the ICT industry has a better track record on female employment than many other industries, with around 30% overall female staff.

More importantly for female ICT professional development, the ICT industry, according to ABS data, employs around 24% female technical and professional staff, with higher percentages in software and consulting sectors. (This analysis, however, does not seem to include Communications technical staff as an ICT technical and professional skill).

Other ICT technical and professional employers, in Finance, Government, Manufacture and other industries, employ around 100,000 ICT technical and professional staff between them. By a process of reduction it can therefore be calculated that around 15% of these employees are female.

Based upon the evidence above:

- the level of female participation in the ICT technical and professional work-force is higher in the ICT industry than it is in other industries that employ ICT professionals (Govt, finance, manufacture, education etc)
- This suggests that bias against women is lower in the ICT industry than it is in other industries.
- Whilst fluctuating slightly, ICT industry data and ABS data does not show any significant decline in female participation over the last three years.
- our recent national data shows a flat position in real terms, with a very slight decrease in national % terms., but with some States, however, with lifted both real and % female participation in the last six months.
- ICT University course enrolments by women do show a decline, which will inevitably translate into the work-force over time.
- some of this decline may, however, be offset by increased female enrolments in TAFE and other training.

ICT Industry Demography

Company Numbers and Sizing

We have been asked a number of times for an update on company numbers by various criteria, the main one being company size.

We have always had some reservations about the relevance of this measure, as overall employment is, in many cases, a far more effective measure of economic growth than the number of companies amongst which that employment is distributed.

It should also be noted that arbitrary allocation of companies to sizing criteria based purely upon staff numbers can be misleading in terms of economic significance, as different industry sectors have differing paradigms, e.g. distribution companies may, with relatively few staff, command significant revenues, whereas software and services companies have a much larger staff load to an equivalent revenue.

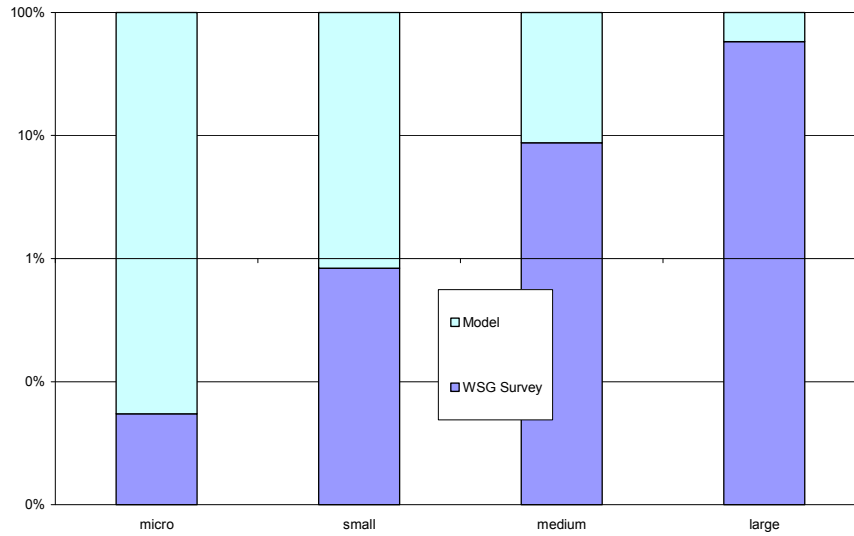
The ratio between staff and revenue can also indicate changes in the operations of sectors, e.g. telecommunications has gradually changed over the last ten years from a relatively high employment to revenue position, to a more "commoditised" ratio, similar to that for wholesale distribution companies.

Nevertheless, the information is still frequently requested, so, after discussion with ABS, and with the following caveats, we have updated the "company numbers" model for this report.

Caveats

1. Models presume that the ABS 8126-0 2002-3 Sizing model is sufficiently accurate to use as a paradigm
2. These are modelled statistical calculations, based upon ABS paradigms and changes in employment by sector, not specifically identified companies, however the "large" data modelling has been tested against actual company data in the WSG database for verification purposes.

