



**Industry &  
Investment**

# **Centre for Innovative Industry Economic Research Inc.**

## **The Whitehorse State Summary Report for New South Wales**

ICT Industry Survey and Analysis

**January 2010**

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## **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. CIIER produces the *'Top 250' ICT Industry Research Report*, widely recognised as the leading creditable indicator of trends in the Australian ICT industry, and conducts detailed analysis and reporting on Information Technology, and Reports on other high technology industries.

## **About Whitehorse Strategic Group Ltd.**

Whitehorse Strategic Group Ltd. is an Australian owned management consulting practice. Whitehorse provides the analysis for this publication. Whitehorse specialise in the areas of ICT Market Research and analysis, ICT policy and strategy, especially in the Government sector, Business Process Management, and Economic Development.

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## Executive Summary

This report was developed in response to a specific request from the NSW Government for a brief State Summary of current ICT Industry statistical data and analysis, trends in such data, and some limited comparatives to national data and to other States.

The scope and content of this report is limited by its terms of reference and it is drawn from existing data held by CIIER to 31/12/2009 derived from national surveys and analysis conducted regularly between July 1998 and December 2009, together with supporting data from other reputable sources. Further analysis of this, and other, data could be undertaken if required.

## Statistical Panel

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<b>NSW ICT</b>	<b>December 2009</b>	<b>Trend</b>
<i>Total ICT workers</i>	<b>193,000 (Feb 2009)</b>	Continued long-term growth
<i>Employees in ICT Industry</i>	<b>115,357</b>	Marginally lower than Dec 2008
<i>ICT Revenue of ICT Industry</i>	<b>\$33 Billion</b>	Held to Dec 2008 level
<i>R&amp;D of ICT Industry (T250 only)</i>	<b>\$181 Million</b>	Slight increase from Dec 2007

## Survey and Analysis Process

The primary mechanism that is used to provide the data for this and other similar reports is a detailed series of surveys of ICT companies in Australia, known as the 'Whitehorse Top 250'. The methodology employed includes a questionnaire 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 11 years on now over 790 operating companies with 137,000 staff, \$79 billion in revenue and over \$600 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 Oct-December 2009, represents approximately 49% of total current industry employment and 92% of total current industry revenues in the ICT industry in Australia. For NSW data, 429 companies with either HQ in NSW or with NSW staff were included in the database. Of these companies, 194 provided staffing data for NSW on 60,685 aggregate staff during the 2009 data gathering period.

From this data, a series of industry models are developed in a consistent and statistically verified structure. These models allow for the statistically accurate estimation of National and State industry sectoral totals for a number of measures, and for comparison and trend analysis to be performed. Further information on the database and model, and its verification, are contained at the end of this report. In this report, unless specifically indicated in the chart title or in footnotes, all charts are CIIER data, indicated by our logo. This data is sourced from the regular T250 surveys, our database, and associated industry modelling.

## ICT and the NSW economy

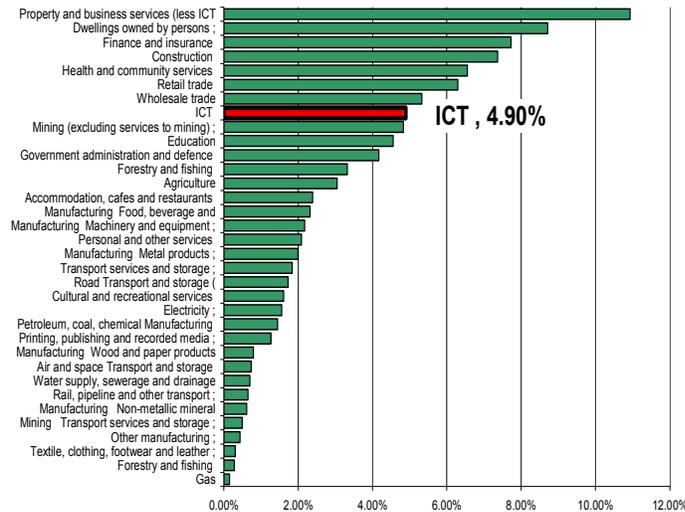
It is well recognised that the ICT industry in Australia is a key productivity enabler for other industries, but direct ICT employment, both in total and relative to other industries, shows that the ICT industry is also a major employer.

ICT accounts for 4.9% of economic contribution (GVA), more than many other Australian industry sectors, including Mining; Electricity, Gas and Water supply; Banking and Finance; and TV, Radio, Media<sup>1</sup>.

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### Industry sector contributions to the Australian Economy 2006 (Gross Value Add),

Source : ABS 52060, ABS 5259.0, CIIER)



<sup>1</sup> ABS ICT satellite report 2006

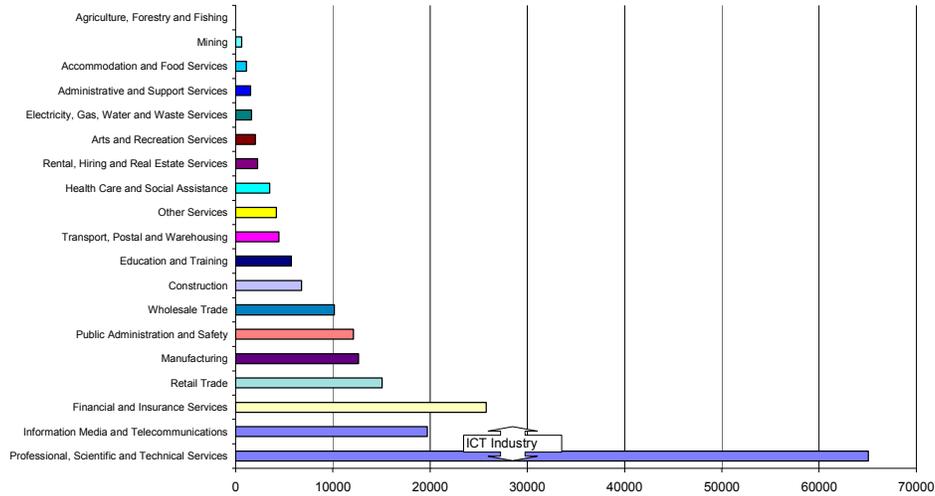
## NSW Employment Analysis

### NSW ICT Technical and professional Employment

In February 2009, according to ABS, NSW had 193,000 people working in ICT technical and professional jobs<sup>2</sup>, more than any other State and 38 % of the national total. At that time, more than 44% of these people worked in the NSW ICT industry, alongside a further 35,000 staff providing administrative, sales, and logistical support.

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193,000 ICT Workers by Industry sector in NSW February 2009  
Source ABS analysed by CIER



<sup>2</sup> ABS/DEEWR/CIER data Aug – Nov 2009

## NSW ICT Industry – ABS data

In October 2008, the last time that ABS published ICT industry data, ABS estimated that, in 2006-7, the 13,000 companies then in the NSW ICT industry paid \$9 billion per annum in wages and salaries, had the majority of Australian head offices, and exported close to 58% of Australia's ICT exports.

ABS also estimated that NSW ICT companies generated \$52 billion of total revenue from all sources<sup>3</sup>. ABS noted nationally, that revenue from ICT goods and services represented approximately 79% of this total revenue, (This would calculate to \$41 billion if applied to NSW), but ABS did not calculate State equivalents for ICT revenue for this period in their released data.

It is also worthwhile noting that ABS included \$1.2 billion national revenue from electronic maintenance services in this figure, contrary to their previous reports, and it should be noted that a number of overseas companies record all of their Australian revenue at their head office location in ABS returns, making State by State comparatives more difficult to calculate by this method, and liable, in the NSW case, to overstatement.

