



2009-10

8104.0

RESEARCH AND EXPERIMENTAL DEVELOPMENT, BUSINESSES AUSTRALIA

EMBARGO: 11.30AM (CANBERRA TIME) THURS 8 SEP 2011

C O N T E N T S

	<i>page</i>
Notes	2
Abbreviations	3
Main Features	4
Business Expenditure on R&D (BERD)	6
Business Human Resources Devoted to R&D	10
List of Tables	13
Explanatory Notes	34
Technical Note	39
Glossary	40

I N Q U I R I E S

For further information about these and related statistics, contact the National Information and Referral Service on 1300 135 070 or Rebecca Gale on Perth (08) 9360 5179.

NOTES

INTRODUCTION

This release presents summary statistics on Research and Experimental Development (R&D) undertaken by Australian businesses during 2009–10.

Users should refer to the Explanatory and Technical Notes for further contextual information when interpreting these results.

ADDITIONAL DATA

More detailed data, including time series data, will be made available in spreadsheet format (data cubes) by 31 October 2011. If users would like to be notified when these data are released, please email innovation.technology@abs.gov.au. Data cubes will appear on the Downloads page (cat. no. 8104.0) on the ABS website www.abs.gov.au.

DATA QUALITY

When interpreting the results in this release, it is important to take into account factors that may affect the reliability of estimates. These factors are described in the Non-sampling error section of the Technical Note.

This release includes revised data for the 2007–08 and 2008–09 reference periods. Refer to the Revisions section of the Technical Note for details.

Brian Pink
Australian Statistician

ABBREVIATIONS

\$'000	thousand dollars
\$b	billion (thousand million) dollars
\$m	million dollars
%pts	percentage points
ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
ANZSIC06	<i>Australian and New Zealand Standard Industrial Classification, 2006 Edition</i>
ANZSRC	Australian and New Zealand Standard Research Classification
ASRC	Australian Standard Research Classification
ATO	Australian Taxation Office
Aust.	Australia
BERD	business expenditure on R&D
excl.	excluding
FOR	Fields of Research
GDP	gross domestic product
GSP	gross state product
n.e.c.	not elsewhere classified
NSW	New South Wales
NT	Northern Territory
OECD	Organisation for Economic Co-operation and Development
PYE	person years of effort
Qld	Queensland
R&D	research and experimental development
SA	South Australia
SEO	socio-economic objective
Tas.	Tasmania
Vic.	Victoria
WA	Western Australia

MAIN FEATURES

BUSINESS RESOURCES DEVOTED TO RESEARCH AND EXPERIMENTAL DEVELOPMENT (R&D)

During 2009–10, expenditure on R&D by Australian businesses was \$16,685 million.

Business expenditure on R&D (BERD) decreased by 3% in current price terms and 5% in chain volume terms, compared to 2008–09.

Business human resources devoted to R&D in 2009–10 totalled 57,457 person years of effort (PYE), an increase of 6% from 2008–09.

BUSINESS RESOURCES DEVOTED TO R&D

		2005–06	2006–07	2007–08(a)	2008–09(a)	2009–10
Expenditure on R&D						
Current prices						
Value	\$m	10 434	12 639	15 047	17 264	16 685
Dollar change	\$m	1 758	2 205	2 408	2 216	–579
Percentage change	%	20	21	19	15	–3
Chain volume measures(b)						
Value	\$m	11 680	14 104	16 017	17 616	16 685
Dollar change	\$m	1 539	2 425	1 913	1 598	–931
Percentage change	%	15	21	14	10	–5
Human resources devoted to R&D						
Value	PYE	43 686	46 462	50 896	53 998	57 457
PYE change	PYE	3 228	2 776	4 434	3 102	3 459
Percentage change	%	8	6	10	6	6

(a) 2007–08 and 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

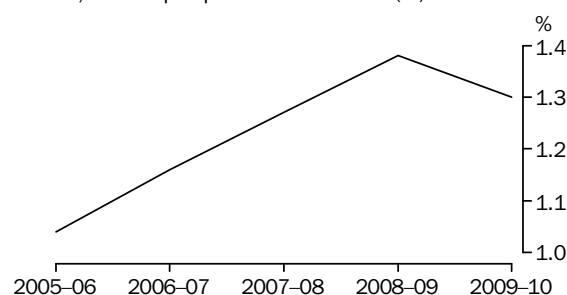
(b) The reference year for chain volume measures is 2009–10. See Explanatory Notes 31 and 32 for details.

Subsequent expenditure figures and supporting commentary relate to current price terms.

BERD and gross domestic product (GDP)

BERD as a proportion of GDP decreased between 2008–09 and 2009–10, down from 1.38% to 1.30%.

BERD, as a proportion of GDP(a)



(a) See Explanatory Notes 29 and 30 for details.

MAIN FEATURES *continued*

BERD and gross domestic product (GDP) continued

The following table shows BERD/GDP ratios for Organisation for Economic Co-operation and Development (OECD) countries. Users should note that 2009–10 data are unavailable for more countries than for previous cycles. The order in which countries are presented is to facilitate interpretation only and should not be viewed as a ranking. Once additional 2009–10 data become available, the order of countries may change.

BERD/GDP RATIOS OF OECD COUNTRIES (a)(b)(c)

	2005-06	2006-07	2007-08	2008-09	2009-10
	%	%	%	%	%
Israel	3.43	3.50	3.88	3.78	3.42
Finland	2.46	2.48	2.51	2.76	2.83
Sweden	2.59	2.75	2.47	2.74	2.55
Japan	2.54	2.63	2.68	2.70	2.53
Korea	2.15	2.32	2.45	2.53	na
Switzerland	na	na	na	2.20	na
United States of America	1.80	1.86	1.92	2.02	na
Denmark	1.68	1.66	1.80	2.01	2.02
Austria	1.73	1.73	1.78	1.88	1.94
Germany	1.72	1.77	1.77	1.86	1.88
Iceland	1.43	1.59	1.46	1.44	na
France	1.30	1.32	1.31	1.32	1.37
Belgium	1.25	1.29	1.32	1.32	1.32
Australia	1.04	1.16	1.27	1.38	1.30
Luxembourg	1.35	1.43	1.32	1.22	1.24
Slovenia	0.84	0.94	0.87	1.07	1.20
Ireland	0.82	0.83	0.85	0.94	1.17
United Kingdom	1.06	1.08	1.11	1.10	1.12
Canada	1.14	1.14	1.09	0.99	1.00
Czech Republic	0.89	1.01	0.95	0.91	0.92
Norway	0.82	0.82	0.85	0.86	0.91
Netherlands	1.01	1.01	0.96	0.88	0.86
Portugal	0.30	0.46	0.60	0.75	0.77
Spain	0.60	0.67	0.71	0.74	0.72
Hungary	0.41	0.48	0.49	0.52	0.66
Italy	0.55	0.55	0.61	0.65	0.65
Estonia	0.42	0.50	0.52	0.56	0.64
New Zealand	0.47	na	0.50	na	na
Turkey	0.20	0.21	0.30	0.32	0.34
Slovak Republic	0.25	0.21	0.18	0.20	0.20
Mexico	0.19	0.18	0.18	na	na
Poland	0.18	0.18	0.17	0.19	0.19
Greece	0.18	0.17	0.17	na	na
Chile	na	na	0.11	0.16	na
Total OECD	1.51	1.55	1.58	1.62	na

