## COMPUTING SERVICES INDUSTRY

## CONTENTS

Notes ................................................... . 2
Summary of findings . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 3

## TABLES

1 Key figures . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 6
2 Sources of income . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 7
3 Items of expenditure . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 8
4 Characteristics of employment . . . . . . . . . . . . . . . . . . . . . . . . . . 9
5 Main occupation of persons employed . . . . . . . . . . . . . . . . . . . . . 9
6 States and Territories . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 10
7 Business size . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 10
8 Selected performance ratios . . . . . . . . . . . . . . . . . . . . . . . . . . . 11

## ADDITIONAL INFORMATION

Explanatory Notes . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 12
Glossary . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 15

- For further information about these and related statistics, contact the National Information Service on 1300135070 or Lynne Bismire on Melbourne 0396157977.


## INTRODUCTION

COMMENTS ON THIS
PUBLICATION

ROUNDING

ABBREVIATIONS

This publication presents results, in respect of the 1998-99 financial year, from an Australian Bureau of Statistics (ABS) survey of businesses in the computer services industry. It is the fourth ABS survey of the industry with previous surveys being conducted in respect of 1995-96, 1992-93 and 1987-88.

This publication is one of a series to be issued in respect of 1998-99 for a range of property and business services industries. Other publications in this series, are:

Cleaning Services Industry, Australia, 1998-99 (Cat. no. 8672.0)—issued 13 June 2000
Employment Services, Australia, 1998-99 (Cat. no. 8558.0)
Legal Services Industry, Australia, 1998-99 (Cat. no. 8667.0)—issued 18 August 2000

Market Research Services, Australia, 1998-99 (Cat. no. 8556.0)—issued 5 June 2000

Real Estate Services, Australia, 1998-99 (Cat. no. 8663.0)—issued 24 May 2000
Security Services, Australia, 1998-99 (Cat. no. 8557.0)—issued 28 June 2000

Other related publications are:

Information Technology, Australia, 1998-99 (Preliminary) (Cat. no.8143.0)— issued 29 May 2000

Information Technology, Australia, 1998-99 (Cat. no. 8126.0)

The ABS welcomes comments and suggestions from users recommending industries and data items for inclusion in future surveys. These comments should be addressed to the Director, Service Industries Surveys, Australian Bureau of Statistics, PO Box 10 Belconnen, ACT, 2616.

Where figures have been rounded discrepancies may occur between the sum of component items and the total.

| ABS | Australian Bureau of Statistics |
| ---: | :--- |
| ANZSIC | Australian and New Zealand Standard Industrial Classification |
| EDI | Electronic Data Interchange |
| OPBT | Operating profit before tax |
| RSE | Relative standard error |
| SE | Standard error |

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## INTRODUCTION

SIZE OF INDUSTRY

SOURCES OF INCOME

This publication presents results, in respect of the 1998-99 financial year, from an Australian Bureau of Statistics (ABS) survey of businesses in the computer services industry. Businesses involved in the computer services industry are classified to Group 783 (Computer Services) of the Australian and New Zealand Standard Industrial Classification (ANZSIC). This Group comprises four classes: 7831 Data Processing Services, which includes businesses mainly engaged in providing data processing services; 7832 Information Storage and Retrieval Services, which includes businesses mainly providing storage of data other than library and bibliographic services; 7833 Computer Maintenance Services, which includes businesses mainly providing computer maintenance and repair services; and 7834 Computer Consultancy Services, which includes businesses mainly providing consultancy, analysis and programming services.

The computer services industry is one of a number of information technology related industries sector. For more information on these broader information technology industries sector see Information Technology, Australia, 1998-99 (Cat. no. 8126.0)

At the end of June 1999, there were 14,731 businesses in the computer services industry. This represented a $52 \%$ increase since June 1996 and an annualised growth rate of $15 \%$ over the three years.

These businesses generated $\$ 10,474$ million in income during 1998-99, which was a $30 \%$ increase since 1995-96. Employment at the end of June 1999 in the industry was 74,395 persons, which was a 35\% increase since June 1996.

In 1998-99, the operating profit before tax for the industry was $\$ 836$ million, which represented an operating profit margin of $8.2 \%$.