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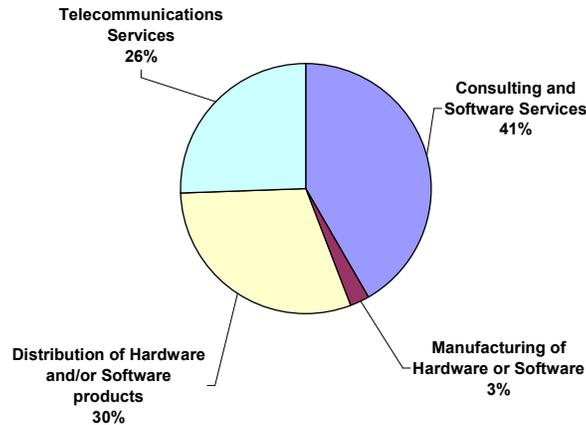
<sup>3</sup> ABS 8126.0 2006-7

## NSW ICT Industry Structure

NSW has an industry structure broadly correlating to Australia as a whole. NSW has, however, a significantly higher proportion of distribution employment (30% of the industry rather than the 25% national average).

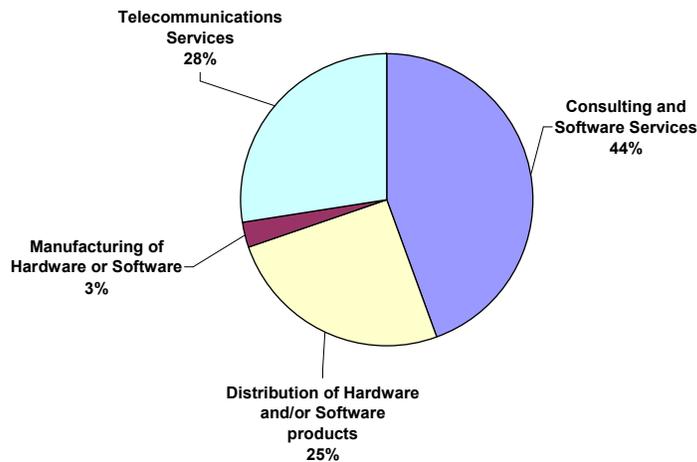
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NSW ICT Industry Employment by Industry sub-sector Dec-09  
Source CIER-Whitehorse Top250 Survey and Industry Model



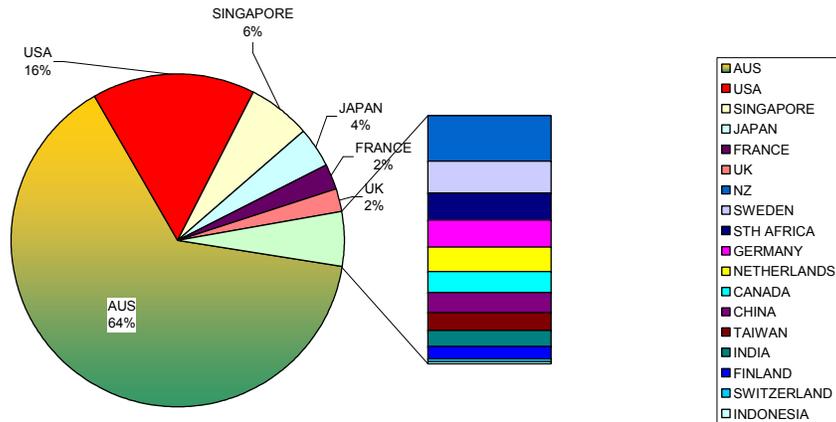
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Australian ICT Industry Employment by Industry sub-sector Dec 2009  
Source CIER-Whitehorse Top250 Survey and Industry Model



This difference in ICT industry employment structure between NSW and other States reflects the differing “ownership” structure, with NSW also having higher proportions than other States of overseas owned companies and of international headquarters.

NSW ICT Industry by employment %



Despite this variance, over 64% of ICT employment in NSW is in Australian owned companies.

Whilst a significant number of countries are represented in the NSW ICT industry, US owned companies only employ approximately 16% of NSW ICT industry employees, (whilst gaining nearly 28% of NSW ICT revenue), with Singapore and Japan as the next largest national employment groups. Indian and Chinese companies employ relatively few people in NSW, with Indian companies, in particular, focussing their attention on Victoria.

## ICT industry exports

New South Wales dominates ICT equipment exports and imports – with NSW both the largest exporter and importer of ICT and related equipment.

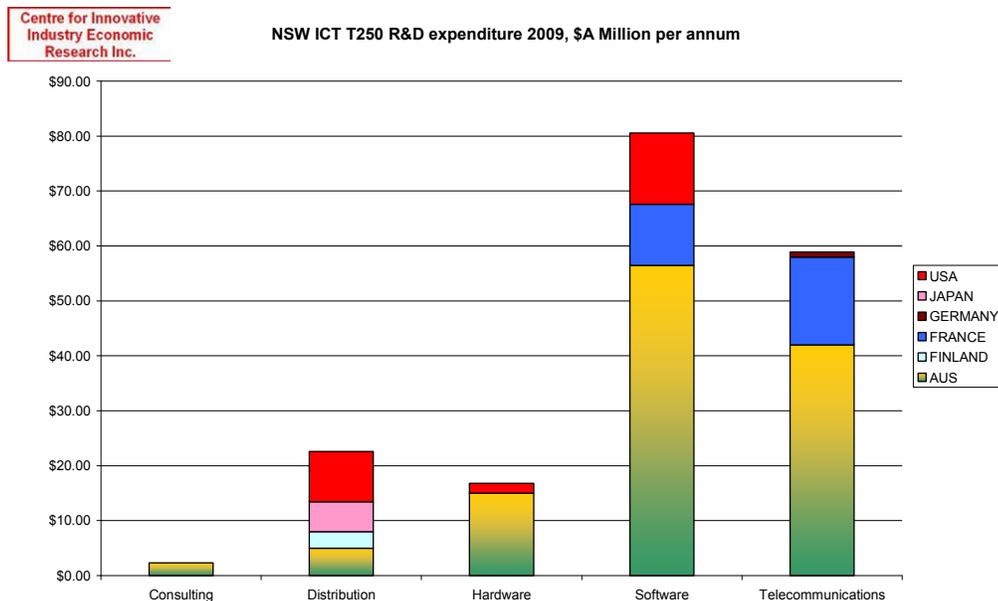
NSW attracted no less than 66% of all ICT equipment imports during 2006-7 –almost \$1 billion worth were re-exported, with Sydney acting as a regional distribution hub.

NSW also accounted for 57% of Australia’s State-attributed ICT services exports and 69% of ICT services imports<sup>4</sup>.

During 2006-7, NSW also exported \$674 million worth of domestically produced ICT equipment.