na not available

(a) Except for Australia, the BERD/GDP ratios shown for OECD countries are sourced from *Main Science and Technology Indicators*, Vol. 2011/1, OECD. Ratios for Australia have been calculated using the most recent ABS values for BERD and GDP. See Explanatory Notes 29 and 30.

(b) BERD/GDP ratios for some countries are projected or estimated as per the OECD source table.

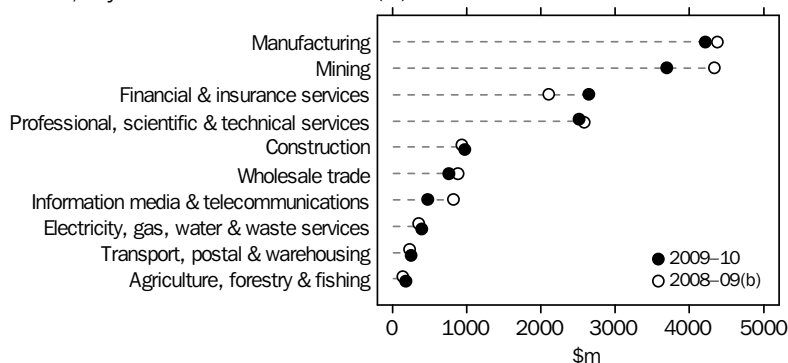
(c) Countries are ranked by the most recent available BERD/GDP ratio. Once additional 2009–10 data become available, the order of countries may change.

BUSINESS EXPENDITURE ON R&D (BERD)

INDUSTRY

The industry divisions of Manufacturing and Mining continued to be the largest contributors to total BERD in 2009–10, contributing \$4,219 million (25%) and \$3,695 million (22%), respectively. Financial and insurance services (\$2,651 million or 16%) and Professional, scientific and technical services (\$2,516 million or 15%) were the next largest contributors. Combined, these four industries accounted for almost 80% of total BERD.

BERD, by selected industries(a)



(a) Ranked by 2009–10 BERD.

(b) Some 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

Across all industries, Financial and insurance services had the largest dollar increase in BERD compared to 2008–09, up \$548 million. Of the four largest industry contributors to total BERD, Financial and insurance services was also the only industry to increase its BERD. The largest decreases in BERD from 2008–09, were for Mining (down \$639 million) and Information media and telecommunications (down \$346 million).

The Financial and insurance services and Mining industries also showed the largest changes in proportional share of total BERD from 2008–09; Financial and insurance services up 4 percentage points from 12%, and Mining down 3 percentage points from 25%. Compared to 2008–09, Financial and insurance services replaced Professional, scientific and technical services as the third largest industry contributor to total BERD in 2009–10.

EMPLOYMENT SIZE

In 2009–10, businesses in the employment size group of 200 or more employees made the largest contribution to total BERD (\$11,477 million or 69%), followed by businesses with 20–199 employees (\$3,097 million or 19%).

The dollar decrease in BERD for businesses with 200 or more employees was larger than the overall decrease in total BERD from 2008–09; down \$582 million compared to the overall decrease of \$579 million. In 2009–10, these businesses also had the largest percentage decrease in BERD (down 5%) and the largest decrease in proportional share of total BERD (down 1 percentage point), compared to 2008–09.

Businesses in the employment size group of 0–4 employees had the largest percentage increase in BERD (up 8% to \$690 million) compared to 2008–09, however it remained the lowest contributing group to total BERD (accounting for 4% in 2009–10).

BUSINESS EXPENDITURE ON R&D (BERD) *continued*

TYPE OF EXPENDITURE

As in previous years, total BERD in 2009–10 was mainly comprised of Current expenditure (\$15,965 million or 96% of total BERD). Capital expenditure accounted for \$720 million (4%) of total BERD in 2009–10. Both Current and Capital expenditure decreased compared to 2008–09, down \$466 million and \$112 million, respectively.

A decrease of \$1,039 million in Other current expenditure compared to 2008–09, partially offset by an increase of \$573 million in Labour costs, resulted in the overall 3% decrease in Current expenditure. For Capital expenditure, 72% of the overall decrease in 2009–10 was due to reduced capital expenditure on Land, buildings and other structures (down 40% from \$206 million in 2008–09 to \$124 million). Other capital expenditure accounted for the remaining 28% of the overall decrease, down 5% from \$626 million in 2008–09 to \$595 million in 2009–10.

In 2009–10, the industry with the highest level of Labour costs as a proportion of its BERD was Education and training at 58%, while Mining had the lowest level, at 16%.

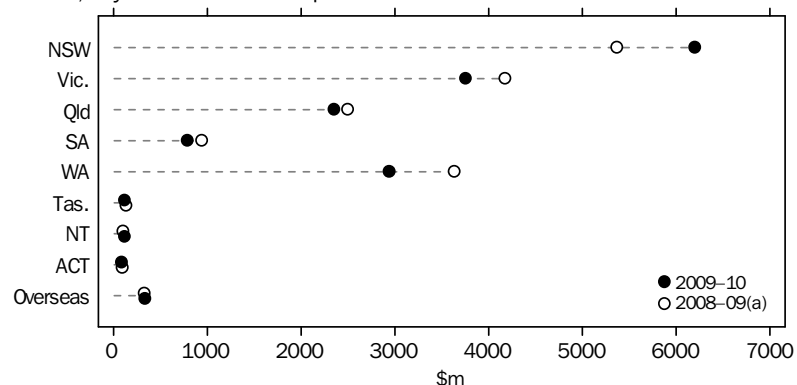
SOURCE OF FUNDS

As for previous years, the Business sector was the main source of BERD funds in 2009–10, with \$15,930 million (96% of total BERD) coming from Own funds and \$193 million (1% of total BERD) from Other business. Commonwealth government and Overseas sources were the next largest funders of BERD, at \$308 million (2% of total BERD) and \$166 million (1% of total BERD), respectively.