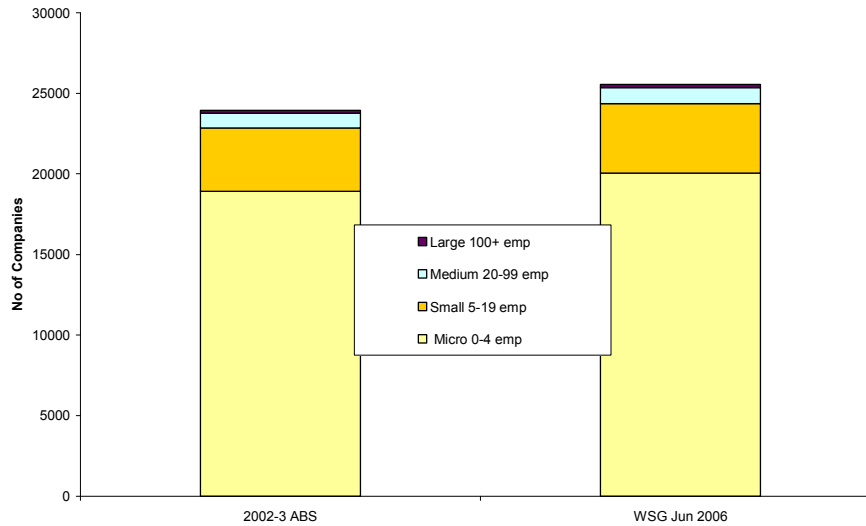
Whitehorse/CIER model and Survey penetration June 2006



The chart above indicates the ratio of "survey" to "model" data. The survey is always higher rated for larger companies, but this is factored out in the Model.

Centre for Innovative Industry Economic Research Inc.

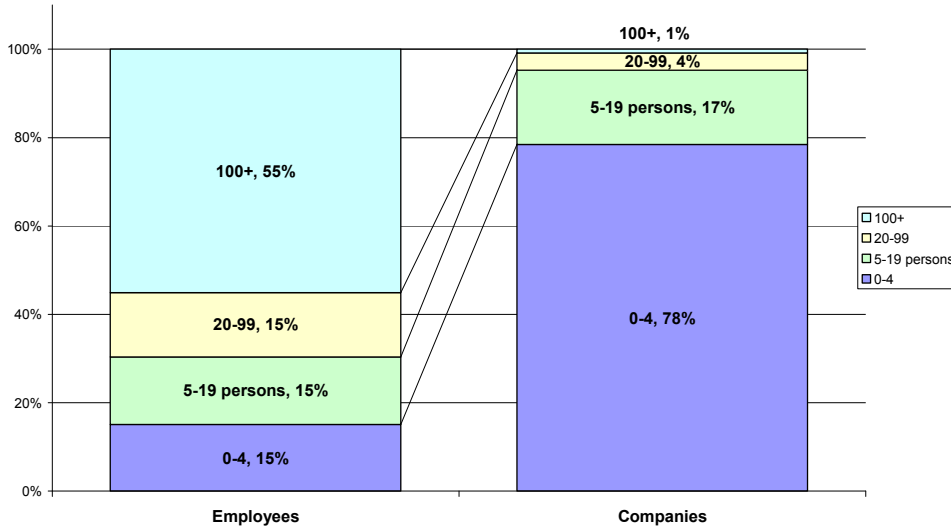
Australian ICT Industry Companies by size



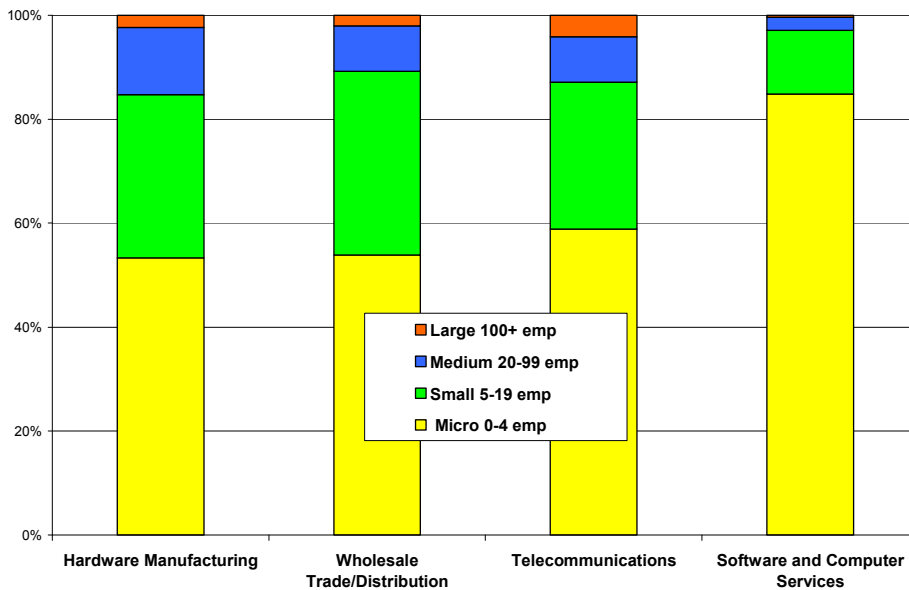
This chart shows the data for the whole of Australia, distributing over 25,000 companies. Only 200 companies, only 0.8%, can be classified as "large" in this measure i.e. over 100 employees. It is noteworthy that in other sizing measures, often used by Governments, companies with less than 200 staff are still considered to be SME's.