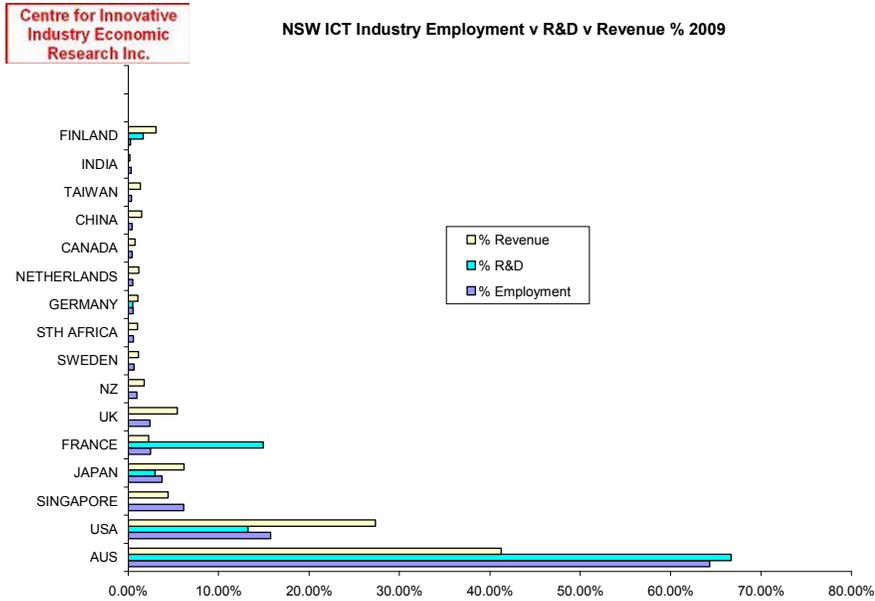
## ICT Industry research and development

Just over \$181 million annual R&D expenditure was reported by over 50 responding companies from all ICT industry sectors in NSW.

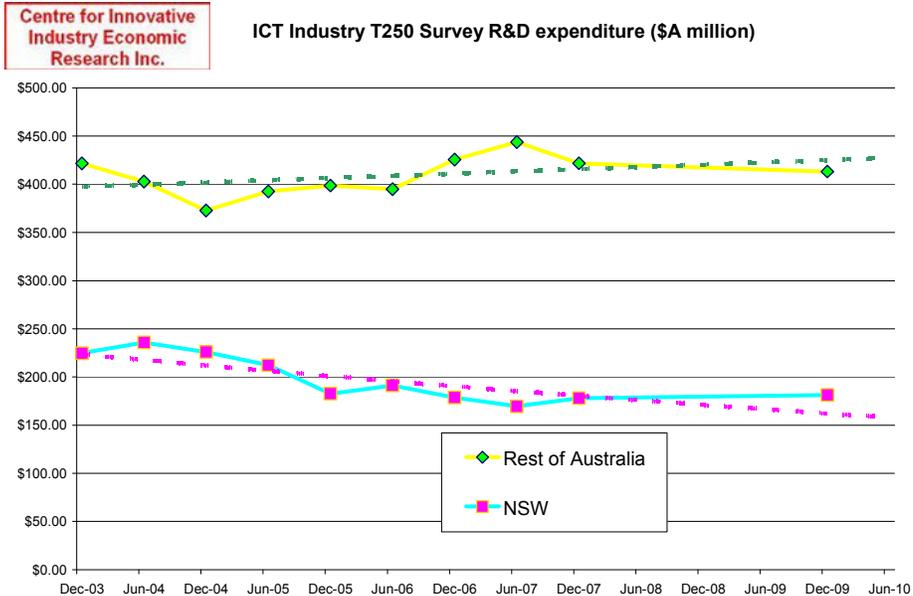


Over \$80 million annual R&D expenditure was reported by software and services companies, predominately by Australian owned entities.

<sup>4</sup> CSES tradedata 2008



This chart indicates what proportion of total ICT employment, revenue and research expenditure was generated by companies headquartered in particular countries, including, of course, those headquartered in Australia. Whilst R&D proportion is close to employment proportion for most countries, Australian, French and Finnish owned entities contribute a higher proportion of R&D expenditure in NSW. Companies from very few other countries show R&D contributions that approach the amount of revenue they gain from NSW operations. Whilst individual companies may show different responses, in aggregate, US owned companies display the greatest levels of variance between high levels of revenue, compared to their R&D and employment percentages.

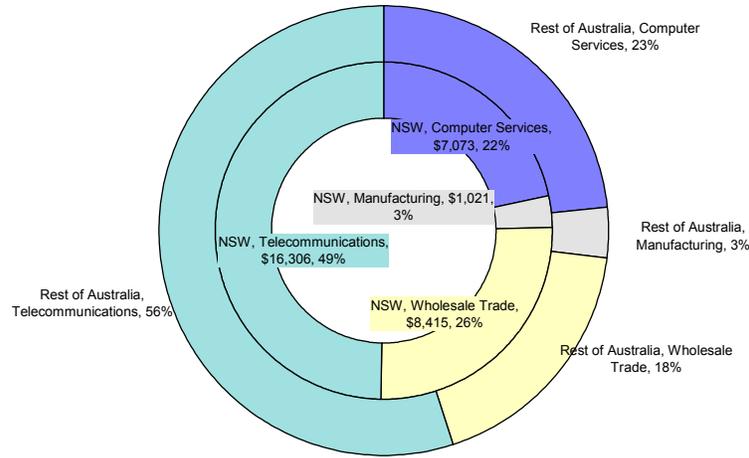


The strong presence of NICTA in NSW may now have started to translate into a small counter-trend lift in ICT Industry R&D spend, indicated by aggregated actual data from T250 respondents (this data is un-modelled), which shows a small rise in the 2007 survey, maintained in 2009. NSW ICT R&D has however declined since 2003, especially compared to the rest of Australia, which has shown some increases in R&D expenditure during the same period.

## ICT Industry revenue

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NSW Revenue (\$A million) by industry sector and relative NSW and Rest of Australia sectoral percentages Dec 2009



NSW has a far higher proportion of its ICT industry revenue from wholesale trade and distribution than the rest of Australia, reflecting higher proportions of overseas owned companies and headquarters in its demography. Despite this, the proportion of revenue derived from software and services is similar to the rest of Australia, diminished by relatively small concentrations of such services outside major metropolitan areas.

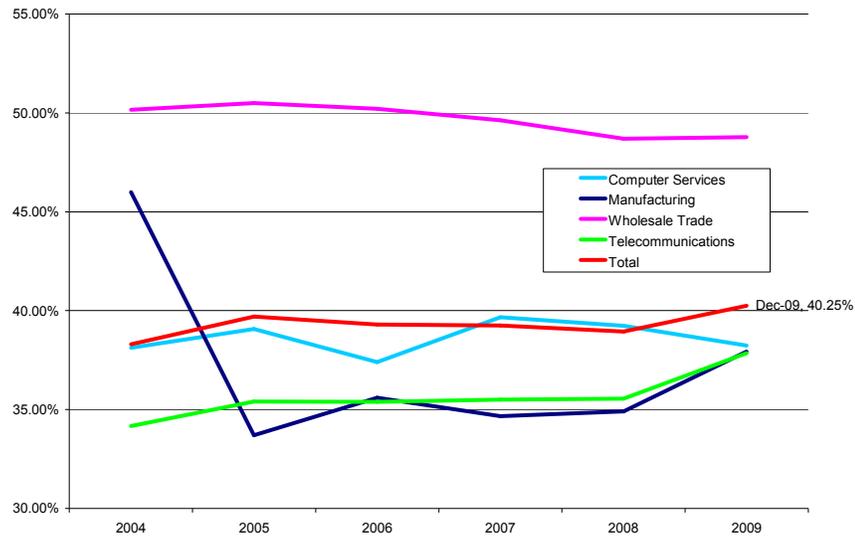
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NSW ICT Industry Revenue (\$Amillion) 2003-2009



NSW ICT Industry revenues dropped slightly in the current period compared to last year; however the general trend remains strong, and is above any previous year.

