Attachment C

Information and Communication Technology (ICT) skills

ICT skill shortage research

DEWR undertakes a six monthly survey of ICT skill shortages, through the Department's State Offices, covering both employers and ICT recruitment agencies. Employers are interviewed by telephone using a standardised questionnaire that covers current and recent recruitment experience, and includes details of the position(s) advertised, number of applicants/suitable applicants, specialist skills being sought, and recruitment difficulties encountered. ICT recruitment agencies are also asked to rate the degree of difficulty experienced in recruiting particular specialist skills using a standard checklist.

Data obtained in the survey for each State and Territory are then collated at the national level to determine a national rating. The general rule followed is that where three or more States indicate shortage, the specialisation is considered to be in shortage nationally. However, this is a guide only. Due to the fact that New South Wales and Victoria have a high proportion of ICT employment, these States are given a greater weighting than the other States. In cases where a large number of States report a recruitment difficulty, this is taken into account. The Northern Territory was included for the first time in the October 2002 survey.

ICT skills in shortage

The survey conducted in late 1999 identified 10 specialisations in shortage nationally, but by October 2000 this had risen to 26. By the May 2002 survey this had been reduced to just five, and the latest survey in late 2002 shows four ICT skills in national shortage (SAP, Java security for e-commerce, CISSP and PeopleSoft).

Findings of the October/November 2002 ICT survey

Vacancy filling rates greater than 90 per cent were found for all States and Territories, except South Australia and the Northern Territory, where the rates were 86 and 73 per cent respectively, higher than in 1999 and 2000. The average number of suitable applicants per vacancy ranged from about five in New South Wales to 42 in Queensland.

- Large numbers of applications were typically received for advertised positions, and recruitment agencies commented that employers have become increasingly selective in a labour market characterised by a generous supply of highly skilled candidates.

Given the current subdued levels of demand for most ICT specialisations, few States and Territories found evidence of skill shortages. In some instances, specialisations previously in shortage, such as Seibel and SAP, still pose recruitment difficulties, but demand for these skills has eased.

The incidence of poaching of highly skilled staff and rates of staff turnover provide indicators of high skill demand relative to supply. Both the incidence of poaching of skilled ICT staff and rates of ICT staff turnover were found to be uniformly low across all States and Territories in the latest survey. A movement toward permanent employment and away from contract positions has also been observed over the past year.

Most States and Territories have shown increasing commencement numbers for ICT degree courses over the past five years, leading to a large supply of new and recent graduates in the ICT

disciplines. There are recent indications that enrolment growth may be slowing or reversing in South Australia, Victoria and Queensland.

Interstate movement of ICT professionals in pursuit of career development opportunities and/or improved remuneration continues to be observed, especially towards the south eastern states, although perhaps at a somewhat lower level than in previous 'boom' periods. New South Wales, Queensland and Victoria have all received a substantial complement of ICT professionals amongst recent immigrants, although future numbers are expected to decline due to lower demand for ICT skills in Australia and reductions in the MODL for ICT specialisations.

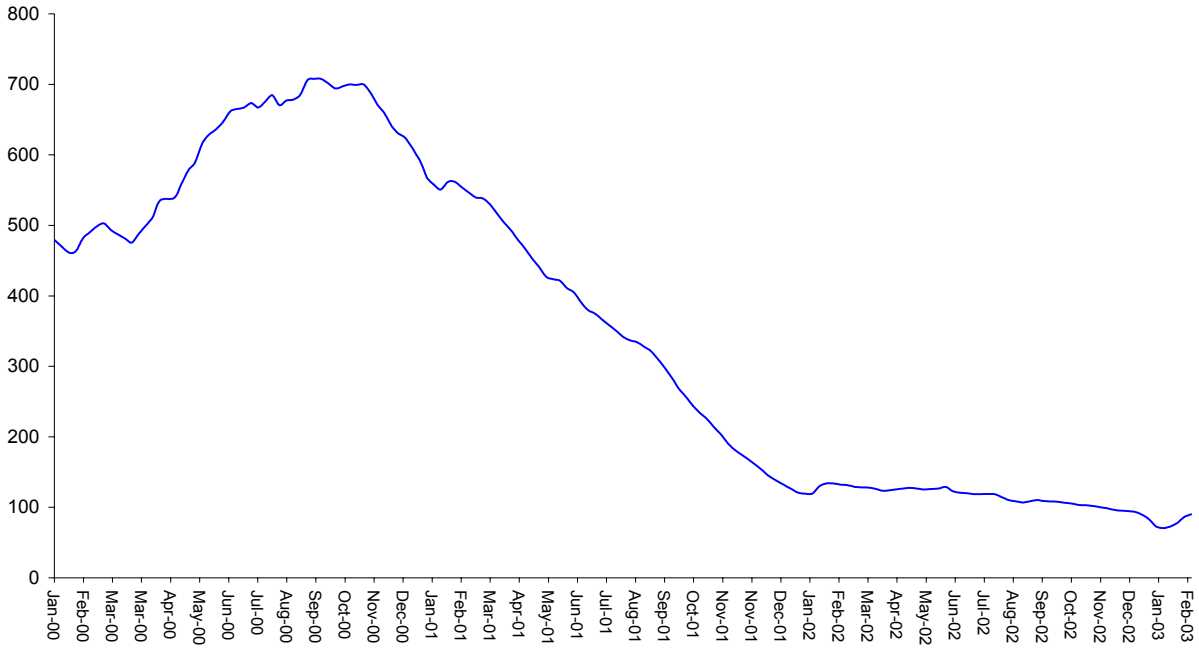
- Very few employers contacted in the survey expressed interest in recruiting ICT staff from overseas while a strong local labour pool is available.