Companies	Total	Micro 0-4 emp	Small 5-19 emp	Medium 20-99 emp	Large 100+ emp
Australia Model					
2002-3 ABS	23951	18924	3928	911	188
WSG Jun 2006	25562	20052	4303	998	208

Australian ICT Industry - ratio of company size to employment



The impact of this sizing is shown here, with 78% of ICT companies with 4 or less staff employing less than 15% of the ICT industry work-force, and less than 1% of all companies with over 100 staff employing nearly 55% of the total ICT work-force.



But the sizing criteria varies considerably, depending on which industry sector is being analysed.

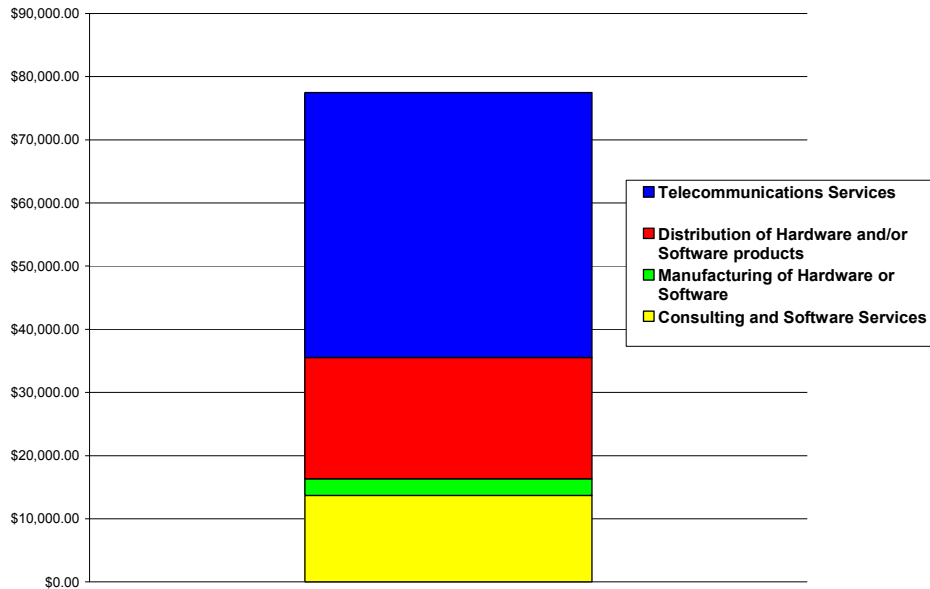
Over 96% of software and computer services firms are small to micro sized.

Distribution companies, on the other hand, only have just over around 50% "micro" sized.