Centre for Innovative Industry Economic Research Inc. **NSW share of National ICT Industry revenues by industry sector 2004-2009**

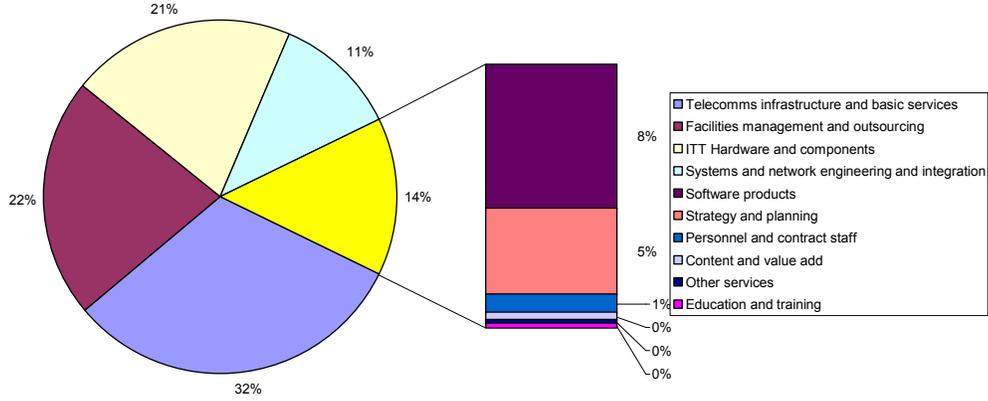


Sub-sectoral data prior to 2004 was based upon earlier pre-GST paradigms, so is not indicative for trend analysis purposes. The NSW share of national ICT industry revenues has risen over the last year to above 40%, despite declines in the State proportion of computer services revenue. Much of this rise was driven by greater levels of telecommunications revenue.

## ICT Industry Markets

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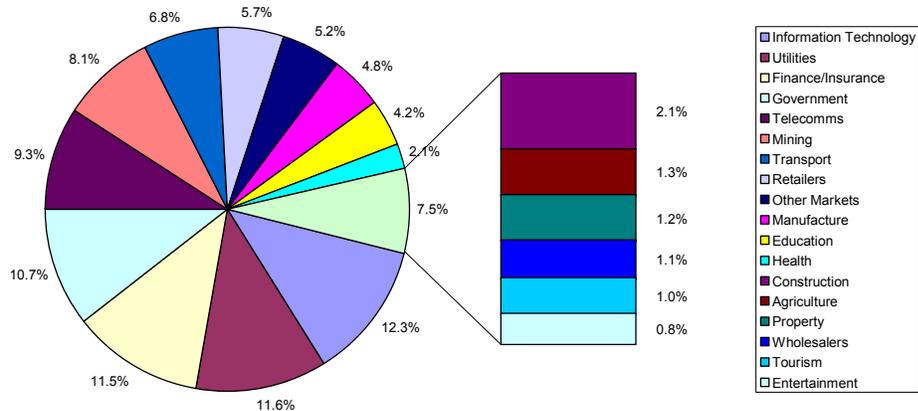
NSW ICT Products and services by level of personnel 2009



ICT products and services offered in NSW are broadly consistent with the national structure, when analysed by the % of personnel allocated. After telecommunications services, the major product/service offering is facilities management/outsourcing, marginally greater than ICT hardware/components. Systems and network engineering combined with software products (as these are often alternatives), are slightly lower, with the balance made up of a broad range of other products and services.

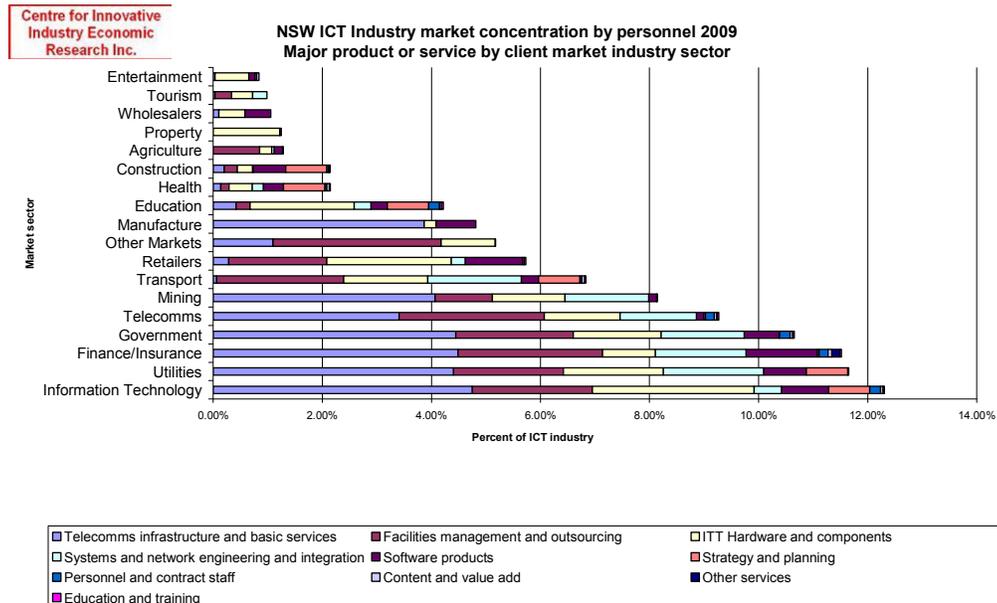
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NSW ICT market by target market sector



The industry sectors targeted by NSW ICT companies cover all major sectors; however the largest component is the ICT industry marketing to itself. This is not unusual, as a very significant amount of subcontracting exists in the industry, especially when the end-client is

Government, with two or even three levels of sub-contracting not uncommon. Utilities, Finance, and Government are the next three largest target market sectors.



This combination analysis allocates products and services to each of the target market sectors, based upon the percentage of personnel employed in the ICT industry companies which are offering these products or services and selecting these industry sectors as their key target markets.

The data provides some evidence of the significance of these industry sectors to the NSW ICT industry, and evidence of the ICT industry employment significance of various products and services.

There are some differences in market focus between local and international companies, which could be further analysed.

## What about the Recession?

Last time there was a major downturn in the US economy, the Australian ICT industry employment also contracted, although not means as severely as the US ICT industry did. The question must therefore arise as to whether this has happened again

This analysis, however, does not take into account the potential longer term impact on Australian owned companies that operate extensively in the US market, or the potential impact of a US based recession further infecting Europe and Asia, and thus impacting upon their companies in Australia. As a general rule, when companies contract, they start pruning with the “outer branches”, and this, almost invariably, includes Australia. NSW, with the highest proportion of foreign ownership of its ICT industry of all of the States, suffered most from this effect in the “dot.bomb” downturn in 2002-3, and would be likely to be the most affected State in Australia in any repeat of this scenario.

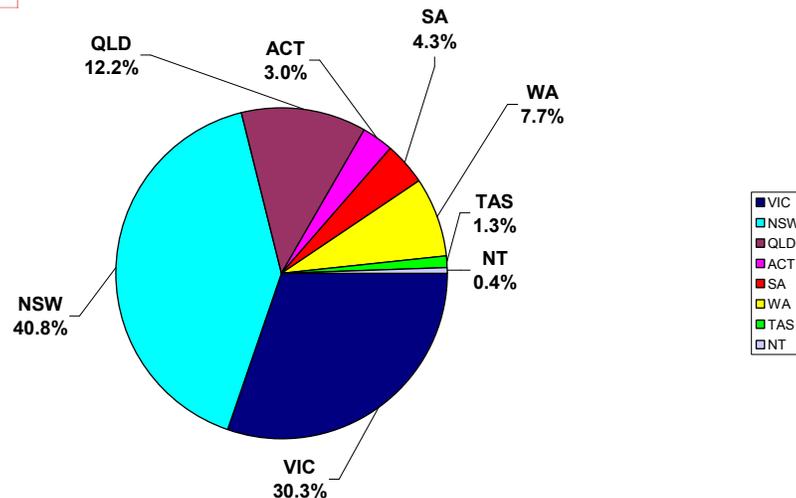
On the evidence of current data, however, other than for non US owned companies; a downturn in ICT industry employment has not happened to any significant degree to date.