During 1998-99, the 14,731 businesses in the computer services industry generated $\$ 10,474$ million in income. The provision of computer services accounted for $87 \%$ ( $\$ 9,070$ million) of this income, of which the main components were the provision of bundled computer services ( $\$ 3,354$ million), non-bundled customised software services and solutions ( $\$ 2,556$ million) and computer processing services (\$1,106 million).

A high proportion (81\%) of the income generated from the provision of non-bundled customised software services and solutions related to business applications and systems. This activity was carried out by 6,841 businesses ( $46 \%$ of all businesses in the industry).

Other sources of computer services income included the provision of software maintenance services ( $\$ 738$ million), hardware consultancy services ( $\$ 168$ million), other computer consultancy services ( $\$ 688$ million) and hardware maintenance services (\$214 million).

Other income of the industry was generated from the sale of computer and communication hardware, parts and consumables (\$525 million), the sale and licensing of packaged software ( $\$ 339$ million) and the provision of telecommunication services (\$312 million).

## SUMMARY OF FINDINGS continued

EXPENDITURE

PROFITABILITY

EMPLOYMENT

The total expenditure of businesses in the computer services industry during 1998-99 was $\$ 9,654$ million.

Labour costs was the highest single expense (\$4,065 million) representing $42 \%$ of total expenses. This proportion varied from $35 \%$ for businesses with employment of 100 persons or more to $66 \%$ for businesses with employment of less than 5 persons. For the industry as a whole, the labour cost per employee was $\$ 56,400$. The labour cost per employee was higher for larger businesses, with businesses with employment of 50 persons or greater averaging $\$ 69,700$ per employee.

In addition to labour costs, $\$ 1,396$ million ( $15 \%$ of total expenses) was paid to contractors and consultants for computing and communications services.

Other major expense items for the industry were purchases of $\$ 1,058$ million (mainly comprising $\$ 663$ million for computer and communications hardware, components and consumables and $\$ 305$ million for packaged software and software licensing), depreciation and amortisation of $\$ 432$ million, telecommunication expenses of $\$ 388$ million and rent, leasing and hiring expenses of $\$ 354$ million.

Other operating expenses, which were not separately itemised, were $\$ 1,221$ million and included such expenses as payroll tax, management and administration expenses, cleaning expenses, other contract and sub-contract expenses, fringe benefits tax and paper, printing and stationery expenses.

In 1998-99, the operating profit before tax for the industry was $\$ 836$ million, which represented an operating profit margin of $8.2 \%$. This operating profit margin was significantly higher than the $5.7 \%$ recorded in 1995-96, but still lower than the $9.5 \%$ recorded in 1992-93. However, the operating profit margin in 1998-99 varied by size of business. Businesses with employment of four or less persons recorded an operating profit margin of $11.4 \%$, whereas businesses which employed 100 or more persons recorded an operating profit margin of $7.1 \%$. A contributing factor to the higher operating profit margin of smaller businesses was the fact that some of these businesses are operated by sole proprietors, and the drawings of these persons are not included in business expenses.

At the end of June 1999, there were 74,395 persons working for businesses in the computer services industry, which was a 35\% increase since June 1996.

Industry employment consisted of 1,542 working proprietors and partners and 72,853 employees. A high proportion of employment was employees working on a permanent full-time basis (84\%), while $8 \%$ of employment worked on a permanent part-time basis and $6 \%$ worked as casuals.

In terms of occupations, the majority ( $76 \%$ ) of persons employed in the industry were computing and technical staff.

Male staff $(49,546)$ accounted for $67 \%$ of total industry employment, which was almost the same as that recorded in June 1996. At the end of June 1999, 77\% of computing and technical staff were males.

## SUMMARY OF FINDINGS continued

STATE AND TERRITORY DIMENSION

A high proportion of industry income was generated by businesses operating in New South Wales (49\%) and Victoria (29\%). By way of comparison, New South Wales' share of the Australian population is $34 \%$, and Victoria's share of the Australian population is $25 \%$.

For all other States and Territories, except for the Australian Capital Territory, the State shares of industry income were less than their respective population proportions. Businesses operating in the Australian Capital Territory accounted for 6\% of employment and industry income. Australian Capital Territory's share of the Australian population is 1.6\%.