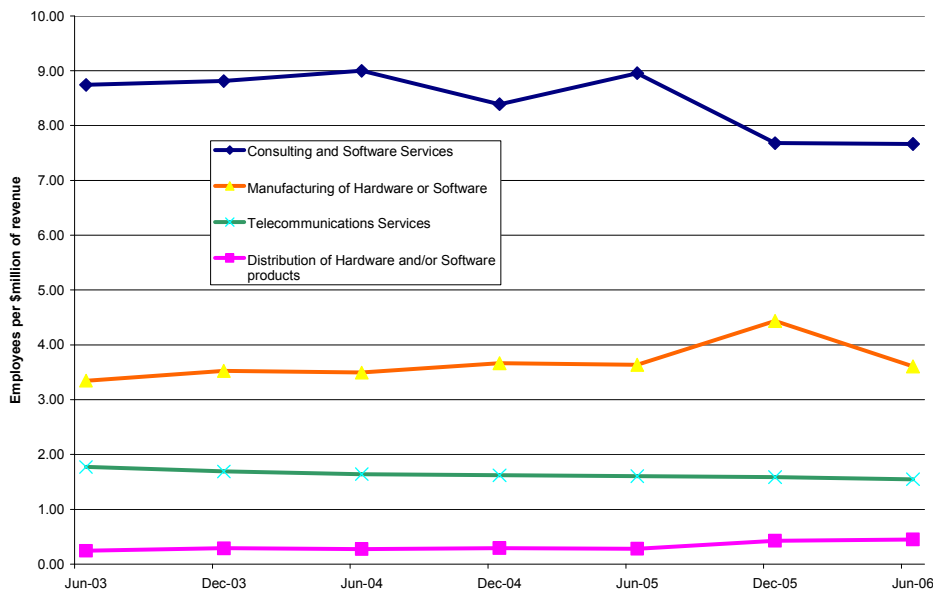
Telecommunications companies also include a large number of small players, illustrating the more fragmented nature of this industry sector compared to earlier years.

The ICT industry is, truly, a small business industry in Australia, with a very limited number of companies having the critical mass for international growth.. Policies and programmes for ICT industry development need to recognise this reality, and be focussed to an industry paradigm that is capable of response.

ICT Industry revenue

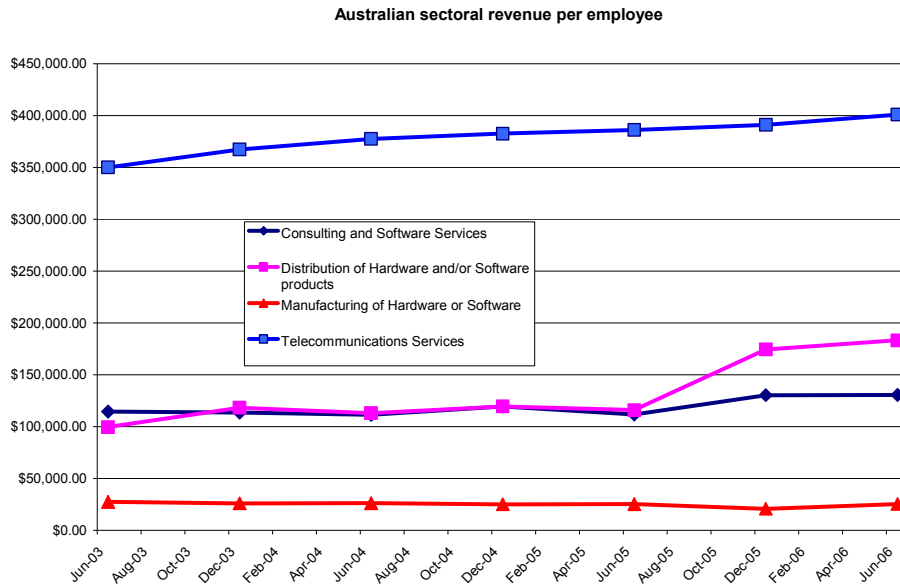


Australian ICT industry revenue grew again in the last six months to over \$Billion 77.