## Changing demography of the ICT Industry

Nationally, the demographic profile of the Australian ICT industry has continued to change over the last few years. As the main smaller states have increased their relative percentages, the larger states (Victoria and New South Wales), have less employment dominance. Most of this percentile growth took place in the mining states of Western Australia, and Queensland driven by increasing demand for ICT services in the construction and mining industries, but there has also been a more pronounced flattening in these States over the last year due to the economic downturn.

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ICT Industry Employment Percentage by State July 2009

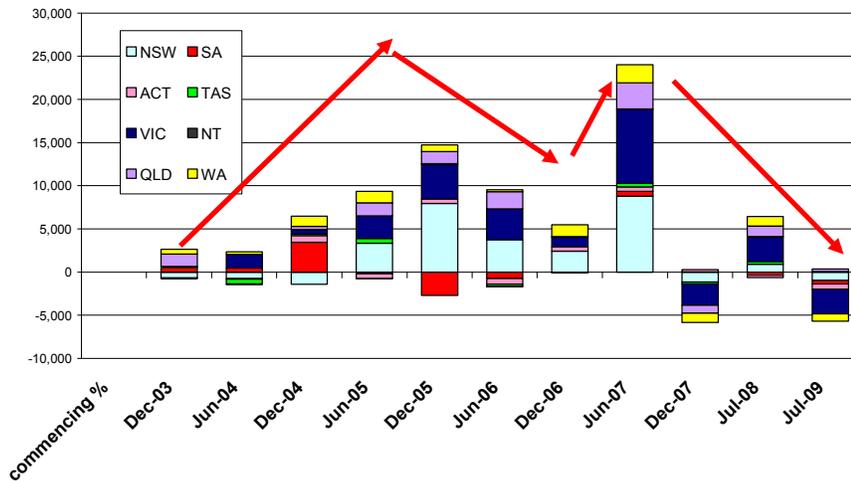


## State by State

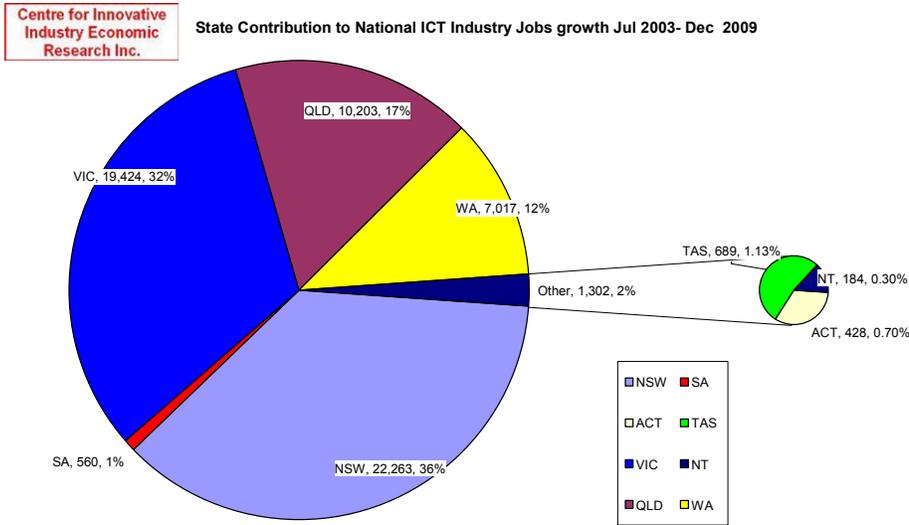
ICT industry jobs growth and volatility (pace of activity) often varies significantly between the States. Six-monthly percentile ICT industry employment growth since December 2003 has been highest in WA, Qld, and Victoria, but flat since December 2005 in ACT, whilst SA has the slowest ICT industry employment growth over this period. Actual jobs, however, have risen most in Victoria and NSW, outstripping even the "mining" States.

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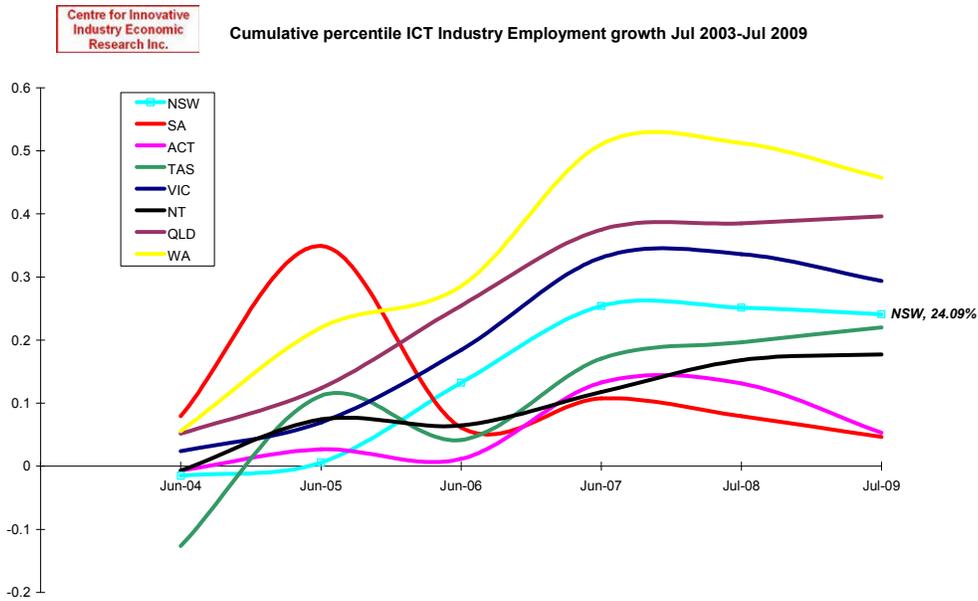
Volatility in ICT industry employment by State by period



Employment volatility in the last six months has continued in Victoria and NSW, with small net job reductions in both major States. WA, NT and Qld jobs growth has slowed, suggesting a plateau has finally been reached in mining industry driven ICT jobs growth – or they simply can't find any more people to hire! The reduction of national volatility since June 2007 has been continued, indicating a more stable, but still slowly growing, whilst fluctuating, employment environment.



The % shown above is that States contribution to national ICT industry employment growth, e.g. Queensland has contributed 17% of all national ICT industry jobs growth over the last 4.5 years. Such contribution needs to take into account the percentage of national jobs that the State concerned provides, e.g. as approximately 40.3% of all ICT industry employees are located in NSW, so a contribution to employment growth in that State that is only 33% of national growth means that the NSW has lost some “market share” since July 2003.



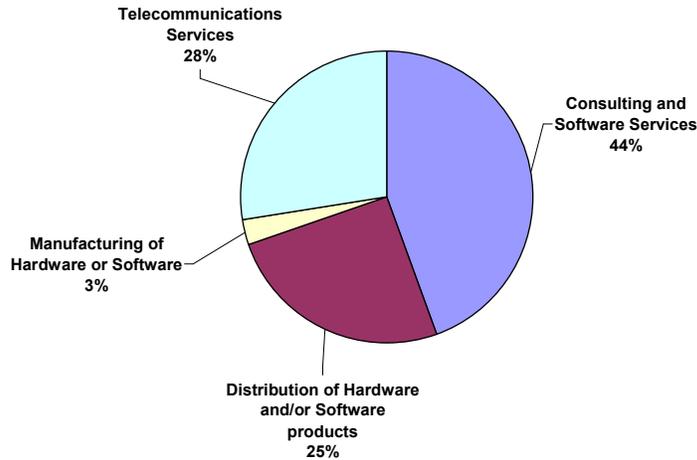
This is illustrated above, where cumulative percentage jobs growth for each State since 2003 is shown. WA, Qld, and Vic show higher cumulative percentage growth than in NSW, however recent declines in previous growth levels are now occurring in WA and Victoria.