In terms of growth in the three years since 1995-96, the largest annualised percentage increases in total income were recorded by the Australian Capital Territory (26\%), Queensland (15\%) and South Austrlaia (12\%). The picture was similar when looking at growth in employment with Australian Capital Territory (annualised increase of 24\%), Queensland (20\%) and South Australia (14\%) recording the three largest increases.

The industry average income per business was $\$ 711,000$. Businesses operating in the Australian Capital Territory ( $\$ 853,600$ per business) and New South Wales ( $\$ 813,000$ per business) had the highest average income per business. The lowest average income per business was recorded by Tasmania $(\$ 255,000)$ and Northern Territory $(\$ 252,800)$.

In terms of the number of businesses, the computer services industry was dominated by small businesses during 1998-99, with 98\% of businesses having fewer than 20 persons employed. These small businesses accounted for $48 \%$ of industry employment and $28 \%$ of industry income. Businesses with four or less persons employed, represented $88 \%$ of all businesses, $32 \%$ of industry employment and $16 \%$ of industry income. The growth in the number of micro businesses was $15 \%$ per annum since June 1996.

At the end of June 1999, there were 56 large businesses in the industry (i.e. employed 100 or more persons), which compared with 51 businesses in June 1996. These 56 large businesses accounted for $39 \%$ of industry employment, $59 \%$ of industry income and $51 \%$ of the operating profit before tax for the industry.

While significant industry income was generated by the provision of non-bundled customised software services and solutions ( $24 \%$ of total income), its proportion to total income varied from $31 \%$ to $40 \%$ for businesses in all employment size ranges below 100 employment. Businesses, which employed 100 or more persons generated only $16 \%$ of their income from this source. In contrast, these large businesses generated $46 \%$ of their income from the provision of bundled computer services, compared to the industry average of $32 \%$ from this income source.

|  |  | 1992-93 | 1995-96 | 1998-99 | Percentage <br> growth <br> from <br> 1995-96 <br> to <br> 1998-99 | Annualised percentage growth from 1995-96 <br> to $\qquad$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Businesses at end June | no. | 4894 | 9679 | 14731 | 52.2 | 15.0 |
| Employment at end June | no. | 30056 | 55046 | 74395 | 35.2 | 10.6 |
| Income |  |  |  |  |  |  |
| Income from the provision of computer services <br> and the sale and licensing of packaged $\begin{array}{llllll}\text { software } & \text { \$m } & 3251.2 & 6504.7 & 9409.2 & 44.7\end{array}$ <br> 13.1 |  |  |  |  |  |  |
| Income from the provision of telecommunications services | \$m | 95.5 | 147.9 | 312.3 | 111.2 | 28.3 |
| Income from the sale of computer and communication hardware, parts and consumables | \$m | 488.8 | 1047.8 | 525.1 | -49.9 | -20.6 |
| Other income | \$m | 264.7 | 387.9 | 227.4 | -41.4 | -16.3 |
| Total | \$m | 4100.2 | 8088.3 | 10474.0 | 29.5 | 9.0 |
| Expenses |  |  |  |  |  |  |
| Labour costs | \$m | 1293.6 | 2726.8 | 4065.0 | 49.1 | 14.2 |
| Payments to contractors and consultants for computing and communications services | \$m | 294.6 | 892.0 | 1396.4 | 56.5 | 16.1 |
| Other expenses | \$m | 2160.9 | 4022.7 | 4193.0 | 4.2 | 1.4 |
| Total | \$m | 3749.1 | 7641.5 | 9654.4 | 26.3 | 8.1 |
| Operating profit before tax | \$m | 364.9 | 455.1 | 835.6 | 83.6 | 22.5 |
| Operating profit margin | \% | 9.5 | 5.7 | 8.2 | 43.2 | 12.7 |