LOCATION OF EXPENDITURE

Location of expenditure relates to the region in which the R&D activity was performed; see also Explanatory Note 26. New South Wales (NSW) and Victoria continued to have the highest levels of BERD in 2009–10, at \$6,194 million (37% of total BERD) and \$3,750 million (22% of total BERD), respectively.

BERD, by location of expenditure



(a) Some 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

In 2009–10, NSW, Northern Territory (NT) and Overseas were the only locations with increased BERD compared to 2008–09. NSW had the largest dollar increase (up \$832 million) and also the largest increase in proportional share of total BERD (up 6 percentage points to 37%). Growth in BERD in NSW was driven by the Financial and insurance services industry (up \$584 million in NSW).

BUSINESS EXPENDITURE ON R&D (BERD) *continued*

LOCATION OF EXPENDITURE *continued*

Compared to 2008–09, Western Australia (WA) had the largest decrease in BERD, in both dollar and percentage terms (down \$689 million or 19% in 2009–10). WA also had the largest decrease in proportional share of total BERD (down 3 percentage points to 18% in 2009–10).

In 2009–10, Mining remained the dominant industry for BERD in WA (70% of WA BERD). However, it also had the largest dollar decrease (down \$473 million in WA) compared to 2008–09. Manufacturing had the second largest dollar decrease in WA (down \$253 million).

BERD and gross state product (GSP)

In 2009–10, WA (1.59%) and NSW (1.52%) had the highest levels of BERD as a proportion of GSP. NSW and NT were the only states to increase their BERD/GSP ratio compared to 2008–09, up 0.16 and 0.14 percentage points, respectively. Over the same period, WA had the largest decrease in BERD/GSP ratio (down 0.43 percentage points).

BERD, by location of expenditure—proportion of GSP(a)

		NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT
2009–10	%	1.52	1.24	0.96	0.98	1.59	0.50	0.75	0.31
2008–09	%	1.36	1.45	1.00	1.21	2.02	0.62	0.61	0.36
Change	%pts	0.16	-0.21	-0.04	-0.23	-0.43	-0.12	0.14	-0.05

(a) See Explanatory Note 29 for details.

TYPE OF ACTIVITY

In 2009–10, the majority of BERD continued to be directed into Experimental development (\$10,074 million or 60% of total BERD) and Applied research (\$5,772 million or 35% of total BERD). These types of activity had the largest dollar decreases between 2008–09 and 2009–10, with Experimental Development down \$316 million and Applied research down \$150 million.

FIELDS OF RESEARCH

The research fields of Engineering and Information and computing sciences accounted for more than 80% of total BERD in 2009–10. This was also the case in previous years. Engineering (\$8,790 million in 2009–10) had the largest decrease in proportional share of total BERD compared to 2008–09 (down from 55% to 53%). In contrast, over the same period, Information and computing sciences (\$4,763 million in 2009–10) had the largest increase in proportional share of total BERD (up from 26% to 28%).

With the exception of Engineering and Information and computing sciences, the overall distribution of total BERD across the research fields remained relatively unchanged from 2008–09.

SOCIO-ECONOMIC OBJECTIVE (SEO)

The distribution of BERD across the SEO sectors of Defence, Economic development, Society, Environment and Expanding knowledge remained relatively stable between 2008–09 and 2009–10.

At the SEO division level, Manufacturing accounted for the largest share of total BERD in 2009–10, at \$4,383 million, or 26%. Commercial services and tourism and Energy SEOs had the next highest levels of BERD, at \$3,161 million (19% of total BERD) and \$2,722 million (16% of total BERD), respectively.

BUSINESS EXPENDITURE ON R&D (BERD) *continued*

SOCIO-ECONOMIC OBJECTIVE (SEO) *continued*

Of all SEO divisions, Mineral resources (excluding energy resources) had the largest dollar and percentage decrease in BERD, down \$846 million (or 32%) compared to 2008–09, and the largest decrease in proportional share of total BERD (down 4 percentage points from 15% to 11% in 2009–10).

The Commercial services and tourism SEO division had the largest dollar increase in BERD compared to 2008–09 (up \$745 million) and the largest increase in proportional share of total BERD (up 5 percentage points from 14% to 19% in 2009–10).

FOREIGN OWNERSHIP

Wholly Australian owned businesses again made the largest contribution to total BERD, accounting for \$8,614 million or 52% in 2009–10. These businesses also had the largest dollar increase (up \$767 million) and largest increase in proportional share of total BERD (up 6 percentage points from 46%) compared to 2008–09.

Businesses with 10% to 50% foreign ownership had the largest dollar decrease in BERD (down \$814 million) compared to 2008–09, and the largest decrease in proportional share of total BERD (down from 13% to 8% in 2009–10). Compared to 2008–09, businesses with Greater than 50% foreign ownership had the second largest dollar decrease (down \$783 million) and the second largest decrease in proportional share of total BERD (down from 36% to 32% in 2009–10).

BERD, by level of foreign ownership(a)

	EXPENDITURE ON R&D			PROPORTION OF TOTAL EXPENDITURE ON R&D		
	2007–08(b)	2008–09(b)	2009–10	2007–08(b)	2008–09(b)	2009–10
	\$'000	\$'000	\$'000	%	%	%
Wholly Australian owned (0%)	6 678 028	7 847 195	8 614 175	44.4	45.5	51.6
Greater than 0% and less than 10%	774 734	1 045 027	1 297 127	5.1	6.1	7.8
10% to 50%	2 104 285	2 233 553	1 419 071	14.0	12.9	8.5
Greater than 50%	5 490 313	6 137 916	5 354 709	36.5	35.6	32.1
Total	15 047 360	17 263 691	16 685 082	100.0	100.0	100.0

(a) A definition of foreign ownership was not provided in the survey and data were accepted as reported.

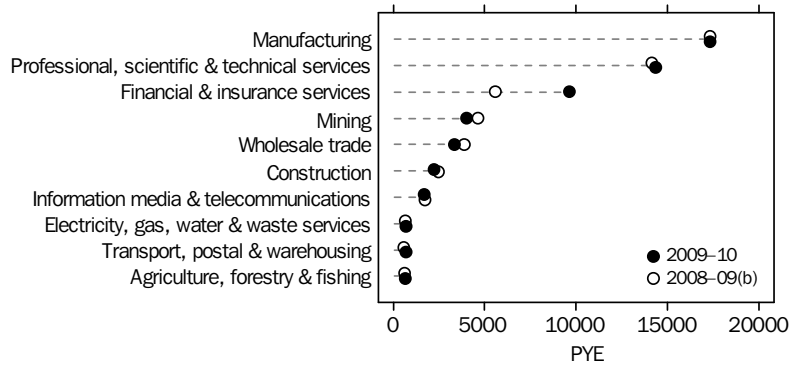
(b) Some 2007–08 and 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

BUSINESS HUMAN RESOURCES DEVOTED TO R&D

INDUSTRY

In 2009–10, the industry divisions of Manufacturing and Professional, scientific and technical services were the main contributors to total human resources devoted to R&D, at 17,339 (30%) and 14,355 (25%) person years of effort (PYE), respectively.