## Changing Structure of the ICT Industry

Structural change in the ICT Industry is also occurring, This is illustrated in the charts below, where, since 2006, national employment in distribution of hardware and software products has become similar in employment size to national employment in telecommunications services, However national employment in consulting and software services remains more significant than either of the other two sectors.

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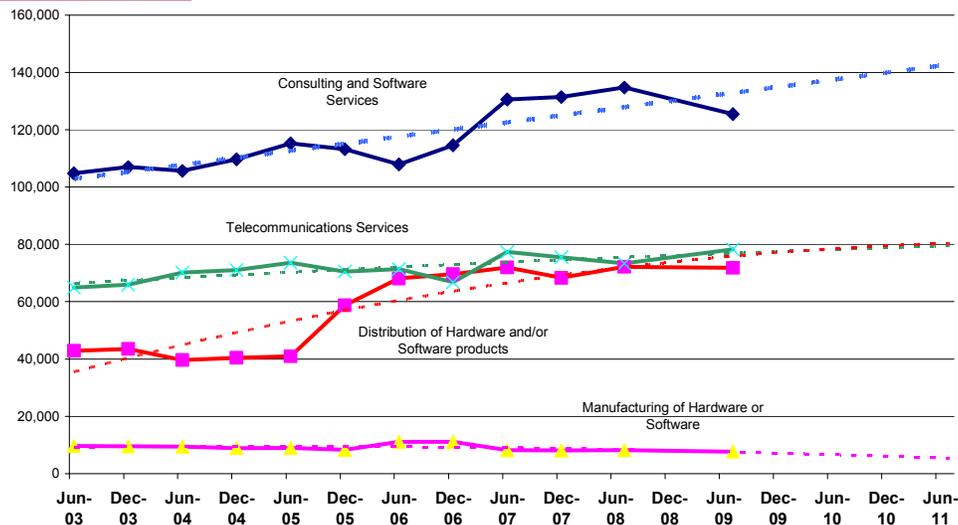
ICT Industry Employment by Industry sub-sector Jul-09  
Source CIER-Whitehorse Top250 Survey and Industry Model



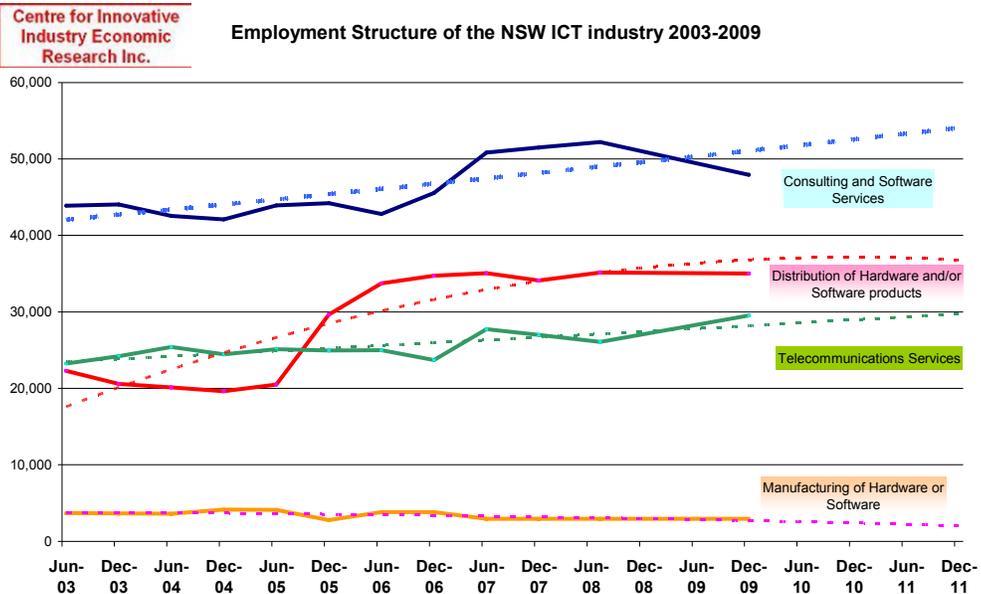
This change has been quite pronounced since 2003, and despite the dip in consulting and software services employment indicated in the July 2009 data, compared to July 2008, is, according to CIER, likely to continue.

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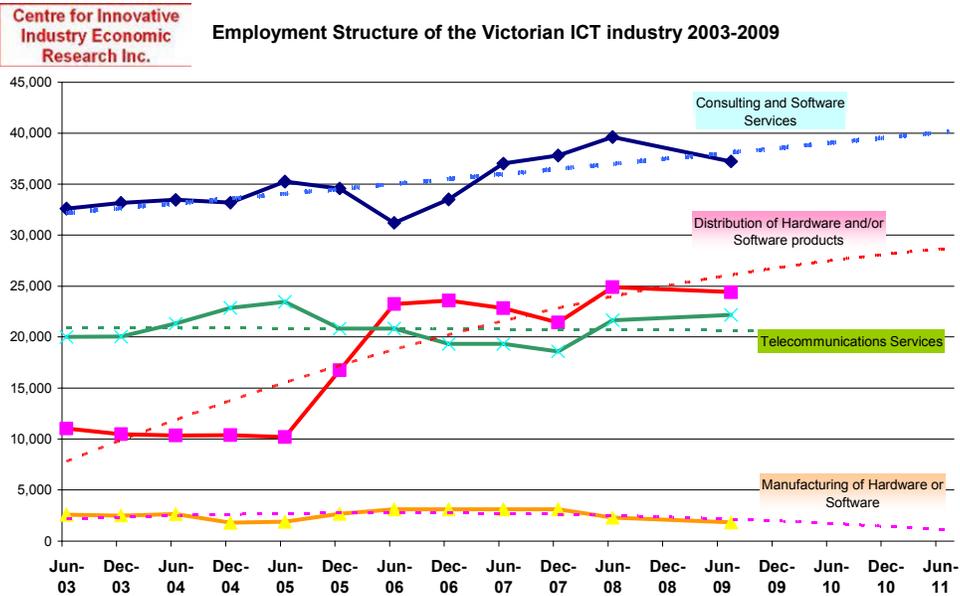
Employment Structure of the Australian ICT industry 2003-2009



NSW has shown similar trends, but with distribution employment continuing to grow, and a recent increase in telecommunications employment.