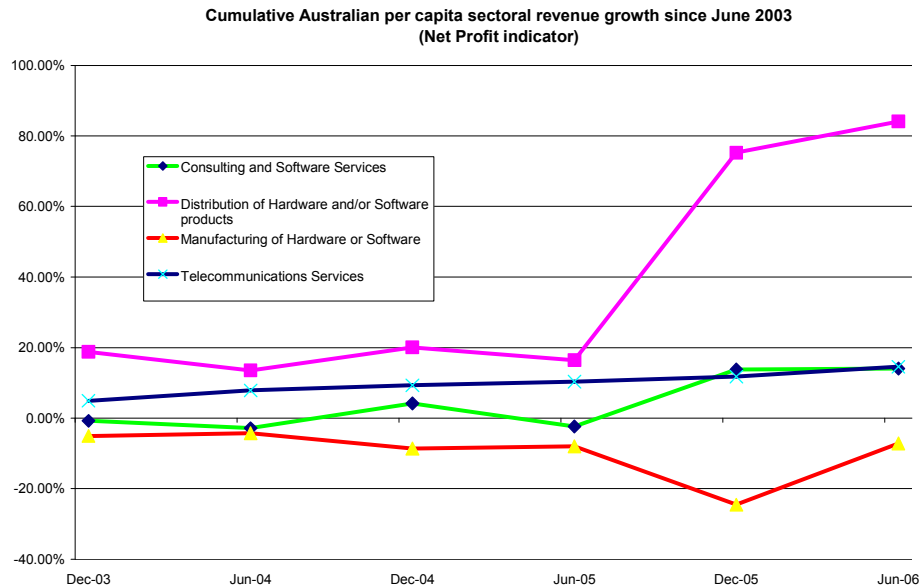


However, the growth in ICT industry revenue was accompanied by a fall in the number of staff employed per \$million earned, most noticeably in the manufacturing sector, and continuation of the same trend in telecommunications and in consulting and software services.

This can indicate either higher profitability, based upon higher productivity levels, or continued employment restructure.

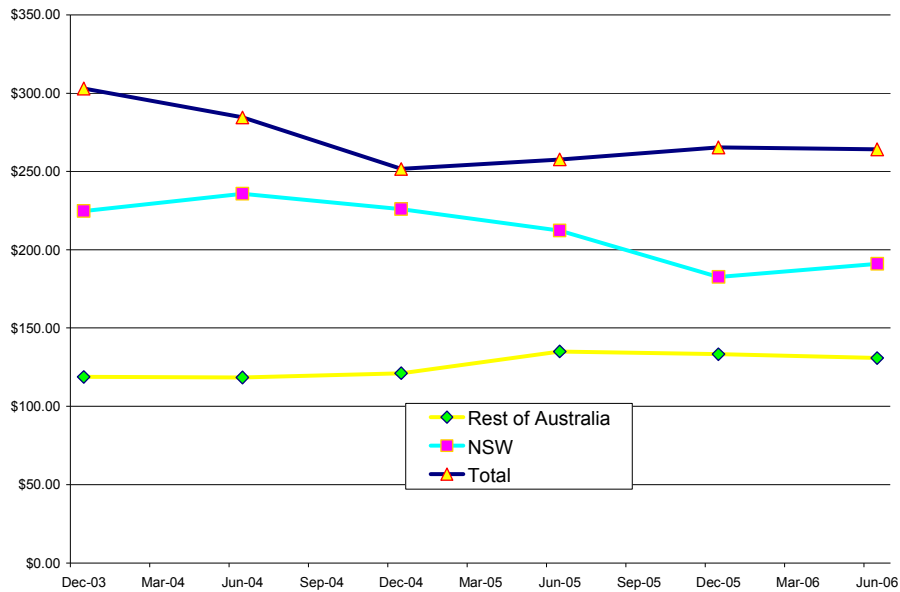


Looked at the other way round, as revenue per employee, telecommunications companies continue to improve profitability at the expense of employment, with significant lifts in distribution revenue per employee in recent periods.



The cumulative percentile impact of these changes since June 2003 shows that the greatest changes have occurred in distribution companies (importers and wholesalers), whilst manufacturing has continued to decline.

ICT Industry research and development



After an extended period of decline to 2004, national ICT industry R&D has flattened, but with a counter-trend lift in NSW, driven perhaps by the concentration on NICTA in that State.

R&D by industry sector

R&D in consulting and software and services has lifted in the last period, after declining since December 2003.

R&D has lifted in the distribution sector, but is far lower than historically in telecommunications, however R&D in the telecommunications sector has lifted slightly in the last six months.

R&D per capita has declined to a national average of only \$4,300.

Industry Sector	National annual R&D per capita
Consulting	\$2,094.68
Distribution	\$4,056.94
Hardware	\$11,213.57
Software	\$5,370.16
Telecommunications	\$3,204.46
Total	\$4,281.77

ICT Industry Development

Alliances, Barriers, Grants and support

There have been few changes in this data since December 2005. For further information contact us at <mailto:admin@whitehorsestrategic.com>.

Markets, Exports

Both of these analyses were dealt with extensively in December 2005. For further information contact us at <mailto:admin@whitehorsestrategic.com>.