BUSINESS HUMAN RESOURCES DEVOTED TO R&D, by selected industries(a)



(a) Ranked by 2009–10 total human resources devoted to R&D.
 (b) Some 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

While Manufacturing remained the largest industry contributor in 2009–10, it had the largest decrease in proportional share of total PYE (down from 32% in 2008–09 to 30%). The Financial and insurance services industry had the largest increase in proportional share of total PYE (up from 10% to 17% in 2009–10). This industry also had the largest absolute increase in PYE compared to 2008–09 (up 4,060 PYE).

Mining and Wholesale trade had the largest absolute decreases in human resources devoted to R&D from 2008–09, down 623 PYE and 557 PYE, respectively.

EMPLOYMENT SIZE

In 2009–10, businesses with 200 or more employees accounted for the largest proportion of total human resources devoted to R&D, at 59% of total PYE (or 33,973 PYE). Compared to 2008–09, this employment size group also had the largest absolute growth and percentage increase in PYE (up 2,726 PYE or 9%), and was the only employment size group to increase its proportional share of total PYE.

Between 2008–09 and 2009–10, businesses with 0–4 employees had the smallest absolute increase in PYE (up 82 PYE) and remained the lowest contributing group to total PYE (at 3%).

TYPE OF RESOURCE

Researchers continued to be the most dominant type of human resource devoted to R&D in 2009–10, accounting for 29,085 PYE or 51% of total PYE. Technicians had the largest absolute growth compared to 2008–09 (up 1,652 PYE to 18,859 PYE) and was the only type of resource to increase its proportional share of total PYE (up 1 percentage point to 33%).

BUSINESS HUMAN RESOURCES DEVOTED TO R&D *continued*

FOREIGN OWNERSHIP

In 2009–10, Wholly Australian owned businesses made the largest contribution to total human resource effort devoted to R&D, at 33,323 PYE or 58% of total PYE. Wholly Australian owned businesses also had the largest PYE increase, in both absolute and percentage terms, up 5,062 PYE or 18% compared to 2008–09.

Businesses with Greater than 50% foreign ownership had the largest decrease in proportional share of total PYE compared to 2008–09 (down 4 percentage points to 29% in 2009–10), while Wholly Australian owned businesses had the only increase (up 6 percentage points from 52%).

BUSINESS HUMAN RESOURCES DEVOTED TO R&D, by level of foreign ownership(a)

	HUMAN RESOURCES DEVOTED TO R&D			PROPORTION OF TOTAL HUMAN RESOURCES DEVOTED TO R&D		
	2007–08(b)	2008–09(b)	2009–10	2007–08(b)	2008–09(b)	2009–10
	PYE	PYE	PYE	%	%	%
Wholly Australian owned (0%)	26 563	28 261	33 323	52.2	52.3	58.0
Greater than 0% and less than 10%	2 686	3 125	3 221	5.3	5.8	5.6
10% to 50%	4 343	4 886	4 183	8.5	9.0	7.3
Greater than 50%	17 303	17 725	16 730	34.0	32.8	29.1
Total	50 896	53 998	57 457	100.0	100.0	100.0

(a) A definition of foreign ownership was not provided in the survey and data were accepted as reported.

(b) Some 2007–08 and 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

LIST OF TABLES

page

EXPENDITURE ON R&D

1	Business expenditure on R&D, summary statistics: values and proportions — 2007–08 to 2009–10	14
2	Business expenditure on R&D, by industry: values and proportions — 2007–08 to 2009–10	15
3	Business expenditure on R&D, by industry — by employment size — 2008–09 and 2009–10	16
4	Business expenditure on R&D, by industry — by employment size: proportions — 2008–09 and 2009–10	17
5	Business expenditure on R&D, by industry — by type of expenditure — 2008–09 and 2009–10	18
6	Business expenditure on R&D, by industry — by type of expenditure: proportions — 2008–09 and 2009–10	19
7	Business expenditure on R&D, by industry — by source of funds — 2008–09 and 2009–10	20
8	Business expenditure on R&D, by industry — by source of funds: proportions — 2008–09 and 2009–10	21
9	Business expenditure on R&D, by industry — by location of expenditure — 2008–09 and 2009–10	22
10	Business expenditure on R&D, by industry — by location of expenditure: proportions — 2008–09 and 2009–10	23
11	Business expenditure on R&D, by industry — by type of activity — 2008–09 and 2009–10	24
12	Business expenditure on R&D, by industry — by type of activity: proportions — 2008–09 and 2009–10	25
13	Business expenditure on R&D, by fields of research: values and proportions — 2007–08 to 2009–10	26
14	Business expenditure on R&D, by socio-economic objective: values and proportions — 2007–08 to 2009–10	27

HUMAN RESOURCES DEVOTED TO R&D

15	Business human resources devoted to R&D, summary statistics: values and proportions — 2007–08 to 2009–10	28
16	Business human resources devoted to R&D, by industry: values and proportions — 2007–08 to 2009–10	29
17	Business human resources devoted to R&D, by industry — by employment size — 2008–09 and 2009–10	30
18	Business human resources devoted to R&D, by industry — by employment size: proportions — 2008–09 and 2009–10	31
19	Business human resources devoted to R&D, by industry — by type of resource — 2008–09 and 2009–10	32
20	Business human resources devoted to R&D, by industry — by type of resource: proportions — 2008–09 and 2009–10	33