|  | Businesses at end June(a) | Value | Proportion of total income |
| :---: | :---: | :---: | :---: |
|  | no. | \$m | \% |
| Sales of goods and services |  |  |  |
| Income from the provision of computer services |  |  |  |
| Income from the provision of bundled computer services | 2157 | 3353.6 | 32.0 |
| Customised software services and solutions |  |  |  |
| Digital/multi-media applications | 536 | 62.0 | 0.6 |
| Communications | 667 | 131.6 | 1.3 |
| Business applications and systems | 6841 | 2064.4 | 19.7 |
| Other | 1149 | 297.7 | 2.8 |
| Total(b) | 7966 | 2555.6 | 24.4 |
| Software maintenance services | 4279 | 737.5 | 7.0 |
| Hardware consultancy services | 1327 | 167.6 | 1.6 |
| Other computer consultancy services | 4017 | 687.6 | 6.6 |
| Hardware maintenance services | 889 | 213.9 | 2.0 |
| Installation and cabling services for computers | 579 | *72.4 | 0.7 |
| Computer processing services | 454 | 1105.9 | 10.6 |
| Information storage and retrieval services | *242 | 95.7 | 0.9 |
| Other computer services | 479 | 80.5 | 0.8 |
| Total of all computer services | 14731 | 9070.3 | 86.6 |
| Income from the provision of telecommunications services | 604 | 312.3 | 3.0 |
| Income from the sale of computer and communication hardware, parts and consumables |  |  |  |
| Computer hardware (excluding parts and components) | 1593 | 392.7 | 3.7 |
| Communications hardware (excluding parts and components) | 538 | 48.1 | 0.5 |
| Computer and communication parts, components and consumables | 783 | 84.3 | 0.8 |
| Total (c) | 1936 | 525.1 | 5.0 |
| Income from the sale and licensing of packaged software, developed and purchased for resale |  |  |  |
| Games and recreation | *32 | **1.8 | - |
| Education and training | *95 | *2.1 | - |
| Communications | 226 | 26.0 | 0.2 |
| Other business applications and systems | 1530 | 271.8 | 2.6 |
| Other | 210 | 37.2 | 0.4 |
| Total(d) | 1808 | 338.9 | 3.2 |
| Other royalties income | *153 | 10.7 | 0.1 |
| Rent, leasing and hiring income | 526 | 14.8 | 0.1 |
| Other operating income | 1649 | 106.6 | 1.0 |
| Total | 2095 | 132.1 | 1.3 |
| Other sources of income |  |  |  |
| Funding from Federal, State and/or Local |  |  |  |
| Government | 134 | 19.8 | 0.2 |
| Interest income | 5057 | 52.9 | 0.5 |
| Other non-operating income | 2291 | 22.6 | 0.2 |
| Total | 5961 | 95.3 | 0.9 |
| Total | 14731 | 10474.0 | 100.0 |

* estimate has a relative standard error of between $25 \%$ and $50 \%$ and should be used with caution
** estimate has a relative standard error greater than $50 \%$ and is considered too unreliable for general use
- nil or rounded to zero (including null cells)
(a) Businesses may have more than one source of income. Hence, the counts of businesses for each income source do not sum to the total.
(b) Of the total income from customised software services and solutions $\$ 160.3$ million relates to Internet applications.
(c) Of the total income from the sale of computer and communication hardware, parts and consumables $97 \%$ was from goods purchased for resale.
(d) Of packaged software, $56 \%$ was developed in Australia.

|  | Value | Proportion of total expenses |
| :---: | :---: | :---: |
|  | \$m | \% |
| Labour costs |  |  |
|  |  |  |
| Wages and salaries | 3710.7 | 38.4 |
| Employer contributions to superannuation funds | 335.5 | 3.5 |
| Workers' compensation costs | 18.8 | 0.2 |
| Total | 4065.0 | 42.1 |
| Selected expenses |  |  |
| Payments to contractors and consultants for computing and communications services | 1396.4 | 14.5 |
| Recruitment services provided by other businesses | 49.9 | 0.5 |
| Rent, leasing and hiring expenses | 353.9 | 3.7 |
| Repair and maintenance expenses | 202.7 | 2.1 |
| Telecommunication expenses | 387.5 | 4.0 |
| Travelling, accommodation and entertainment expenses | 271.8 | 2.8 |
| Other royalties expenses | 98.5 | 1.0 |
| Other operating expenses | 1221.4 | 12.7 |
| Total | 3982.2 | 41.2 |
| Other costs |  |  |
| Purchases |  |  |
| Computer and communications hardware, components and consumables | 663.0 | 6.9 |
| Packaged software and software licensing | 305.4 | 3.2 |
| Other purchases | 89.4 | 0.9 |
| Total | 1057.8 | 11.0 |
| Insurance premiums | 31.5 | 0.3 |
| Interest expenses | 59.3 | 0.6 |
| Depreciation and amortisation | 431.6 | 4.5 |
| Bad and doubtful debts | 27.0 | 0.3 |
| Total | 1607.3 | 16.6 |
| Total | 9654.4 | 100.0 |



