Australian Bureau of Statistics

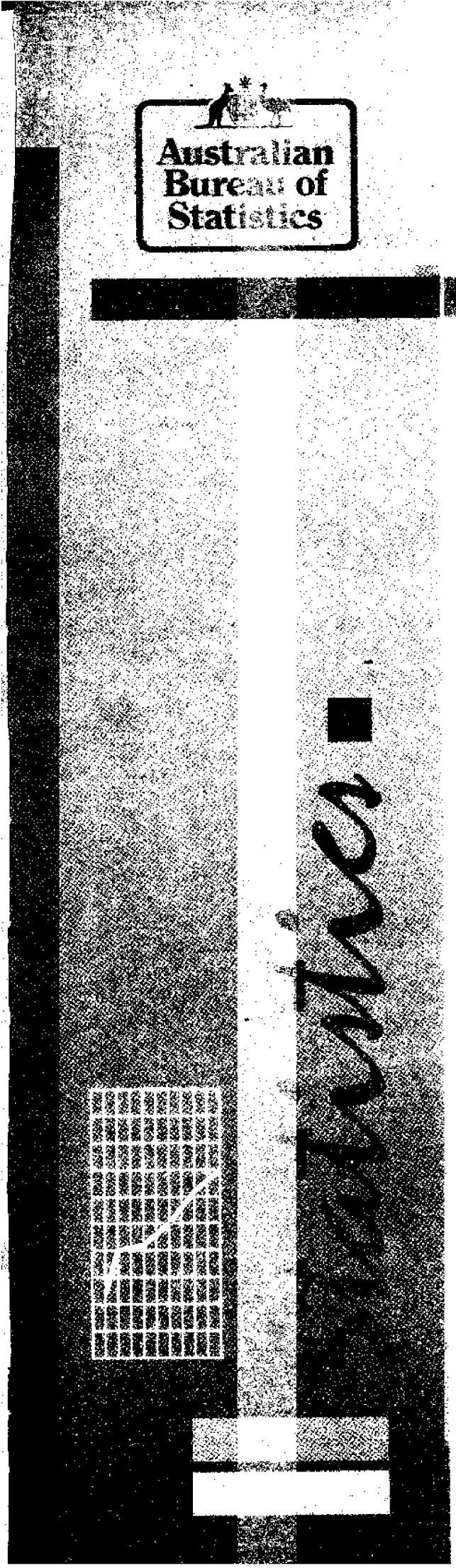
NEW ISSUE

1993–94

EMBARGO: 11:30 AM (CANBERRA TIME) FRI 9 MAY 1997

Business Use of Information Technology

Australia



ABS Catalogue No. 8129.0

NOTES

IT&T STATISTICS

This publication presents the results of the first Australian Bureau of Statistics (ABS) survey on the use of Information Technology and Telecommunications (IT&T) by business. It completes the initial ABS work program on IT&T statistics which was designed to cover the producers of IT&T goods and services and the use of IT&T by households, government and business. For details of other publications see paragraph 12 of the Explanatory Notes.

COMMENTS

Comments on the statistics and analyses presented in this publication, along with suggestions for improvements, are welcome and should be forwarded to:

Director,
Small Business and Science and Technology Section,
Australian Bureau of Statistics,
PO Box 10 BELCONNEN ACT 2616

INQUIRIES

For further information about statistics in this publication and the availability of related unpublished statistics, contact Joseph Di Gregorio on Canberra (06) 252 5609 or David McGeachie on (06) 252 5614 or any ABS office.

For information about other ABS statistics and services please refer to the back of this publication.

W. McLennan
Australian Statistician

CONTENTS

MAIN FEATURES

At the end of June 1994, approximately 49% (212,000) of the non-agricultural employing businesses in Australia had computers. Of the businesses employing 100 or more people, 99% had computers, compared with 46% for businesses employing 1-19 people. The highest proportions of businesses with computers were in the Electricity, gas and water supply industry (86%) and the Communication services industry (83%).

A total of $22.3 billion was spent on IT&T operating expenses which represented 2.9% of total business expenses. Of this, $4.5 billion was spent on IT&T in-house support which represented 0.6% of total business expenses.

Those businesses with computers employed 4.3 million persons, of which 1.6 million were regular computer users. There were 144,000 professional IT&T staff years used which represented 2.8% of total employment. On average, there were 11 computer users to every IT&T professional.

During 1993-94, $14,100, on average, was spent on IT&T expenses per computer user. Of this, an average of $2,800 was spent on IT&T in-house support per computer user.

IT&T PENETRATION

At the end of June 1994, 212,000 of the 428,000 non-agricultural employing business in Australia had computers. These businesses with computers accounted for 83% of total employment.

In total there were 1.6 million regular computer users (30.5% of total employment).

Approximately 144,000 staff years were used on tasks undertaken by designated IT&T professionals. This equates to 2.8% of total employment.