	EXPENDITURE ON R&D			PROPORTION OF TOTAL EXPENDITURE ON R&D		
	2007–08(a)	2008–09(a)	2009–10	2007–08(a)	2008–09(a)	2009–10
	\$'000	\$'000	\$'000	%	%	%
Employment size						
0–4 persons	538 909	641 788	690 212	3.6	3.7	4.1
5–19 persons	1 138 494	1 480 147	1 420 909	7.6	8.6	8.5
20–199 persons	2 914 228	3 082 221	3 096 896	19.4	17.9	18.6
200 or more persons	10 455 729	12 059 535	11 477 065	69.5	69.9	68.8
Type of expenditure						
Capital expenditure						
Land, buildings and other structures	133 118	205 833	124 336	0.9	1.2	0.7
Other capital expenditure	607 260	626 343	595 353	4.0	3.6	3.6
<i>Total</i>	740 378	832 176	719 689	4.9	4.8	4.3
Current expenditure						
Labour costs	5 179 158	5 836 499	6 409 292	34.4	33.8	38.4
Other current expenditure	9 127 824	10 595 016	9 556 101	60.7	61.4	57.3
<i>Total</i>	14 306 982	16 431 515	15 965 393	95.1	95.2	95.7
Source of funds						
Own funds	14 067 928	16 358 754	15 929 915	93.5	94.8	95.5
Other business	341 545	306 616	193 418	2.3	1.8	1.2
Commonwealth government	383 385	339 836	307 610	2.5	2.0	1.8
State and local government	39 222	36 998	50 052	0.3	0.2	0.3
Other Australian(b)	29 607	39 323	37 962	0.2	0.2	0.2
Overseas	185 673	182 164	166 125	1.2	1.1	1.0
Location of expenditure						
New South Wales	4 475 860	5 362 149	6 194 166	29.7	31.1	37.1
Victoria	4 112 590	4 174 766	3 750 436	27.3	24.2	22.5
Queensland	2 175 680	2 496 655	2 350 284	14.5	14.5	14.1
South Australia	947 668	937 722	788 631	6.3	5.4	4.7
Western Australia	2 757 242	3 630 542	2 941 090	18.3	21.0	17.6
Tasmania	134 170	137 260	116 485	0.9	0.8	0.7
Northern Territory	80 702	101 476	122 020	0.5	0.6	0.7
Australian Capital Territory	109 785	93 418	85 714	0.7	0.5	0.5
Overseas	253 665	329 703	336 256	1.7	1.9	2.0
Type of activity						
Pure basic research	75 257	87 249	85 162	0.5	0.5	0.5
Strategic basic research	712 029	864 799	754 417	4.7	5.0	4.5
Applied research	4 881 303	5 921 372	5 771 705	32.4	34.3	34.6
Experimental development	9 378 772	10 390 271	10 073 798	62.3	60.2	60.4
Total expenditure on R&D	15 047 360	17 263 691	16 685 082	100.0	100.0	100.0

(a) Some 2007–08 and 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

(b) Includes funding from Joint business/government, Higher education and Private non-profit organisations.

	EXPENDITURE ON R&D			PROPORTION OF TOTAL EXPENDITURE ON R&D		
	2007–08(a)	2008–09(a)	2009–10	2007–08(a)	2008–09(a)	2009–10
	\$'000	\$'000	\$'000	%	%	%
Agriculture, Forestry and Fishing	118 827	146 319	183 848	0.8	0.8	1.1
Mining	3 439 180	4 333 537	3 694 791	22.9	25.1	22.1
Manufacturing	4 373 558	4 377 014	4 218 622	29.1	25.4	25.3
Electricity, Gas, Water and Waste Services	241 942	359 863	394 712	1.6	2.1	2.4
Construction	754 738	934 668	976 557	5.0	5.4	5.9
Wholesale Trade	875 243	888 112	760 751	5.8	5.1	4.6
Retail Trade	65 338	88 356	111 815	0.4	0.5	0.7
Accommodation and Food Services	17 132	26 782	22 203	0.1	0.2	0.1
Transport, Postal and Warehousing	221 170	234 178	251 934	1.5	1.4	1.5
Information Media and Telecommunications	814 501	828 141	481 901	5.4	4.8	2.9
Financial and Insurance Services	1 457 471	2 102 722	2 650 691	9.7	12.2	15.9
Rental, Hiring and Real Estate Services	69 442	112 299	154 372	0.5	0.7	0.9
Professional, Scientific and Technical Services	2 337 245	2 581 066	2 515 986	15.5	15.0	15.1
Administrative and Support Services	110 769	64 916	76 800	0.7	0.4	0.5
Public Administration and Safety	5 328	9 135	9 447	—	0.1	0.1
Education and Training	5 205	9 956	10 261	—	0.1	0.1
Health Care and Social Assistance	56 706	74 908	77 226	0.4	0.4	0.5
Arts and Recreation Services	26 661	32 826	33 754	0.2	0.2	0.2
Other Services	56 904	58 893	59 411	0.4	0.3	0.4
Total	15 047 360	17 263 691	16 685 082	100.0	100.0	100.0

— nil or rounded to zero (including null cells)

(a) Some 2007–08 and 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

BUSINESS EXPENDITURE ON R&D, by industry—by employment size—
2008–09 and 2009–10(a)

	0–4 persons	5–19 persons	20–199 persons	200 or more persons	Total expenditure on R&D
	\$'000	\$'000	\$'000	\$'000	\$'000
2009–10					
Agriculture, Forestry and Fishing	11 525	25 990	90 268	56 065	183 848
Mining	224 582	203 395	430 095	2 836 719	3 694 791
Manufacturing	101 543	240 343	853 502	3 023 234	4 218 622
Electricity, Gas, Water and Waste Services	12 554	22 218	90 619	269 321	394 712
Construction	10 043	41 162	162 492	762 860	976 557
Wholesale Trade	25 591	62 820	223 142	449 198	760 751
Retail Trade	6 932	16 961	18 536	69 386	111 815
Accommodation and Food Services	386	1 659	3 096	17 062	22 203
Transport, Postal and Warehousing	4 710	9 910	20 671	216 643	251 934
Information Media and Telecommunications	10 055	29 988	47 115	394 743	481 901
Financial and Insurance Services	13 114	55 275	72 670	2 509 632	2 650 691
Rental, Hiring and Real Estate Services	13 308	10 184	31 343	99 537	154 372
Professional, Scientific and Technical Services	236 597	646 649	983 877	648 863	2 515 986
Administrative and Support Services	3 024	12 493	15 648	45 635	76 800
Public Administration and Safety	np	3 096	np	np	9 447
Education and Training	2 471	5 936	1 854	—	10 261
Health Care and Social Assistance	3 264	19 070	14 489	40 403	77 226
Arts and Recreation Services	1 515	1 566	np	np	33 754
Other Services	np	12 194	29 025	np	59 411
Total	690 212	1 420 909	3 096 896	11 477 065	16 685 082
2008–09 (a)					
Agriculture, Forestry and Fishing	7 916	22 379	75 147	40 877	146 319
Mining	173 346	288 539	308 229	3 563 423	4 333 537
Manufacturing	122 688	192 325	972 830	3 089 171	4 377 014
Electricity, Gas, Water and Waste Services	25 745	19 745	111 004	203 369	359 863
Construction	5 280	36 765	145 962	746 661	934 668
Wholesale Trade	23 220	71 349	205 709	587 834	888 112
Retail Trade	7 411	13 040	16 636	51 269	88 356
Accommodation and Food Services	1 870	np	5 593	np	26 782
Transport, Postal and Warehousing	3 037	6 260	11 023	213 858	234 178
Information Media and Telecommunications	15 700	24 689	45 815	741 937	828 141
Financial and Insurance Services	11 939	93 116	60 051	1 937 616	2 102 722
Rental, Hiring and Real Estate Services	13 992	np	44 141	np	112 299
Professional, Scientific and Technical Services	212 633	648 102	1 011 570	708 761	2 581 066
Administrative and Support Services	2 590	12 958	14 271	35 097	64 916
Public Administration and Safety	np	1 921	3 160	np	9 135
Education and Training	np	4 994	1 210	np	9 956
Health Care and Social Assistance	3 490	20 288	12 859	38 271	74 908
Arts and Recreation Services	np	1 811	12 408	np	32 826
Other Services	np	14 667	24 603	np	58 893
Total	641 788	1 480 147	3 082 221	12 059 535	17 263 691