## MAIN OCCUPATION OF PERSONS EMPLOYED

|  | Males. |  | Females. |  | Persons. |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | no. | \% | no. | \% | no. | \% |
| Computing and technical | 43362 | 87.5 | 12829 | 51.6 | 56191 | 75.5 |
| Other | 6184 | 12.5 | 12021 | 48.4 | 18205 | 24.5 |
| Total | 49546 | 100.0 | 24849 | 100.0 | 74395 | 100.0 |

STATES AND TERRITORIES

|  | BUSINESSES |  | EMPLOYMENT AT END JUNE |  |  | TOTAL INCOME |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Annualised <br> growth rate from <br> 1995-96 <br> to |  | Annualised growth rate from |  |  | Annualised growth rate from |  |  |
|  |  |  |  |  | 1995-96 |  |  | 1995-96 |
|  |  |  |  |  | to |  |  | to |
|  | Number | 1998-99 | Persons | Proportion | 1998-99 | Value | Proportion | 1998-99 |
|  | no. | \% | no. | \% | \% | \$m | \% | \% |
| New South Wales | 6362 | 15.6 | 32743 | 44.0 | 8.7 | 5172.3 | 49.4 | 8.7 |
| Victoria | 4589 | 10.1 | 21410 | 28.8 | 8.6 | 2999.9 | 28.6 | 6.3 |
| Queensland | 1760 | 19.4 | 8005 | 10.8 | 19.5 | 786.2 | 7.5 | 14.5 |
| South Australia | 682 | 8.7 | 3626 | 4.9 | 14.0 | 425.2 | 4.1 | 11.7 |
| Western Australia | 1024 | 13.3 | 3918 | 5.3 | 8.7 | 426.4 | 4.1 | 4.6 |
| Tasmania | 111 | 5.3 | 376 | 0.5 | 11.5 | 28.3 | 0.3 | -1.9 |
| Northern Territory | 53 | 13.8 | 112 | 0.2 | -2.8 | 13.4 | 0.1 | -1.7 |
| Australian Capital |  |  |  |  |  |  |  |  |
| Territory | 729 | 23.0 | 4205 | 5.7 | 23.6 | 622.3 | 5.9 | 25.5 |
| Australia | 14731 | 15.0 | 74395 | 100.0 | 10.6 | 10474.0 | 100.0 | 9.0 |

BUSINESS SIZE

|  |  | EMPLOY | ENT SIZ |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | $\begin{aligned} & 0-4 \\ & \text { persons } \end{aligned}$ | 5-9 persons | 10-19 persons | $\begin{aligned} & 20-49 \\ & \text { persons } \end{aligned}$ | 50-99 persons | 100 or more persons | Total |
| Businesses at end June | no. | 13018 | 893 | 503 | 217 | 45 | 56 | 14731 |
|  | \% | 88.4 | 6.1 | 3.4 | 1.5 | 0.3 | 0.4 | 100.0 |
| Total employment | no. | 23593 | 5554 | 6798 | 6626 | 2963 | 28862 | 74395 |
|  | \% | 31.7 | 7.5 | 9.1 | 8.9 | 4.0 | 38.8 | 100.0 |
| Expenses |  |  |  |  |  |  |  |  |
| Labour costs | \$m | 953.3 | 217.3 | 322.9 | 359.5 | 208.8 | 2003.2 | 4065.0 |
|  | \% | 23.5 | 5.3 | 7.9 | 8.8 | 5.1 | 49.3 | 100.0 |
| Total | \$m | 1449.9 | 437.4 | 758.7 | 801.6 | 477.2 | 5729.7 | 9654.4 |
|  | \% | 15.0 | 4.5 | 7.9 | 8.3 | 4.9 | 59.3 | 100.0 |
| Total income | \$m | 1631.6 | 457.3 | 835.0 | 897.6 | 505.3 | 6147.2 | 10474.0 |
|  | \% | 15.6 | 4.4 | 8.0 | 8.6 | 4.8 | 58.7 | 100.0 |
| Operating profit before tax | \$m | 181.5 | **19.9 | *76.3 | *95.7 | 34.6 | 427.6 | 835.6 |
|  | \% | 21.7 | 2.4 | 9.1 | 11.5 | 4.1 | 51.2 | 100.0 |