BY INDUSTRY

Computerisation

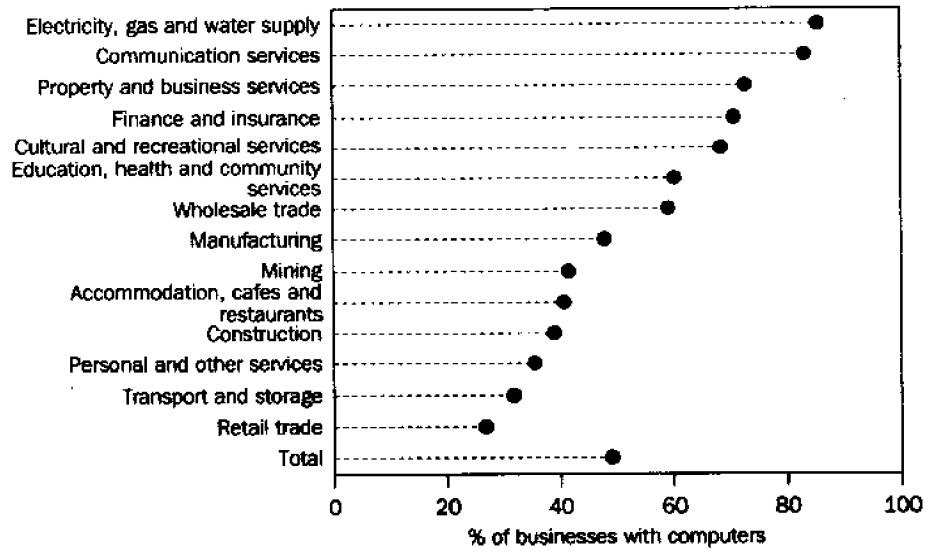
Of those businesses in the Electricity, gas and water supply industry, 86% had computers and they accounted for 99.9% of the employment.

In the Property and business services industry, 73% had computers and they accounted for 87% of the employment. This industrial division includes the Computer services industry (ANZSIC Group 783) in which all significant businesses had computers. It also includes a number of industries in which there were significant numbers of smaller businesses without computers.

In the Finance and insurance industry, 71% had computers (accounting for 96% of the employment), while in the Cultural and recreational services industry, 69% had computers (accounting for 87% of the employment).

Businesses in the Retail trade industry had the lowest incidence of computer usage with only 27% having computers. However, about 69% of total industry employment was in businesses with computers.

BUSINESS USAGE OF COMPUTERS



Staff and computers

The Finance and insurance industry had the highest proportion of staff who were computer users. Of the 293,000 employed, 83% regularly used a computer.

Other industries with a high proportion of staff who regularly used computers were Electricity, gas and water supply, with 59% of its 70,000 persons employed and Property and business services with 47% of the 621,000 persons employed.

IT&T professionals

The largest user of IT&T professional staff, as measured in staff years, was the Property and business services industry (47,181 staff years). This represents about 8.7% of staff employed in businesses with computers or 7.6% of all staff employed in the industry. This industrial division includes the Computer services industry (ANZSIC Group 783) which supplies businesses in other industries with professional computer services.

At the lower end of the scale, the Accommodation, cafes and restaurants industry used 326 IT&T professional staff years. This equates to only 0.1% of employment in businesses with computers.

1 IT&T PENETRATION BY INDUSTRY, JUNE 1994

	Businesses			*Employment*			*Computer users*		*IT&T professional staff*	
	With computers	*Total*		*In businesses with computers*	*Total*					
	no.	no.	%(a)	'000	'000	%(b)	'000	%(c)	staff years	%(d)
Mining	782	1 861	42.0	81	85	95.3	30	35.3	1 860	2.2
Manufacturing	18 525	38 376	48.3	833	925	90.1	260	28.1	23 707	2.6
Electricity, gas and water supply	461	537	85.9	70	70	99.9	41	58.8	2 051	2.9
Construction	20 493	52 222	39.2	176	290	60.7	49	17.0	5 624	1.9
Wholesale trade	24 111	40 471	59.6	372	427	87.1	178	41.8	16 941	4.0
Retail trade	23 590	87 079	27.1	597	870	68.6	134	15.3	5 541	0.6
Accommodation, cafes and restaurants	9 917	24 268	40.9	320	411	77.9	52	12.6	326	0.1
Transport and storage	6 049	18 913	32.0	238	278	85.5	83	30.0	6 557	2.4
Communication services	921	1 104	83.4	113	113	99.7	35	31.2	3 859	3.4
Finance and insurance	11 342	15 982	71.0	283	293	96.4	244	83.2	21 083	7.2
Property and business services	59 530	81 433	73.1	540	621	87.0	291	46.7	47 181	7.6
Education, health and community services	21 773	35 860	60.7	455	526	86.6	120	22.8	4 295	0.8
Cultural and recreational services	6 781	9 878	68.6	132	152	86.7	32	20.9	2 521	1.7
Personal and other services	7 273	20 313	35.8	85	136	62.8	34	25.2	2 833	2.1
Total	211 548	428 297	49.4	4 296	5 198	82.6	1 584	30.5	144 379	2.8

(a) Percentage of businesses with computers compared to total businesses.
(b) Percentage of employment in businesses with computers compared to total employment.
(c) Percentage of computer users compared to total employment.
(d) Percentage of IT&T professionals compared to total employment.

BY BUSINESS SIZE

Computerisation

Larger businesses were more likely to have computers than smaller businesses. Nearly all businesses employing 100 or more persons had computers. In contrast, only 46% of businesses employing 1-19 persons had computers and they accounted for 54% of the employment.

Staff and computers

Businesses employing 100 or more persons had the highest proportion of staff who were computer users (36%). The proportion was 26% for businesses employing 1–19 persons, 23% for businesses employing 20–49 persons and 26% for businesses employing 50–99 persons.

IT&T professionals

Proportionally, IT&T professional staff usage was highest for businesses employing 20–49 persons, representing 4.6% of staff employed. The proportions for businesses employing 1–19 persons, 50–99 persons, and 100 or more persons were 2.6%, 1.8% and 2.6% respectively.