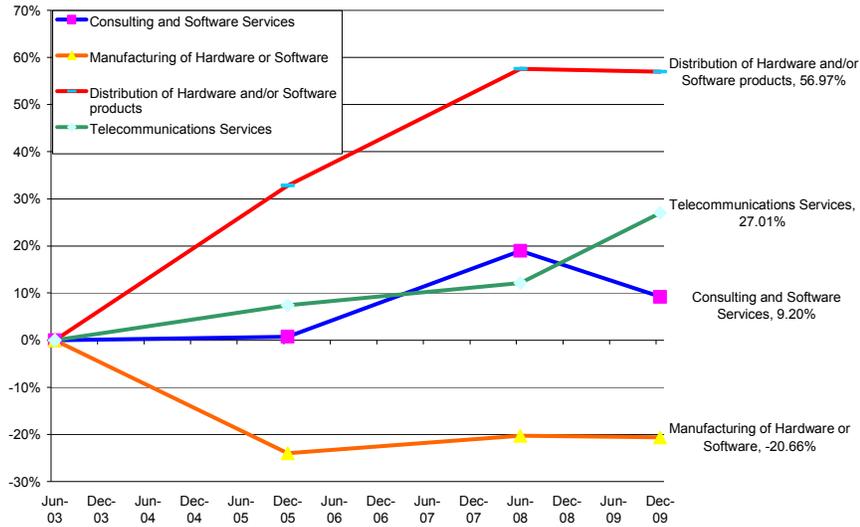
These changes not only impact upon gross employment and sectoral significance, but also on demand for particular skills in the future.



For comparison, changes in the Victorian ICT industry employment structure over the same period are shown above.

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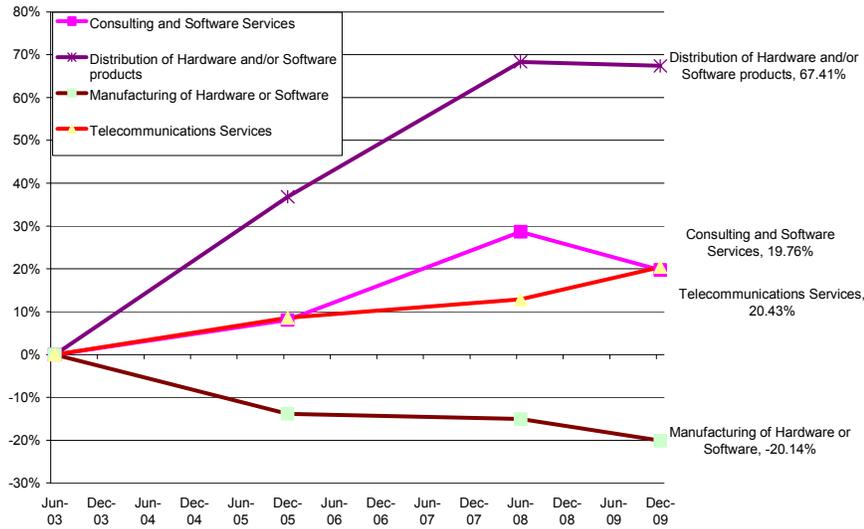
ICT Industry NSW cumulative employment growth by Industry sector since June 2003



In NSW, the primary ICT employment growth has been in the lower value-add sectors of wholesale and retail distribution, and telecommunication services, whilst the consulting and software services sector has only grown by a little over 9% since 2003, and ICT manufacturing has declined since then, although stabilised from 2005.

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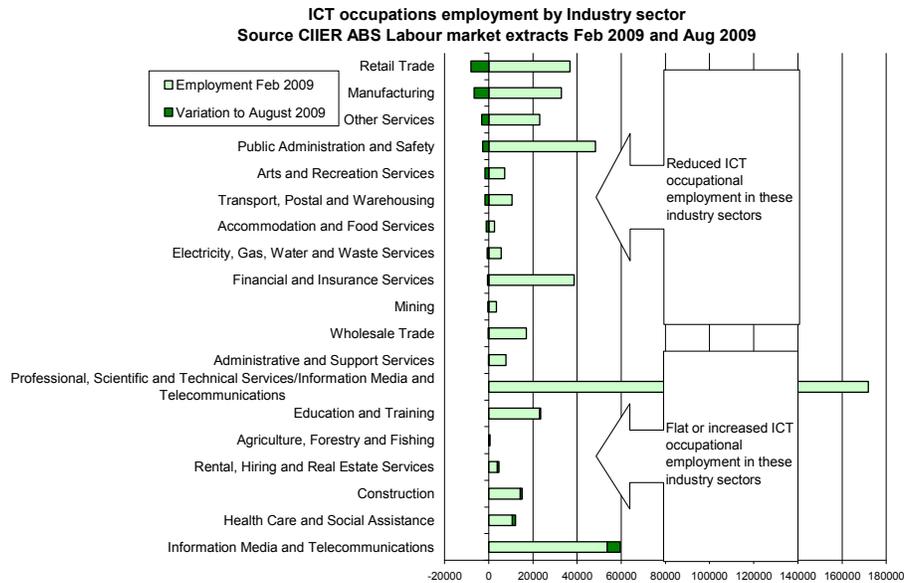
ICT Industry national cumulative employment growth by Industry sector since June 2003



Nationally, whilst distribution employment has also grown significantly, the consulting and software sectors have grown by twice that of the NSW percentage, despite a drop in the last year in cumulative growth. Accordingly it is fairly clear that the majority of national employment decline in software and services in the last year has been in NSW, probably because of higher exposure to the finance sector, the sector most affected by the GFC, in the State.

## ICT Industry Employment Skills demand

### Varying employment demand by Industry sector



Employment demand for ICT skills varies across all industry sectors, and shows considerable variation sector to sector, according to a special extract of this data provided to CIIER by the Australian Bureau of Statistics, and shown in this chart showing the February 2009 quantitative result, and the variation between February 2009 and August 2009.

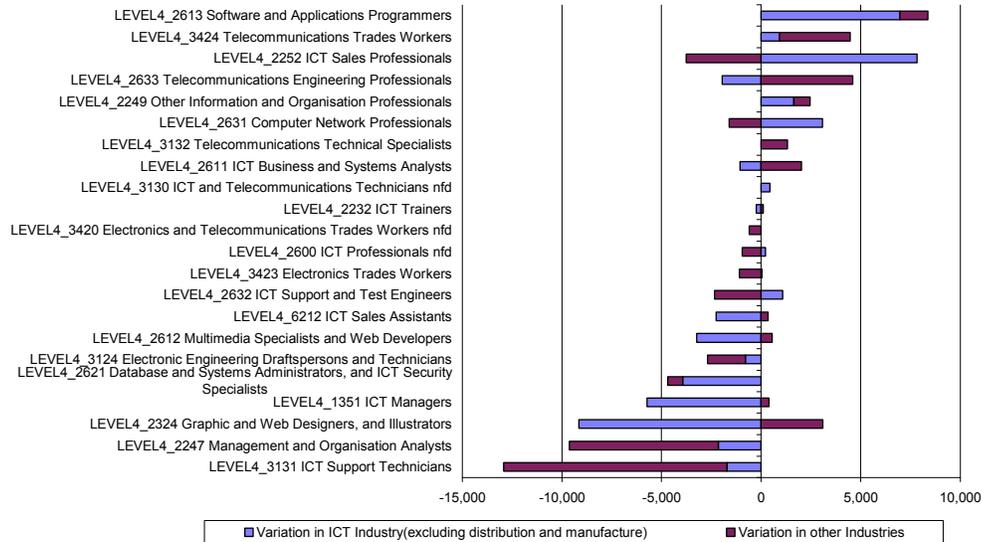
Reductions in ICT occupational employment between February 2009 and August 2009 took place in retail trade, manufacturing, and public administration (Government). However the employment “bloodbath” projected in much of the ICT media does not show up in ABS labour market data to Aug 2009, or in the CIIER Industry Survey data to December 2009, and, perhaps surprisingly, parts of the ICT industry show employment growth during this period. This is shown in both the Information media and telecommunications sector (largely Telecoms companies and ISP’s) with some growth in the period, and the combined ABS Information media and telecommunications sector, and Professional, scientific and technical services sector (largely the software and services industry sector) with a combined flat result, shown separately in the chart.