[^0]|  |  | EMPLOYMENT SIZE |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 0-4 persons | 5-9 persons | $\begin{aligned} & 10-19 \\ & \text { persons } \end{aligned}$ | 20-49 persons | 50-99 persons | 100 or more persons | Total |
| Total income per person employed | \$'000 | 70.8 | 83.7 | 124.6 | 136.8 | 171.1 | 213.0 | 142.3 |
| Income from the provision of computer services to total income | \% | 94.3 | 84.3 | 85.1 | 77.5 | 75.4 | 87.2 | 86.6 |
| Income from customised software services and solutions to total income | \% | 40.4 | 32.1 | 34.8 | 37.5 | 30.8 | 15.7 | 24.4 |
| Income from the provision of bundled computer services to total income | \% | 12.6 | *10.3 | *14.5 | *8.7 | 19.5 | 45.6 | 32.0 |
| Labour costs per employee | \$'000 | 43.6 | 40.5 | 48.9 | 55.2 | 70.8 | 69.6 | 56.4 |
| Labour costs to total expenses | \% | 65.8 | 49.7 | 42.6 | 44.9 | 43.8 | 35.0 | 42.1 |
| Operating profit before tax per person employed | \$'000 | 7.9 | **3.6 | *11.4 | *14.6 | 11.7 | 14.8 | 11.4 |
| Operating profit margin | \% | 11.4 | **4.5 | *9.4 | *11.2 | 7.4 | 7.1 | 8.2 |

* estimate has a relative standard error of between $25 \%$ and $50 \%$ and should be used with caution
** estimate has a relative standard error greater than $50 \%$ and is considered too unreliable for general use
INTRODUCTION
SCOPE
IMPROVEMENTS TO
COVERAGE

1 This publication presents results, in respect of 1998-99, from an Australian Bureau of Statistics (ABS) survey of 2,244 businesses in the computer services industry.

2 The scope of the survey was all employing businesses recorded on the ABS Business Register and classified to Group 783, Computer Services, of the Australian and New Zealand Standard Industrial Classification (ANZSIC). This group comprises four classes: 7831 Data Processing Services, which includes businesses mainly engaged in providing data processing services; 7832 Information Storage and Retrieval Services, which includes businesses mainly providing storage of data other than library and bibliographic services; 7833 Computer Maintenance Services, which includes businesses mainly providing computer maintenance and repair services; and 7834 Computer Consultancy Services, which includes businesses mainly providing consultancy, analysis and programming services.

3 Data in this publication have been adjusted to allow for lags in processing new businesses to the ABS business register, and the omission of some businesses from the business register. The majority of businesses affected and to which the adjustments apply are small in size.
4 Adjustments have been made to include new businesses in the estimates in the periods in which they commenced operations, rather than when they were processed to the business register. Adjustments of this type will continue to be applied in future periods.

5 Further adjustments have been made for businesses which had been in existence for several years, but, for various reasons, were not previously added to the ABS register. The ABS is remedying these omissions.

6 For more information on these adjustments, please refer to the ABS publication Information Paper: Improvements to ABS Economic Statistics, 1997 (Cat. no. 1357.0).

7 The unit for which statistics were reported in the survey was the management unit. The management unit is the highest-level accounting unit within a business or organisation, having regard to the required level of industry homogeneity, for which a set of accounts is maintained. In most cases it coincides with the legal entity owning the business (i.e. company, partnership, trust, etc.). However, in the case of large diversified businesses, there may be more than one management unit, with each coinciding with a 'division' or 'line of business'. A division or line of business is recognised where separate and comprehensive accounts are compiled for it.