2 IT&T PENETRATION BY SIZE, JUNE 1994

	Businesses			*Employment*			*Computer users*		*IT&T professional staff*	
	With computers	*Total*		*In businesses with computers*	*Total*					
Persons	no.	no.	%(a)	'000	'000	%(b)	'000	%(c)	staff years	%(d)
1–19	182 794	396 168	46.1	943	1 742	54.1	450	25.8	45 134	2.6
20–49	18 444	21 476	85.9	558	637	87.7	148	23.2	29 373	4.6
50–99	5 339	5 643	94.6	358	378	94.8	100	26.4	6 952	1.8
100+	4 971	5 009	99.2	2 436	2 441	99.8	886	36.3	62 921	2.6
Total	211 548	428 297	49.4	4 296	5 198	82.6	1 584	30.5	144 379	2.8

(a) Percentage of businesses with computers compared to total number of businesses.
(b) Percentage of employment in businesses with computers compared to total employment.
(c) Percentage of computer users compared to total employment.
(d) Percentage of IT&T professionals compared to total employment.

IT&T EXPENDITURE

A major component of IT&T operating expenses is in-house support costs. Businesses spent $4.5 billion on in-house support costs which represented 20.1% of the total IT&T operating expenses of $22.3 billion. Businesses also recorded $5.2 billion of capital expenditure on IT&T equipment, representing 11.7% of total capital expenditure.

BY INDUSTRY

The Property and business services industry had the highest level of expenditure with IT&T operating expenses of $5.2 billion, representing 13.2% of total expenses for the industry, an in-house support component of $1.1 billion, and IT&T capital expenditure of $1.2 billion, representing 54% of total capital expenditure by the industry. These high levels are due in part to the fact that specialist computing industries are included in this ANZSIC division.

The Wholesale trade and Finance and insurance industries each had IT&T operating expenses of approximately $3.3 billion.

The Finance and insurance industry had significant IT&T in-house support costs of $0.9 billion and also incurred IT&T capital expenditure of $0.8 billion.

The Communication services industry also had significant IT&T capital expenditure of $0.8 billion.

3 IT&T EXPENDITURE BY INDUSTRY, 1993–94

	IT&T in-house support costs(a)		*IT&T operating expenses*		*IT&T capital expenditure*	
	$m	%(b)	$m	%(b)	$m	%(c)
Mining	84.8	0.3	385.4	1.4	94.9	1.8
Manufacturing	809.3	0.5	2 919.6	1.9	747.9	6.8
Electricity, gas and water supply	99.9	0.4	619.0	2.5	124.5	3.4
Construction	*198.5	0.4	575.9	1.3	67.5	3.9
Wholesale trade	385.5	0.2	3 327.5	2.1	359.7	9.0
Retail trade	174.7	0.1	1 016.5	2.6	295.6	14.4
Accommodation, cafes and restaurants	11.7	0.2	350.3	1.8	26.7	1.4
Transport and storage	256.3	0.6	994.3	2.5	258.8	7.4
Communication services	67.9	0.5	1 688.2	11.3	826.6	25.1
Finance and insurance	928.8	1.6	3 267.2	5.7	760.2	33.8
Property and business services	1 136.4	2.9	5 172.4	13.2	*1 193.1	53.9
Education, health and community services	*183.6	0.9	*1 203.3	5.6	141.8	5.6
Cultural and recreational services	93.0	1.0	460.6	5.0	*198.6	18.2
Personal and other services	62.7	0.6	328.0	3.4	79.6	10.5
Total	4 493.0	0.6	22 308.2	2.9	5 175.5	11.7

(a) Also included in IT&T operating expenses.
(b) Percentage of total expenses of all businesses.
(c) Percentage of total capital expenditure of all businesses.

COMPUTING EQUIPMENT INSTALLED

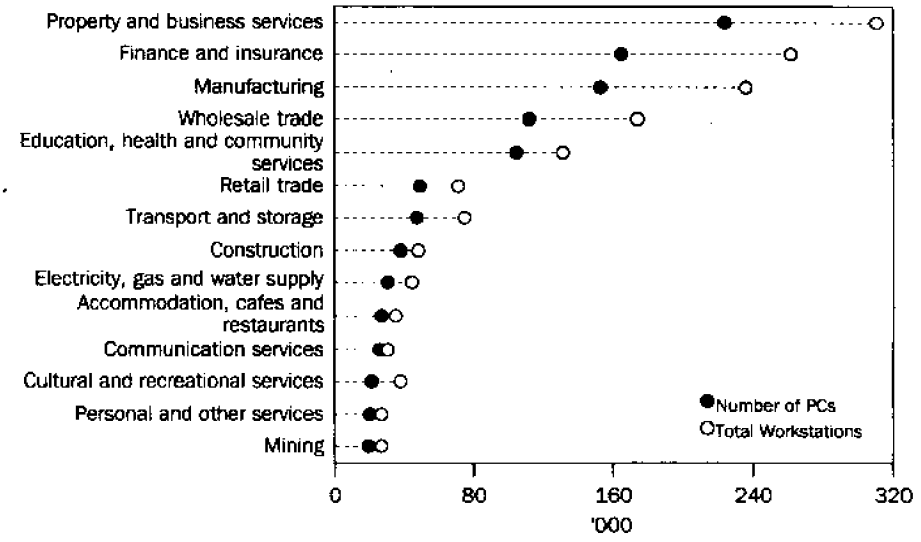
BY TYPE

Across all industries there were 1,524 000 workstations installed consisting of 1,050,000 PCs and 474,000 other workstations. Other computing equipment installed included 66,800 PCs used as servers, 31,500 mid-range computers and approximately 940 large scale-computers.