— nil or rounded to zero (including null cells)

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Some 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

BUSINESS EXPENDITURE ON R&D, by industry—by employment size: **proportions**—
2008–09 and 2009–10(a)

	0–4 persons	5–19 persons	20–199 persons	200 or more persons	Total expenditure on R&D
	%	%	%	%	%
2009–10					
Agriculture, Forestry and Fishing	6.3	14.1	49.1	30.5	100.0
Mining	6.1	5.5	11.6	76.8	100.0
Manufacturing	2.4	5.7	20.2	71.7	100.0
Electricity, Gas, Water and Waste Services	3.2	5.6	23.0	68.2	100.0
Construction	1.0	4.2	16.6	78.1	100.0
Wholesale Trade	3.4	8.3	29.3	59.0	100.0
Retail Trade	6.2	15.2	16.6	62.1	100.0
Accommodation and Food Services	1.7	7.5	13.9	76.8	100.0
Transport, Postal and Warehousing	1.9	3.9	8.2	86.0	100.0
Information Media and Telecommunications	2.1	6.2	9.8	81.9	100.0
Financial and Insurance Services	0.5	2.1	2.7	94.7	100.0
Rental, Hiring and Real Estate Services	8.6	6.6	20.3	64.5	100.0
Professional, Scientific and Technical Services	9.4	25.7	39.1	25.8	100.0
Administrative and Support Services	3.9	16.3	20.4	59.4	100.0
Public Administration and Safety	np	32.8	np	np	100.0
Education and Training	24.1	57.9	18.1	—	100.0
Health Care and Social Assistance	4.2	24.7	18.8	52.3	100.0
Arts and Recreation Services	4.5	4.6	np	np	100.0
Other Services	np	20.5	48.9	np	100.0
Total	4.1	8.5	18.6	68.8	100.0
2008–09 (a)					
Agriculture, Forestry and Fishing	5.4	15.3	51.4	27.9	100.0
Mining	4.0	6.7	7.1	82.2	100.0
Manufacturing	2.8	4.4	22.2	70.6	100.0
Electricity, Gas, Water and Waste Services	7.2	5.5	30.8	56.5	100.0
Construction	0.6	3.9	15.6	79.9	100.0
Wholesale Trade	2.6	8.0	23.2	66.2	100.0
Retail Trade	8.4	14.8	18.8	58.0	100.0
Accommodation and Food Services	7.0	np	20.9	np	100.0
Transport, Postal and Warehousing	1.3	2.7	4.7	91.3	100.0
Information Media and Telecommunications	1.9	3.0	5.5	89.6	100.0
Financial and Insurance Services	0.6	4.4	2.9	92.1	100.0
Rental, Hiring and Real Estate Services	12.5	np	39.3	np	100.0
Professional, Scientific and Technical Services	8.2	25.1	39.2	27.5	100.0
Administrative and Support Services	4.0	20.0	22.0	54.1	100.0
Public Administration and Safety	np	21.0	34.6	np	100.0
Education and Training	np	50.2	12.2	np	100.0
Health Care and Social Assistance	4.7	27.1	17.2	51.1	100.0
Arts and Recreation Services	np	5.5	37.8	np	100.0
Other Services	np	24.9	41.8	np	100.0
Total	3.7	8.6	17.9	69.9	100.0

— nil or rounded to zero (including null cells)

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Some 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

BUSINESS EXPENDITURE ON R&D, by industry—by type of expenditure—2008–09 and 2009–10(a)