8 Data contained in the tables in this publication relate to all computer services businesses which operated in Australia at any time during the year ended June 1999. Counts of businesses include only those businesses that were operating at 30 June 1999.

9 The estimates in this publication are subject to sampling and non-sampling error.

10 The estimates in this publication are based on information obtained from a sample of businesses in the surveyed population. Consequently, the estimates in this publication are subject to sampling variability, that is, they may differ from the figures that would have been obtained if all units had been included in the survey. One measure of the likely difference is given by the standard error (SE),

## EXPLANATORY NOTES continued

RELIABILITY OF THE DATA continued
which indicates the extent to which an estimate might have varied by chance because only a sample of units was included.

11 There are about two chances in three that a sample estimate will differ by less than one SE from the figure that would have been obtained if a census had been conducted, and approximately 19 chances in 20 that the difference will be less than two SEs.

12 Sampling variability can be measured by the relative standard error (RSE) which is obtained by expressing the SE as a percentage of the estimate to which it refers. The RSE is a useful measure in that it provides an immediate indication of the percentage errors likely to have occurred due to sampling, and this avoids the need to refer also to the size of the estimate.

13 The following table contains estimates of RSEs for a selection of the statistics presented in this publication.

RELATIVE STANDARD ERRORS FOR TABLE 1, Key Figures

|  | 1992-93 | 1995-96 | 1998-99 |
| :---: | :---: | :---: | :---: |
|  | \% | \% | \% |
| Businesses at end June | 2 | 2 | 2 |
| Employment at end June | 2 | 2 | 2 |
| Income |  |  |  |
| Income from the provision of computer services and the sale and licensing of packaged software | 2 | 3 | 2 |
| Income from the provision of telecommunications services | 2 | 4 | 3 |
| Income from the sale of computer and communication hardware, parts and consumables | 2 | 9 | 12 |
| Other income | 3 | 5 | 4 |
| Total | 1 | 4 | 2 |
| Expenses |  |  |  |
| Labour costs | 1 | 3 | 2 |
| Payments to contractors and consultants for computing and communications services | 8 | 8 | 3 |
| Other expenses | 1 | 4 | 3 |
| Total | 1 | 4 | 2 |
| Operating profit before tax | 4 | 11 | 6 |
| Operating profit margin | 3 | 10 | 6 |

14 As an example of the above, an estimate of total income for the computer services industry is $\$ 10,474.0$ million and the RSE is $2 \%$, giving a SE of $\$ 209.5$ million. Therefore, there would be two chances in three that, if all units had been included in the survey, a figure in the range of $\$ 10,264.5$ million to $\$ 10,683.5$ million would have been obtained, and 19 chances in 20 (i.e. a confidence interval of 95\%) that the figure would have been within the range of $\$ 10,055.0$ million to $\$ 10,893.0$ million

15 Errors other than those due to sampling may occur because of deficiencies in the register of units from which the sample was selected, non-response, and imperfections in reporting by respondents. Inaccuracies of this kind are referred to as non-sampling errors and they may occur in any collection, whether it be a census or a sample. Every effort has been made to reduce non-sampling error to a minimum by careful design and testing of questionnaires, efficient operating procedures and systems, and appropriate methodology.

16 ABS publications draw extensively on information provided freely by individuals, businesses, governments and other organisations. Their continued cooperation is very much appreciated; without it, the wide range of statistics published by the ABS would not be available. Information received by the ABS is treated in strict confidence as required by the Census and Statistics Act 1905.
Bad and doubtful debts
Casual employees
Computing and technical staff
Depreciation amortisation
Employer contributions to
superannuation funds
Employment at the end of
June
Full-time employees
Government funding

Income from the provision of computer services

Income from the sale and licensing of packaged software

Income from the sale of computer and communications hardware, parts and consumables

Bad and doubtful debts is the amount of accounts receivable that are either written off, or estimated to be uncollectible during an accounting period, that are expensed in a period's profit calculations.

This item refers to employees not entitled to take paid holidays.
This item includes system information technology managers, electronics engineers, systems managers and administrators, software designers, applications and analyst programmers, computer database managers, testers, controllers, security auditors, electronic, computer and communication technicians.