BY INDUSTRY

The Property and business services industry had the largest number of computer workstations with 312,000 (21% of the total), including 224,000 PCs. The Finance and insurance industry had 263,000 workstations (17%), including 166,000 PCs, while the Manufacturing industry had 237,000 workstations (16%), including 153,000 PCs. Mid-range and large-scale computers were most common in the Manufacturing industry with 7,100 mid-range computers (23% of the total) and 278 large-scale computers (30%).

PCs AND TOTAL WORKSTATIONS BY INDUSTRY



4 COMPUTING EQUIPMENT INSTALLED BY INDUSTRY, JUNE 1994

	Workstations					
	PCs(a)	Other	Total	PCs used as servers	Mid-range computers(b)	Large-scale computers(c)
Mining	20 755	7 378	28 132	924	483	39
Manufacturing	153 465	83 546	237 011	10 671	7 118	278
Electricity, gas and water supply	31 440	13 919	45 359	1 056	855	32
Construction	39 109	10 078	49 184	*2 304	173	*20
Wholesale trade	112 492	62 512	175 004	7 643	*4 142	*111
Retail trade	49 710	22 184	71 894	4 130	2 116	31
Accommodation, cafes and restaurants	27 871	*8 254	*36 125	*749	*651	6
Transport and storage	48 191	27 639	75 830	3 353	4 461	32
Communication services	27 239	4 637	31 876	1 312	495	24
Finance and insurance	165 790	96 970	262 761	10 752	3 211	145
Property and business services	224 476	*87 456	311 932	13 026	4 472	158
Education, health and community services	105 026	26 794	131 820	7 827	*1 797	17
Cultural and recreational services	22 639	16 544	39 183	*1 988	*987	44
Personal and other services	21 658	6 407	28 064	*1 068	*499	5
Total	1 049 859	474 316	1 524 175	66 804	31 460	942

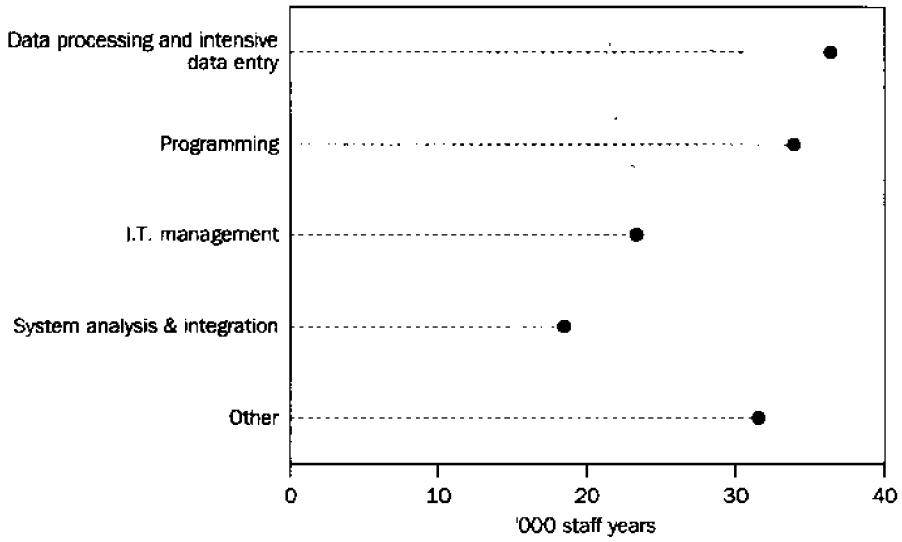
(a) Excludes PC's used as servers in LANs etc.
(b) Includes mini computers generally valued at between $15,000 and $1.5 million.
(c) Includes mainframe and supercomputers generally valued at more than $1.5 million.

IT&T STAFF USAGE

BY TYPE OF WORK

There were an estimated 144,000 IT&T professional staff years consumed across various IT&T related activities. Of these, 25% were in Data processing and intensive data entry, 24% in Programming, 16% in IT management and administration and 13% in Systems analysis and integration.

IT&T STAFF USAGE BY TYPE OF WORK



BY INDUSTRY

The Property and business services and Manufacturing industries had the greatest IT&T staff usage with 47,181 staff years (33% of the total) and 23,707 staff years (16%), respectively.

5 IT&T STAFF USAGE BY TYPE OF WORK AND INDUSTRY, 1993–94

	I.T. management(a)		*Programming(b)*		*System analysis and integration(c)*		*Data processing and intensive data entry*		*Other(d)*		
	staff years	%	staff years	%	staff years	%	staff years	%	staff years	%	Total staff years
Mining	378.8	20.4	503.9	27.1	383.6	20.6	149.4	8.0	444.2	23.9	1 859.8
Manufacturing	3 575.1	15.1	5 110.2	21.6	2 955.4	12.5	5 390.4	22.7	6 676.1	28.1	23 707.2
Electricity, gas and water supply	405.9	19.8	445.4	21.7	371.6	18.1	93.0	4.5	734.8	35.8	2 050.6
Construction	*1 341.4	23.9	*956.5	17.0	*954	17.0	1 371.2	24.4	1 000.8	17.8	5 623.9
Wholesale trade	2 257.8	13.3	*4 218.6	24.9	*2 592.7	15.3	4 734.8	27.9	3 136.8	18.5	16 940.6
Retail trade	555.3	10.0	479.4	8.7	250.6	4.5	3 503.3	63.2	752.2	13.6	5 540.7
Accommodation, cafes and restaurants	79.5	24.7	52.1	16.0	20.7	6.3	93.8	28.8	80.0	24.5	326.1
Transport and storage	952.4	14.5	974.2	14.9	486.2	7.4	2 174.9	33.2	1 969.9	30.0	6 557.5
Communication services	1 062.2	27.5	982.2	25.4	479.6	12.4	329.0	8.5	1 006.4	26.7	3 859.4
Finance and insurance	4 518.6	21.4	5 745.8	27.3	2 244.9	10.6	2 865.1	13.6	5 708.7	27.1	21 083.2
Property and business services	6 360.3	13.5	13 559.2	28.7	7 363.0	15.6	12 502.5	26.5	7 396.0	15.7	47 181.0
Education, health and community services	905.0	21.1	318.5	7.4	172.6	4.0	1 405.5	32.7	1 493.2	34.8	4 294.8
Cultural and recreational services	*406.1	16.1	479.2	19.0	211.8	8.4	518.8	20.6	905.3	35.9	2 521.1
Personal and other services	*695.7	24.6	255.7	9.0	61.6	2.2	1 430.0	50.5	390.2	13.8	2 833.1
Total	23 494.0	16.3	34 080.7	23.6	18 548.3	12.8	36 561.6	25.3	31 694.5	22.0	144 379.0