	CAPITAL EXPENDITURE			CURRENT EXPENDITURE			Total expenditure on R&D
	Land, buildings & other structures	Other capital expenditure	Total	Labour costs	Other current expenditure	Total	
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	
2009–10							
Agriculture, Forestry and Fishing	3 486	25 659	29 145	44 217	110 486	154 703	183 848
Mining	11 412	96 318	107 730	581 664	3 005 397	3 587 061	3 694 791
Manufacturing	43 150	179 335	222 485	1 750 604	2 245 533	3 996 137	4 218 622
Electricity, Gas, Water and Waste Services	14 721	13 707	28 428	67 813	298 471	366 284	394 712
Construction	7 107	23 458	30 565	245 597	700 395	945 992	976 557
Wholesale Trade	5 865	27 994	33 859	369 006	357 886	726 892	760 751
Retail Trade	1 106	6 354	7 460	42 796	61 559	104 355	111 815
Accommodation and Food Services	np	np	453	8 652	13 098	21 750	22 203
Transport, Postal and Warehousing	974	20 204	21 178	63 596	167 160	230 756	251 934
Information Media and Telecommunications	6 191	17 882	24 073	168 928	288 900	457 828	481 901
Financial and Insurance Services	943	63 321	64 264	1 480 481	1 105 946	2 586 427	2 650 691
Rental, Hiring and Real Estate Services	951	14 423	15 374	53 776	85 222	138 998	154 372
Professional, Scientific and Technical Services	27 077	93 892	120 969	1 393 853	1 001 164	2 395 017	2 515 986
Administrative and Support Services	261	5 163	5 424	43 123	28 253	71 376	76 800
Public Administration and Safety	np	np	1 436	3 589	4 422	8 011	9 447
Education and Training	np	np	104	5 913	4 244	10 157	10 261
Health Care and Social Assistance	np	np	3 121	39 540	34 565	74 105	77 226
Arts and Recreation Services	np	np	305	16 405	17 044	33 449	33 754
Other Services	308	3 008	3 316	29 739	26 356	56 095	59 411
Total	124 336	595 353	719 689	6 409 292	9 556 101	15 965 393	16 685 082
2008–09 (a)							
Agriculture, Forestry and Fishing	7 953	9 218	17 171	44 900	84 248	129 148	146 319
Mining	88 613	111 990	200 603	668 270	3 464 664	4 132 934	4 333 537
Manufacturing	58 333	212 975	271 308	1 720 140	2 385 566	4 105 706	4 377 014
Electricity, Gas, Water and Waste Services	12 570	30 134	42 704	60 176	256 983	317 159	359 863
Construction	2 418	9 783	12 201	264 958	657 509	922 467	934 668
Wholesale Trade	7 076	27 723	34 799	427 004	426 309	853 313	888 112
Retail Trade	504	5 626	6 130	32 787	49 439	82 226	88 356
Accommodation and Food Services	np	np	1 298	11 379	14 105	25 484	26 782
Transport, Postal and Warehousing	np	np	34 901	56 276	143 001	199 277	234 178
Information Media and Telecommunications	1 587	16 511	18 098	183 352	626 691	810 043	828 141
Financial and Insurance Services	1 743	60 594	62 337	845 052	1 195 333	2 040 385	2 102 722
Rental, Hiring and Real Estate Services	527	6 971	7 498	30 197	74 604	104 801	112 299
Professional, Scientific and Technical Services	20 746	78 071	98 817	1 372 034	1 110 215	2 482 249	2 581 066
Administrative and Support Services	437	4 521	4 958	34 010	25 948	59 958	64 916
Public Administration and Safety	np	np	3 127	3 142	2 866	6 008	9 135
Education and Training	—	np	np	5 911	np	np	9 956
Health Care and Social Assistance	np	np	6 092	36 600	32 216	68 816	74 908
Arts and Recreation Services	70	np	np	15 961	np	np	32 826
Other Services	574	6 474	7 048	24 350	27 495	51 845	58 893
Total	205 833	626 343	832 176	5 836 499	10 595 016	16 431 515	17 263 691

— nil or rounded to zero (including null cells)

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Some 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

BUSINESS EXPENDITURE ON R&D, by industry—by type of expenditure:
proportions—2008–09 and 2009–10(a)

	CAPITAL EXPENDITURE			CURRENT EXPENDITURE			Total expenditure on R&D
	Land, buildings & other structures	Other capital expenditure	Total	Labour costs	Other current expenditure	Total	
	%	%	%	%	%	%	
2009–10							
Agriculture, Forestry and Fishing	1.9	14.0	15.9	24.1	60.1	84.1	100.0
Mining	0.3	2.6	2.9	15.7	81.3	97.1	100.0
Manufacturing	1.0	4.3	5.3	41.5	53.2	94.7	100.0
Electricity, Gas, Water and Waste Services	3.7	3.5	7.2	17.2	75.6	92.8	100.0
Construction	0.7	2.4	3.1	25.1	71.7	96.9	100.0
Wholesale Trade	0.8	3.7	4.5	48.5	47.0	95.5	100.0
Retail Trade	1.0	5.7	6.7	38.3	55.1	93.3	100.0
Accommodation and Food Services	np	np	2.0	39.0	59.0	98.0	100.0
Transport, Postal and Warehousing	0.4	8.0	8.4	25.2	66.4	91.6	100.0
Information Media and Telecommunications	1.3	3.7	5.0	35.1	60.0	95.0	100.0
Financial and Insurance Services	—	2.4	2.4	55.9	41.7	97.6	100.0
Rental, Hiring and Real Estate Services	0.6	9.3	10.0	34.8	55.2	90.0	100.0
Professional, Scientific and Technical Services	1.1	3.7	4.8	55.4	39.8	95.2	100.0
Administrative and Support Services	0.3	6.7	7.1	56.1	36.8	92.9	100.0
Public Administration and Safety	np	np	15.2	38.0	46.8	84.8	100.0
Education and Training	np	np	1.0	57.6	41.4	99.0	100.0
Health Care and Social Assistance	np	np	4.0	51.2	44.8	96.0	100.0
Arts and Recreation Services	np	np	0.9	48.6	50.5	99.1	100.0
Other Services	0.5	5.1	5.6	50.1	44.4	94.4	100.0
Total	0.7	3.6	4.3	38.4	57.3	95.7	100.0
2008–09 (a)							
Agriculture, Forestry and Fishing	5.4	6.3	11.7	30.7	57.6	88.3	100.0
Mining	2.0	2.6	4.6	15.4	80.0	95.4	100.0
Manufacturing	1.3	4.9	6.2	39.3	54.5	93.8	100.0
Electricity, Gas, Water and Waste Services	3.5	8.4	11.9	16.7	71.4	88.1	100.0
Construction	0.3	1.0	1.3	28.3	70.3	98.7	100.0
Wholesale Trade	0.8	3.1	3.9	48.1	48.0	96.1	100.0
Retail Trade	0.6	6.4	6.9	37.1	56.0	93.1	100.0
Accommodation and Food Services	np	np	4.8	42.5	52.7	95.2	100.0
Transport, Postal and Warehousing	np	np	14.9	24.0	61.1	85.1	100.0
Information Media and Telecommunications	0.2	2.0	2.2	22.1	75.7	97.8	100.0
Financial and Insurance Services	0.1	2.9	3.0	40.2	56.8	97.0	100.0
Rental, Hiring and Real Estate Services	0.5	6.2	6.7	26.9	66.4	93.3	100.0
Professional, Scientific and Technical Services	0.8	3.0	3.8	53.2	43.0	96.2	100.0
Administrative and Support Services	0.7	7.0	7.6	52.4	40.0	92.4	100.0
Public Administration and Safety	np	np	34.2	34.4	31.4	65.8	100.0
Education and Training	—	np	np	59.4	np	np	100.0
Health Care and Social Assistance	np	np	8.1	48.9	43.0	91.9	100.0
Arts and Recreation Services	0.2	np	np	48.6	np	np	100.0
Other Services	1.0	11.0	12.0	41.3	46.7	88.0	100.0
Total	1.2	3.6	4.8	33.8	61.4	95.2	100.0

— nil or rounded to zero (including null cells)

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Some 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

BUSINESS EXPENDITURE ON R&D, by industry—by source of funds—
2008–09 and 2009–10(a)