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

These are the contributions by the employer to superannuation funds, including the employer productivity contribution.

This item includes working proprietors and partners, working directors, and other employees (including casual employees) working for a business during the last pay period in June. Employees absent on paid or prepaid leave are included.

Full-time employees are those who work 35 hours or more per week.
This item includes recurrent funding for operational costs and funding provided for specific capital items or on a one-off basis.

This item includes custom software development and customising of software products.

This item includes income from voice services, data services, mobile services, internet services, leased lines, mobile data services, EDI services, video conferencing, value added voice services, repair and maintenance of telecommunications equipment and telecommunications consultancy services.

This item includes income from services such as help desk, hardware and software appraisal, configuration management, inventory management, software distribution, usage and maintenance, communication network management, facilities maintenance and management, etc. This item may also include computer and communications hardware and software purchased for resale provided in the course of the consultancy.

This item includes income from customised software services and solutions, bundled computer services, software and hardware maintenance services, hardware consultancy services, installation and cabling services, computer processing services, information storage and retrieval services and other computer services.

This item includes income from the sale and licensing of packaged software developed in Australia by the business and software purchased for resale.

This item includes income from the sale of computer and communication hardware, parts and components and consumables manufactured in Australia by the business or purchased for resale.

This includes interest on bank loans, interest on loans made to the business from related and unrelated businesses, interest in respect of finance leases, interest paid on loans from partners, interest equivalents, such as hedging costs, expenses associated with discounted bills.

| Interest income | This includes interest from loans and advances made to other businesses, interest on finance leases, earnings on discounted bills, and interest from deposits in banks and other financial institutions. |
| :---: | :---: |
| Labour costs | These include wages and salaries, provision expenses for employee entitlements, employer contributions to superannuation and workers' compensation costs. |
| Operating profit before tax <br> (OPBT) | This is a measure of profit before extraordinary items are brought to account and prior to the deduction of income tax and appropriations to owners, e.g. dividends paid. |
| Operating profit margin | This is the percentage of sales of goods and services available as operating profit. i.e. OPBT times 100 divided by sales of goods and services. |
| Other non-operating income | This item includes net profit (loss) on the sale of fixed tangible assets, dividend income, net profit (loss) on share trading, and on foreign loans as a result of variations in foreign exchange rates/transactions. |
| Other operating expenses | This item includes management and administration expenses, office supplies and printing costs, accounting and legal services, electricity and gas charges, freight and cartage expenses, payments for cleaning services, rates and land tax, advertising costs, motor vehicle running expenses and fringe benefits and payroll tax. |
| Part-time employees | Part-time employees are those who work less than 35 hours per week. |
| Payments to subcontractors and consultants | These are payments to subcontractors and consultants for computer and communication services and related to work. Payments to subcontractors for non-computing work (e.g. cleaning services) are not included. |
| Purchases | This item includes the purchases of materials, components, containers and packaging materials. |
| Rent, leasing and hiring expenses | This item includes expenses incurred from the rental of land, buildings and other structures, motor vehicles and equipment used by the business. |
| Rent, leasing and hiring income | This is revenue derived from the ownership of land, buildings, vehicles, machinery or equipment rented out for use by those other than the owners. |
| Royalties | These are payments made by a business for the use of rights owned by another business. |
| Telecommunication expenses | This item includes telephone charges, facsimile charges, internet expenses, and the cost of leased lines for computers and internet services. |
| Wages and salaries | This item includes severance, termination and redundancy payments, and provision expenses for employee entitlements. It excludes payments to subcontractors and consultants, and drawings of working proprietors and partners of unincorporated businesses. |
| Workers' compensation costs | These include insurance premiums/levies and non-payroll costs incurred by a business and not reimbursed by an insurance company. |
| Working proprietors and partners of unincorporated businesses | This item includes working proprietors and partners who own/operate their own business in a profession or trade (a sole proprietorship) or, along with one or more other partners, operate a partnership. Working proprietors and working partners as owners are not considered to be employees of the business. |


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[^0]:    ** estimate has a relative standard error greater than $50 \%$ and is considered too unreliable for general use

    * estimate has a relative standard error of between $25 \%$ and $50 \%$ and should be used with caution