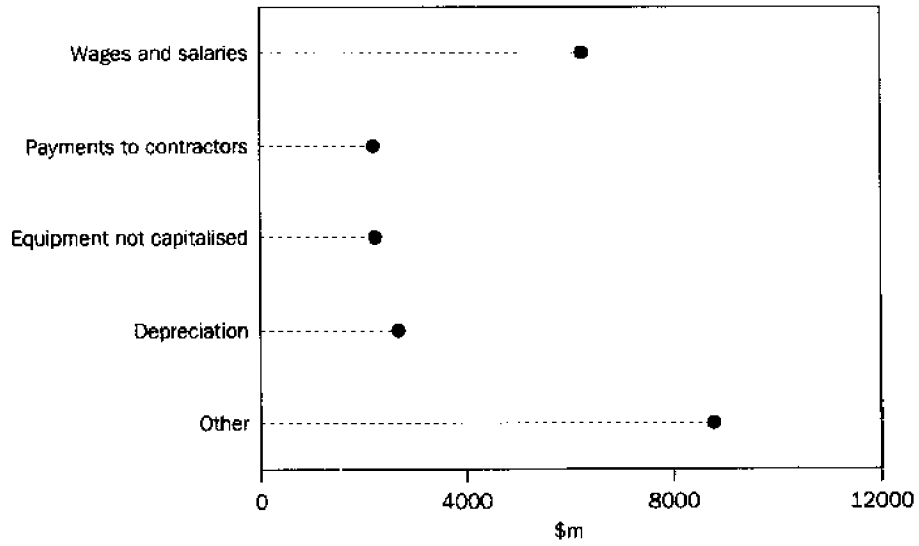
(a) Includes network and database administration.
(b) Includes systems and applications programming.
(c) Includes systems analysis, integration and software engineering.
(d) Includes computer room operations, maintenance and general user support.

IT&T OPERATING EXPENSES

Of the $22.3 billion IT&T operating expenses, $6.3 billion was wages and salaries for IT&T specialist staff and $2.7 billion was depreciation of IT&T equipment.

The largest component was 'other expenses' ($8.8 billion) which included telephone, facsimile, leased lines, repair and maintenance, leasing and hiring and royalty expenses relating to IT&T usage.

IT&T OPERATING EXPENSES BY CATEGORY



6 IT&T OPERATING EXPENSES BY TYPE OF EXPENSE AND INDUSTRY, 1993–94

	Type of operating expense					
	Wages and salaries	*Payments to contractors*	*Equipment not capitalised*	*Depreciation*	*Other*	*Total*
	$m	$m	$m	$m	$m	$m
Mining	96.6	44.5	47.9	92.5	103.8	385.4
Manufacturing	1 065.6	262.5	352.4	410.7	828.4	2 919.6
Electricity, gas and water supply	130.0	82.9	131.2	101.3	173.6	619.0
Construction	*192.6	54.7	46.4	28.5	253.8	575.9
Wholesale trade	*802.3	*178.4	*479.8	238.0	1 629.1	*3327.5
Retail trade	199.3	79.2	71.4	155.4	*511.2	1 016.5
Accommodation, cafes and restaurants	12.9	*9.9	*20.7	*22.8	283.9	350.3
Transport and storage	241.1	69.4	102.5	123.1	458.2	994.3
Communication services	241.3	290.4	5.4	251.1	899.9	1 688.2
Finance and insurance	995.6	380.6	217.0	573.5	1 100.6	3 267.2
Property and business services	1 988.0	*647.0	*688.3	410.5	1 438.7	5 172.4
Education, health and community services	136.4	*65.5	52.3	86.6	*862.5	*1203.3
Cultural and recreational services	100.8	*31.6	14.8	*161.4	152.0	460.6
Personal and other services	*79	*49.7	30.6	48.4	120.3	328.0
Total	6 281.5	2 246.3	2 260.7	2 703.8	8 816.0	22 308.2

IT&T IN-HOUSE SUPPORT COSTS

BY TYPE

The major cost was Software and systems services which accounted for 64% ($2.9 billion) of the total IT&T in-house support costs of $4.5 billion. Other significant costs were Data entry and processing, $0.5 billion (11%), and Hardware repair, $0.3 billion (7%).

BY INDUSTRY

The industries with the largest IT&T in-house support costs were Property and business services ($1.1 billion), Finance and insurance ($0.9 billion) and Manufacturing ($0.8 billion). Together these three industries accounted for 64% of all in-house support costs.