Whilst employment is a “lagging” economic indicator, so a truer picture may not emerge until later labour market data is available from ABS, the shallow nature of the economic downturn may be reflected simply in lower employment turnover, as reported by recruitment companies, rather than in systemic lower ICT employment.

## Varying Demand by occupation

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Variations in employment levels Feb 2009 to Aug 2009 by ANSCO occupation and Industry group



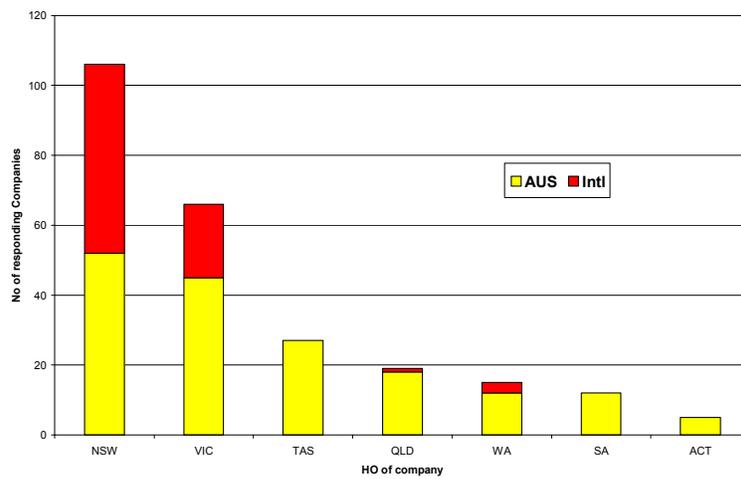
Employment levels have also varied significantly by occupation. The chart above looks at the same special CIER extract of ABS labour market data showing the quantitative employment changes between February 2009 and August 2009 in the ICT Industries, and in all other industries. The data shows that some occupations have continued to grow strongly during the economic downturn, both within the ICT industry and in all other industries, whilst other ICT occupations have contracted. Some of the contractions, such as those of lower level ICT support technicians, and of graphic and web-designers in the ICT industry, have perhaps done so as a result of continued off-shoring and cost cut-backs outside the ICT industry. Occupational growth has taken place in Software and applications programmers, ICT sales in the ICT industry but not outside (largely retail), and in Business and Systems Analysts outside the ICT industry. Interestingly, against the long-term downward trend, the number of Telecommunications trades workers has increased during this period.

## The "T250 database

- Over 1000 total company records
- Data back to 1998 – updated 6 monthly
- Detailed Employment data for over 130,000 staff - 52% 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

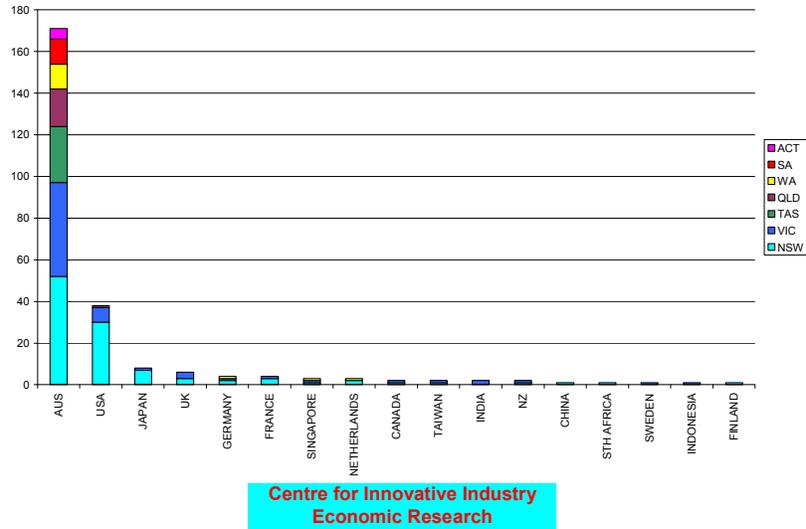


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The "mix" of local and international company data in the database, by necessity, overstates international presence, as a significant number of larger companies are internationally owned. This is statistically compensated within the model.



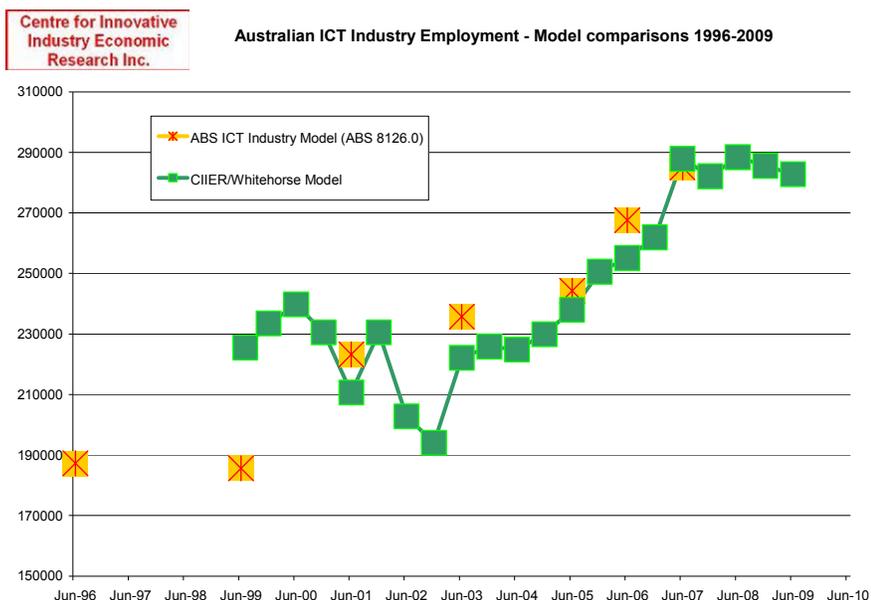
## T 250 database - Head offices



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.

## Comparison to ABS data



This chart shows ABS ICT Industry national employment estimates<sup>5</sup>, in orange, for the periods indicated compared to the equivalent CIIER-Whitehorse data in green.

It should be noted that ABS data is more intermittent, and is released between 1.5 and 2 years after the data period, whereas CIIER-Whitehorse data is normally published within 6 months of data capture, so comparatives by us are always retrospective. It should also be noted that ABS has made some variations to its inclusion and exclusion criteria at various times since 1996, and has also adjusted previous estimates retrospectively in the following release. E.g. 2001 data was released in 2003, and was then adjusted when the 2003 data was released in 2005. The chart above uses the adjusted (final) data in all cases. 2006-7 ABS data (released in October 2008) saw not only a similar variation, but a change was also made in sub-sector structure, and a new subsector (electronic maintenance and support) included for the first time, the data above has therefore been adjusted marginally to maintain like data comparatives to the 2003 structure. Sample sizes for ABS surveys for this data are greater in company numbers than the equivalent CIIER-Whitehorse survey, but ABS data samples are far smaller in total employment terms than the equivalent CIIER-Whitehorse survey.

Despite these differences, the ABS estimates, since 2001, are statistically similar, despite some timing differences, to the CIIER-Whitehorse estimates, with variations in overall national employment estimates varying between 1.5% and 3%.

CIIER State revenue estimates are based upon the State component of national industry revenue for the subsector, based upon employment percentages. This data is modified in cases where specific companies have provided detailed state incurred revenue data.

Similar comparative exercises have been conducted by CIIER and others at various times in the last ten years in respect to revenue (comparisons to both ABS and IDC), research expenditure, and job movement (IBSA and Olivier). In all cases the CIIER-Whitehorse analysis has been found to be compliant within statistical variation norms.

<sup>5</sup> ABS 8126-0

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