ICT Vacancy Index

The Department monitors trends in online ICT vacancies, and publishes the results monthly as part of the Vacancy Report. The ICT Vacancy Index is based on a weekly count of ICT vacancies advertised on four sites: Jobnet.com.au; Seek; Fairfax IT Jobs; and Monster.com.au. The series includes only those vacancies lodged within the 14 days prior to counting.

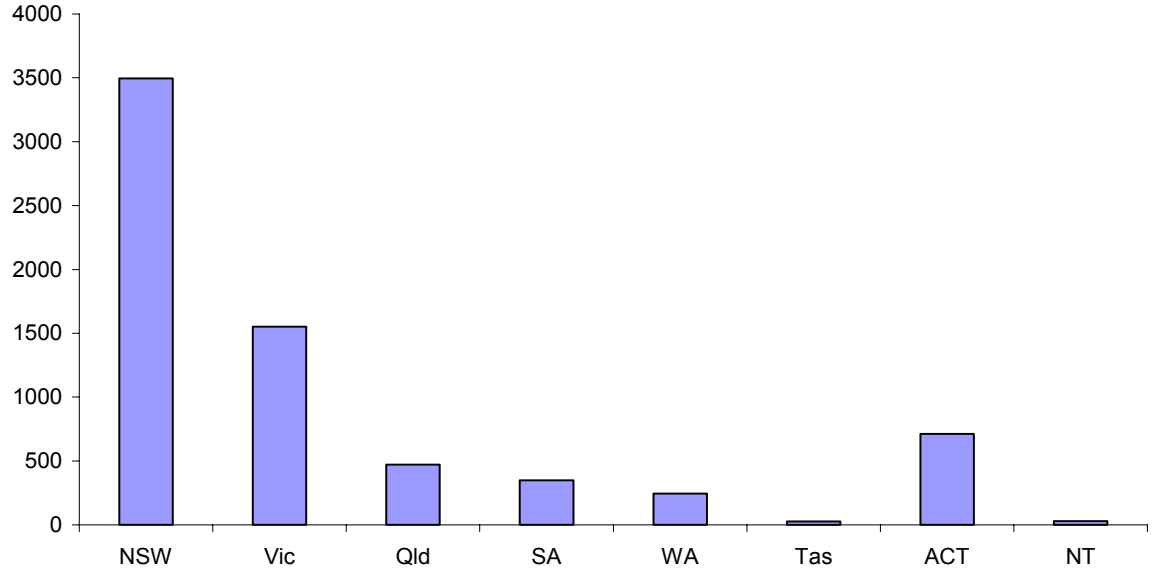
- The sites are dynamic and in a sector with very high vacancy turnover. Consequently, the ICT Vacancy Index should be viewed as a broad indicator of demand trends for ICT skills.

ICT VACANCY INDEX
January 2000 to February 2003



The ICT Vacancy Index fell sharply throughout the calendar year 2001, from a peak in September 2000. A further decline has been evident during the past year (see figure above). Vacancies are concentrated in New South Wales and Victoria, but the ACT has a high share relative to employment (see figure below).

ICT VACANCIES BY STATE
Mid February 2003



ICT skills classification (nomenclature)

Currently DEWR is leading the development of a better ICT occupational classification structure (nomenclature), in consultation with industry organisations and key government departments such as the National Office for the Information Economy (NOIE), ABS and State government departments. The aim is to improve the quality of labour market information and the effectiveness of matching ICT vacancies.

Consultation

The Commonwealth ICT Skills Working Group also identifies opportunities for information sharing and working collaboratively with the Online Council ICT Skills Working Group, the IT Skills Hub, the IT&T Industry Training Advisory Board, the Australian Information Industry Association Education & Training Forums, the Australian Computer Society, the Australian National Training Authority and other relevant skills forums eg The Emerging Technologies Working Group under the DEST National Industry Skills Initiative.

- DEWR regularly contributes labour market information, such as below, to the Online Council ICT Skills Working Group, a peak body comprised of State Government representatives and coordinated by NOIE.

ICT labour market information

DEWR regularly monitors labour market developments in the ICT sector. The focus is on high-skilled occupations (ICT Professionals) where the skill shortages have been most evident. ICT Professionals are defined as Information Technology Managers and Computing Professionals.