7 IT&T IN-HOUSE SUPPORT COSTS BY TYPE OF COST AND INDUSTRY, 1993–94

	Type of in-house cost								
	Software and systems	*Information network and database*	*Hardware repair*	*Training*	*Installation and cabling*	*Comms. network repair*	*Data entry and processing*	*Other*	*Total*
	$m	$m	$m	$m	$m	$m	$m	$m	$m
Mining	54.6	3.0	7.5	4.7	3.7	2.5	3.0	5.7	84.8
Manufacturing	537.7	27.5	52.0	26.0	24.3	19.0	99.1	23.8	809.3
Electricity, gas and water supply	54.1	6.3	14.2	4.5	3.8	8.8	1.8	6.3	99.9
Construction	*146.2	*1.9	8.6	*4.5	*9.7	2.2	*18.8	*6.5	*198.5
Wholesale trade	222.3	11.4	31.4	9.7	8.4	12.3	62.1	28.0	385.5
Retail trade	*130.1	9.4	7.9	*4.2	*3.3	1.0	12.2	6.6	174.7
Accommodation, cafes and restaurants	6.7	0.6	0.7	0.3	0.6	0.6	2.2	0.0	11.7
Transport and storage	134.8	14.8	11.0	7.0	16.6	14.2	*54.2	3.6	256.3
Communication services	*43.9	1.5	6.9	0.7	3.4	9.7	1.9	0.0	67.9
Finance and insurance	570.0	50.6	89.9	18.1	40.4	28.3	110.3	21.3	928.8
Property and business services	802.8	*58.9	47.6	26.9	18.2	22.8	91.7	*67.5	1 136.4
Education, health and community services	72.8	3.4	8.6	7.5	2.7	*49.7	35.8	3.0	*183.6
Cultural and recreational services	51.3	2.7	20.5	1.3	1.5	4.6	*10.8	0.3	93.0
Personal and other services	32.0	2.1	5.9	1.3	*1.4	*3.6	*11.6	4.9	62.7
Total	2 859.4	194.1	312.6	116.9	137.7	179.3	515.5	177.4	4 493.0

SELECTED PERFORMANCE RATIOS

BY INDUSTRY

Workstations per user

The survey showed there were 1,524,000 workstations and 1,584,000 computer users, giving an average of one workstation per user.

The highest averages were in the Finance and insurance, Property and business services, Education and community services industries with 1.1 workstations per user, and the Cultural and recreational services industry with 1.2 workstations per user. The lowest ratio was recorded in the Retail trade industry with 0.5 workstations per user.

Computer users per IT&T specialist

Across all industries there was an average 11.0 computer users per IT&T specialist.

The highest concentration of IT&T specialists to users was in the Property and business services industry where for each IT&T specialist there were 6.2 computer users.

The lowest concentration of IT&T specialists was recorded in the Accommodation, cafes and restaurants industry where for each IT&T specialist there were 159 computer users.

IT&T expenses per user

During 1993–94, businesses recorded an average of $14,100 in IT&T expenses per user.

The highest level of expenses per user was recorded in the Communication services industry with $47,700. This high figure is partly reflective of the comparatively large operating costs associated with the telecommunications infrastructure and related client servicing activities which are peculiar to this industry. The Wholesale trade industry also recorded a fairly high level of expenses with $18,700 per user.

The lowest level was recorded for the Accommodation, cafes and restaurants industry where expenses per user were $6,700.

Payments for IT&T contract work

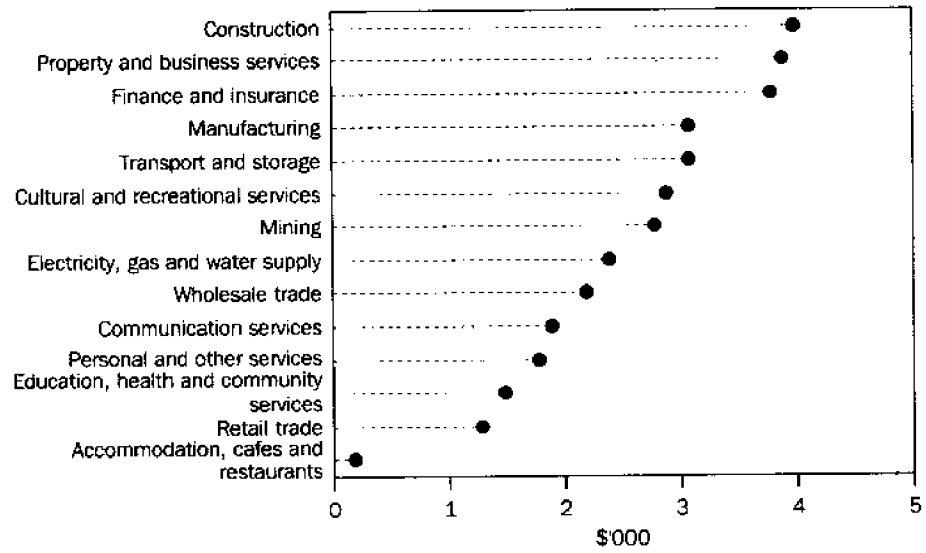
The ratio of payments for IT&T contract work to total IT&T operating expenses varied from 17% for the Communication services industry to 3% for the Accommodation, cafes and restaurant industry.

In-house support costs per user

The industries with the largest in-house support costs per user were the construction industry ($4,000), the Property and business services industry ($3,900), the Finance and insurance industry ($3,800) and the Manufacturing industry ($3,100).

The Accommodation, cafes and restaurant industry had the lowest in-house costs per user at $226, followed by the Retail trade industry with $1,300.

IN-HOUSE COSTS PER USER BY INDUSTRY



8 SELECTED IT&T PERFORMANCE RATIOS BY INDUSTRY, 1993–94

	Performance ratio				
	Workstations per user	*Computer users per IT&T staff*	*IT&T expenses per user*	*In-house support costs per user*	*Payments for IT&T contract work to IT&T operating expenses*
	no.	no.	$'000	$'000	%
Mining	0.9	16.2	12.8	2.8	11.6
Manufacturing	0.9	11.0	11.2	3.1	9.0
Electricity, gas and water supply	1.1	20.1	15.0	2.4	13.4
Construction	1.0	8.8	11.7	4.0	9.5
Wholesale trade	1.0	10.5	18.7	2.2	5.4
Retail trade	0.5	24.1	7.6	1.3	7.8
Accommodation, cafes and restaurants	0.7	158.8	6.8	0.2	2.8
Transport and storage	0.9	12.7	11.9	3.1	7.0
Communication services	0.9	9.2	47.7	1.9	17.2
Finance and insurance	1.1	11.6	13.4	3.8	11.6
Property and business services	1.1	6.2	17.8	3.9	12.5
Education, health and community services	1.1	27.9	10.1	1.5	5.4
Cultural and recreational services	1.2	12.6	14.5	2.9	6.9
Personal and other services	0.8	12.1	9.6	1.8	15.2
Total	1.0	11.0	14.1	2.8	10.1

BY BUSINESS SIZE

Workstations per user

For each of the employer size categories there was approximately one workstation per user.

Computer users per IT&T specialist

Smaller businesses tended to have fewer computer users per IT&T specialist, with businesses employing 1–19 persons having 10 and businesses employing 20–49 persons having five. Businesses employing 50 or more persons had 14 computer users per IT&T specialist.

IT&T expenses per user

Businesses employing 1–19 persons and 20–49 persons had IT&T expenses per user of $13,900 and $20,200 respectively. For larger businesses, the IT&T expenses per user were noticeably lower at $9,500 for businesses employing 50–99 persons and $13,700 for those employing 100 or more persons.

In-house support costs per user

In-house support costs per user did not vary significantly across business sizes.

Payments for IT&T contract work

The ratio of payments for IT&T contract work to total IT&T operating expenses of 7.3% for small businesses employing 1–19 persons was lower than that for the larger businesses which ranged from 10.8% to 12.5%.

9 SELECTED IT&T PERFORMANCE RATIOS BY EMPLOYMENT SIZE, 1993–94

	Performance ratio				
	Workstations per user	*Computer users per IT&T staff*	*IT&T expenses per user*	*In-house support cost per user*	*Payments for IT&T contract work to IT&T operating expenses*
Persons	no.	no.	$'000	$'000	%
1–19	1.0	10.0	13.9	2.7	7.3
20–49	1.0	5.0	20.2	3.2	12.5
50–99	1.0	14.4	9.5	2.0	10.8
100+	0.9	14.1	13.7	2.9	10.8
Total	1.0	11.0	14.1	2.8	10.1

EXPLANATORY NOTES

SURVEY DESIGN AND METHODOLOGY

1 The estimates in this publication have been mainly derived from the 1993–94 Survey of Information Technology which focused on the use of IT&T by business. Total expense and total capital expenditure data were drawn from *Business Operations and Industry Performance, Australia, 1993–94* (Cat. no. 8140.0).

2 The population frame for these statistics consisted of all business units in the Australian economy except for:

- agricultural businesses (defined in Division A of the Australian and New Zealand Standard Industrial Classification (ANZSIC));
- businesses classified to the General Government sector (noting that Public Trading Enterprises are included in the survey); and
- non-employing businesses in all industries.

3 Approximately 8,500 management units (see paragraph 4 below) were selected in the sample. All management units with employment of 200 or more persons were selected in the sample.

STATISTICAL UNIT

4 The business unit about which information was collected was the management unit. The management unit is the highest level unit within a business, having regard to the required level of industry dissection, for which a set of management accounts are maintained. In most cases the management unit corresponds to the legal entity (i.e. company, partnership, trust, etc.). However in the case of large diversified businesses there are often a number of management units, each coinciding with a 'division' or 'line of business'.

5 A matter which added to the complexity of the survey was the increasing tendency of large diversified businesses to centralise their IT&T operations. In order therefore to provide statistics by industry, the costs, equipment and other data items collected for the most statistically significant IT departments (which are often management units in their own right) were apportioned on the basis of employment and turnover to the principal management units being served.

6 This treatment of IT&T units was necessary (in the context of these statistics) because of the large amounts of capitalised expenditure and in-house capital formation which are now attributed to IT&T. An important analytical need is to be able to relate these investments to the operations of the units which use and finance them, either directly or via cost recovery mechanisms. In addition, this survey sought details of equipment installed with the intention of relating this to the number of computer users within broad level ANZSIC industries.

7 The counts of operating businesses included in this publication are different (lower) when compared to results from the ABS Economic Activity Survey. The major reason is that the Economic Activity Survey estimates do not exclude selected non-employing businesses. All non-employing businesses have been excluded from these results.

CLASSIFICATION BY INDUSTRY

8 This publication presents statistics classified according to the *Australian and New Zealand Standard Industrial Classification, 1993* (Cat. no. 1292.0). Each business unit has been classified to a single industry on the basis of its main income earning activity, irrespective of whether the unit also generates income from related or unrelated secondary activities. An exception was made in these statistics for the largest IT&T units (i.e. centralised IT&T departments which principally serve the operating units of large diversified enterprises). The special treatment of these units (see paragraph 5) has had a downward effect on the statistics for the Property and business services industry (where these businesses would have otherwise been classified) of less than 10% for total expenses and less than 15% for capital expenditure.