The ICT sector is broader than ICT Professionals. For example, Professor John Houghton, in '*The Impact of the ICT Industry in Australia*' report (prepared by the Centre for Strategic Studies, Canberra, for the Australian Computer Society in 2001) included persons employed in ICT-producing industries and related support industries. Using his definition there were up to 680,000 persons estimated to be employed in ICT in 2001.

From the peak in late 2000 a decline in demand for ICT skills has occurred, as evidenced by the decline in ICT vacancies. This has occurred at a time of more ICT skilled workers being available than ever before, unemployment for ICT Professionals has risen and it is now more difficult for some ICT jobseekers to find employment, particularly new entrants/graduates.

ICT graduate outcomes

Year 2001 graduate employment outcomes, as assessed in April 2002, were lower for graduates of Electronic/Computer Engineering and Computer Science graduates than for graduates in general. The proportion of graduates wanting full-time work who were in full-time employment in April 2002 was 74.7 per cent for Electronic/Computer Engineering, and 70.5 per cent for Computer Science, compared with an average of 81.3 per cent for all graduates.

- The below average employment outcome for Computer Science graduates was despite a relatively high proportion (21.7 per cent) being employed full-time by their current employer before they finished their studies.
- In comparison, only 14.1 per cent of Electronic/Computing Engineering graduates were employed while completing the last year of their studies. This compares with 15.5 per cent of all graduates employed with the same employer in their final year and after graduating.

National and State ICT Skill Shortages
(Surveyed October 2002, Released February 2003)

SKILL SHORTAGES* by ICT SPECIALISATION

	AUST	NSW	VIC	QLD	SA	WA	TAS	ACT	NT
Database									
DB2		D		D				D	
Oracle				D	D	D	D	D	D
MS Access									
Microsoft SQL Server				D	D	D			D
Sybase SQL Server		D		D	**S**			D	
General Application Development/Software Engineering									
PowerBuilder				D	**S**				
Java				D	D			D	D
Java Script								D	
C++				D	D				
Delphi		D		D	D			D	
Visual Basic									
Lotus Notes					D	D			**S**
Progress		D		D	**S**				
Powerhouse		D		D	D				
Internet, Networking/Lan/WAN									
Novell Netware									
TCP/IP									D
IPX									
SNA		D		D					D
Microsoft NT Server									D
Ethernet									D
Advanced Web Design		D		D	D			D	D
HTML									D
ASP					D				D
Xml		D			D	D		D	D
Firewall/Internet security		D	D	D	**S**	D		D	D
Java Security (mainly J2EE) and electronic commerce	**S**	**S**		**S**	**S**	D		D	D
Multimedia									
Graphics									
Multimedia									
Office/E-mail/Groupware									
Groupwise				D	D				D
Lotus Notes				D	D	D			D
Microsoft Exchange					D	D			
CC:Mail				D					D
Netscape									D
Eudora									D
Client/Server applications									
COBOL								**S**	
SAP	**S**	**S**		D	**S**	**S**		D	**S**
PeopleSoft	**S**	D	D	**S**	**S**	D		D	**S**
Siebel		D	D	**S**	**S**	D		D	

SKILL SHORTAGES* by ICT SPECIALISATION	AUST	NSW	VIC	QLD	SA	WA	TAS	ACT	NT
System Software Support									
Help Desk									D
Data Warehousing		D	D	D	D	D		D	D
Operating Systems									
Unix		D		D	D	D		D	D
Windows									D
Windows NT									D
Solaris		D		D	D	D		D	**S**
Linux		D		D	D				D
HP-UX		D		D	D				S
VMS		D		D	D	D			D
Communications									
Radio		**S**	D		**S**				D
SDH		D			**S**				
WDM		D		D	D				
GSM		**S**	D		D				
CDMA		**S**			D				
Broadband CDMA		**S**	D	D	D				
Satellite design		**S**	D	D	D				**S**
TDMA		**S**		D	**S**				
VSAT		D		D	**S**				
Photonics		**S**		D	**S**				
Process & Systems management									
Project Management									D
Systems analysis					D	D			D
Broad commercial business understanding						D			**S**
E-Commerce (eg business/financial management/analysis/customer service)									
E-commerce security (non programming)		D	D	D	**S**	D		D	**S**
Security									
Network Security		D		D	D	D		D	D
Risk Management		D	D	D	D	D			D
CISSP*	**S**	**S**	D	D	**S**			D	**S**
PKI		**S**	D	D	**S**			D	D
Other specialisations not listed above									
GIS, Mapinfo		**S**		D	D	D			
IDMS					D				
ADA in Defence					D				
C#				D					
Cisco Certified Internetwork Expert (CCIE)				**S**					
Crystal Reporting								D	
M204 Programming/Analysis								**S**	
Visual C++					D				
Hi Level Cool-Gen								**S**	
GIS (eg Mapinfo)				D	D	D			
.Net technologies				**S**		**S** [1]		**S**	
TELON								**S**	
Pro IV						**S** [1]			
SMS						**S** [1]			

* S = Shortage D = Recruitment Difficulty

1 = Based on only one response