RELIABILITY OF ESTIMATES

9 Since the estimates in this publication are based on information obtained from a sample drawn from units in the surveyed population, the estimates are subject to sampling variability; that is, they may differ from figures that would have been produced if all units had been included in the survey. One measure of the likely difference is given by the relative standard error (RSE) which indicates the extent to which an estimate might have varied by chance because only a sample of units was included. The RSE is a useful measure in that it provides an immediate indication of the percentage standard errors likely to have occurred due to sampling and avoids the need to also refer to the size of the estimate involved. Estimates with a RSE greater than 25% are marked with *. The following table provides RSEs for a selection of estimates presented in this publication.

	Total workstations	Total IT&T expenses	In-house support costs
	%	%	%
Mining	1.2	0.8	1.1
Manufacturing	2.7	7.8	9.7
Electricity, gas and water	1.3	0.7	1.0
Construction	8.0	12.1	28.8
Wholesale trade	8.0	27.6	9.9
Retail trade	8.7	7.6	20.5
Accommodation, cafes and restaurants	27.4	14.1	17.8
Transport and storage	4.4	5.8	8.6
Communication services	13.7	2.2	21.9
Finance and insurance	2.2	3.3	6.2
Property and business services	15.1	13.4	18.4
Education, health and community services	9.5	38.1	26.7
Cultural and recreational services	6.4	15.0	12.9
Personal and other services	10.4	12.4	21.6
All industries	3.5	5.7	5.6

10 There are about two chances in three that the difference between the estimate shown and the true value will be within one standard error and about 19 chances in 20 that the difference will be within two standard errors. If, for example, the estimated value of a variable is $570 million and its relative standard error is 9.3%, its reliability in terms of sampling error can be interpreted as follows. There are about two chances in three that the true value of the variable lies within the range $517 million to $623 million and 19 chances in 20 that it lies within the range $464 million and $676 million.

11 The imprecision due to sampling variability should not be confused with inaccuracies that may occur because of inadequacies in available sources from which the population frame was compiled, imperfections in reported data and other processing errors. Inaccuracies of this kind are referred to collectively as non-sampling error and may occur in any enumeration whether it be a full count or a sample. While it is not possible to quantify non-sampling error, every effort has been made to reduce it to a minimum.

RELATED PUBLICATIONS

12 This publication completes the initial ABS work program on IT&T statistics. Other ABS publications on the production and use of IT&T in Australia are:

Computing Services Industry, Australia, 1992–93 (Cat. no. 8669.0)

Government Use of Information Technology, 1993–94 (Cat. no. 8119.0)

Household Use of Information Technology, February 1996 (Cat. no. 8128.0)

Information Technology in Australia, 1992–93 (Cat. no. 8126.0)

UNPUBLISHED STATISTICS

Most of the industrial statistics covered in this publication can be further dissected by industrial subdivision (i.e. 2-digit ANZSIC), and are available at a charge from the ABS.

GLOSSARY

ABS Australian Bureau of Statistics

ANZSIC Australian and New Zealand Standard Industrial Classification

Capital expenditure Acquisition of fixed tangible assets (e.g. plant and machinery, property) and intangible assets (e.g. computer software, patents and licences) including those assets acquired under a finance lease. Also includes work done by own employees or proprietors of the business in forming capital assets, for its own use, for rental or lease or for other commercial income generating activities.

Computer user Personnel who are required to use a computer on a regular basis (i.e. generally on a weekly basis).

Depreciation The financial charges made to accounts to reflect that part of the value of an asset which may be regarded as having been used up in producing revenue in a particular accounting period.

Employment Includes working proprietors, working partners, permanent, part time, temporary and casual staff (including managerial and executive employees) working for the business at the end of June 1994. Employees on paid leave are also included.

In-house support costs The estimated cost of providing internal IT&T support to the business. Excludes direct costs associated with external client servicing.

IT&T Information Technology and Telecommunications. The definition of Information Technology and Telecommunications used in these statistics is a pragmatic one. It is based on a set of goods and services descriptions which have been agreed by major policy and industry organisations. It essentially covers computers and communications equipment (e.g. PCs, software, facsimile machines and phones, etc) and the services which facilitate the use of this equipment (e.g. IT management, software services and repairs and maintenance). Excluded from this definition are process control computers of the type used in factory production lines and other equipment in which the presence of microprocessors is predominantly for the control or setting of functions (e.g. microprocessors used in motor vehicles and white goods, etc).

IT&T operating expenses An aggregate of expenditure on IT&T which is not capitalised, including depreciation and amortisation of IT&T assets, wages and salaries of IT&T professional staff, payments to contractors and consultants for IT&T related work, and other expenses such as telephone, leased lines, repairs and maintenance, leasing and hiring and royalty expenses associated with IT&T sales.

IT&T professional Also referred to as IT&T specialists. Personnel who are engaged to provide professional level IT&T services and who are employees of the business. This excludes IT&T contract staff.

Large-scale computer Mainframe or super computers and the like, generally valued at more than $1.5 million.

Mid-range computer Normally referred to as mini-computers, and generally valued at between $15,000 and $1.5 million.

Operating expenses Total expenses of the business excluding extraordinary items.

Workstations The aggregate of PCs, terminals and similar single user devices.

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Client Services, ABS, PO Box 10, Belconnen ACT 2616

Produced by the Australian Government Publishing Service

2812900007939
ISBN 0 642 23130 3

Recommended retail price: $15.50