	Own funds	Other business	Commonwealth government	State & local government	Other Australian (b)	Overseas	Total expenditure on R&D
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
2009–10							
Agriculture, Forestry and Fishing	172 505	np	7 022	3 110	np	—	183 848
Mining	3 661 235	np	6 376	—	—	np	3 694 791
Manufacturing	4 013 477	44 215	119 986	2 973	896	37 075	4 218 622
Electricity, Gas, Water and Waste Services	378 140	3 166	2 064	np	np	np	394 712
Construction	966 765	4 772	4 839	np	—	np	976 557
Wholesale Trade	734 544	np	8 779	np	733	np	760 751
Retail Trade	110 136	np	np	—	—	—	111 815
Accommodation and Food Services	22 203	—	—	—	—	—	22 203
Transport, Postal and Warehousing	250 049	np	np	np	—	—	251 934
Information Media and Telecommunications	478 453	np	657	np	np	—	481 901
Financial and Insurance Services	2 643 636	6 358	np	—	np	np	2 650 691
Rental, Hiring and Real Estate Services	151 538	np	np	173	—	—	154 372
Professional, Scientific and Technical Services	2 132 268	97 673	140 000	14 871	32 411	98 763	2 515 986
Administrative and Support Services	76 199	np	np	—	—	np	76 800
Public Administration and Safety	np	np	np	np	—	—	9 447
Education and Training	np	—	np	np	—	—	10 261
Health Care and Social Assistance	37 703	10 032	11 603	np	np	np	77 226
Arts and Recreation Services	31 192	np	np	—	—	np	33 754
Other Services	52 003	6 104	np	np	np	np	59 411
Total	15 929 915	193 418	307 610	50 052	37 962	166 125	16 685 082

2008–09 (a)							
Agriculture, Forestry and Fishing	138 673	255	4 213	np	np	—	146 319
Mining	4 257 373	np	5 788	np	—	np	4 333 537
Manufacturing	4 197 141	37 074	103 879	1 572	2 431	34 917	4 377 014
Electricity, Gas, Water and Waste Services	350 919	np	3 242	1 615	np	np	359 863
Construction	927 707	3 157	3 486	np	np	np	934 668
Wholesale Trade	822 114	np	17 522	183	np	8 486	888 112
Retail Trade	87 711	np	np	—	—	—	88 356
Accommodation and Food Services	np	np	—	—	—	—	26 782
Transport, Postal and Warehousing	233 370	np	np	—	—	—	234 178
Information Media and Telecommunications	824 427	np	2 222	—	np	—	828 141
Financial and Insurance Services	2 095 789	3 992	1 280	np	np	np	2 102 722
Rental, Hiring and Real Estate Services	109 743	np	543	—	—	np	112 299
Professional, Scientific and Technical Services	2 083 049	147 463	181 930	15 007	30 419	123 198	2 581 066
Administrative and Support Services	np	np	np	np	—	—	64 916
Public Administration and Safety	np	—	np	—	—	—	9 135
Education and Training	9 063	np	np	np	—	—	9 956
Health Care and Social Assistance	np	7 369	np	np	np	np	74 908
Arts and Recreation Services	30 034	np	1 646	np	—	—	32 826
Other Services	54 969	1 617	1 900	np	np	np	58 893
Total	16 358 754	306 616	339 836	36 998	39 323	182 164	17 263 691

— nil or rounded to zero (including null cells)

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Some 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

(b) Includes funding from Joint business/government, Higher education and Private non-profit organisations.

BUSINESS EXPENDITURE ON R&D, by industry —by source of funds: **proportions** —
2008–09 and 2009–10(a)

	Own funds	Other business	Commonwealth government	State & local government	Other Australian (b)	Overseas	Total expenditure on R&D
	%	%	%	%	%	%	%
2009–10							
Agriculture, Forestry and Fishing	93.8	np	3.8	1.7	np	—	100.0
Mining	99.1	np	0.2	np	—	np	100.0
Manufacturing	95.1	1.0	2.8	0.1	—	0.9	100.0
Electricity, Gas, Water and Waste Services	95.8	0.8	0.5	np	np	np	100.0
Construction	99.0	0.5	0.5	np	—	np	100.0
Wholesale Trade	96.6	np	1.2	np	0.1	np	100.0
Retail Trade	98.5	np	np	—	—	—	100.0
Accommodation and Food Services	100.0	—	—	—	—	—	100.0
Transport, Postal and Warehousing	99.3	np	np	np	—	—	100.0
Information Media and Telecommunications	99.3	np	0.1	np	np	—	100.0
Financial and Insurance Services	99.7	0.2	np	—	np	np	100.0
Rental, Hiring and Real Estate Services	98.2	np	np	0.1	—	—	100.0
Professional, Scientific and Technical Services	84.7	3.9	5.6	0.6	1.3	3.9	100.0
Administrative and Support Services	99.2	np	np	—	—	np	100.0
Public Administration and Safety	np	np	np	np	—	—	100.0
Education and Training	np	—	np	np	—	—	100.0
Health Care and Social Assistance	48.8	13.0	15.0	np	np	np	100.0
Arts and Recreation Services	92.4	np	np	—	—	np	100.0
Other Services	87.5	10.3	np	np	np	np	100.0
Total	95.5	1.2	1.8	0.3	0.2	1.0	100.0
2008–09 (a)							
Agriculture, Forestry and Fishing	94.8	0.2	2.9	np	np	—	100.0
Mining	98.2	np	0.1	np	—	np	100.0
Manufacturing	95.9	0.8	2.4	—	0.1	0.8	100.0
Electricity, Gas, Water and Waste Services	97.5	np	0.9	0.4	np	np	100.0
Construction	99.3	0.3	0.4	np	np	np	100.0
Wholesale Trade	92.6	np	2.0	—	np	1.0	100.0
Retail Trade	99.3	np	np	—	—	—	100.0
Accommodation and Food Services	np	np	—	—	—	—	100.0
Transport, Postal and Warehousing	99.7	np	np	—	—	—	100.0
Information Media and Telecommunications	99.6	np	0.3	—	np	—	100.0
Financial and Insurance Services	99.7	0.2	0.1	np	np	np	100.0
Rental, Hiring and Real Estate Services	97.7	np	0.5	—	—	np	100.0
Professional, Scientific and Technical Services	80.7	5.7	7.0	0.6	1.2	4.8	100.0
Administrative and Support Services	np	np	np	np	—	—	100.0
Public Administration and Safety	np	—	np	—	—	—	100.0
Education and Training	91.0	np	np	np	—	—	100.0
Health Care and Social Assistance	np	9.8	np	np	np	np	100.0
Arts and Recreation Services	91.5	np	5.0	np	—	—	100.0
Other Services	93.3	2.7	3.2	np	np	np	100.0
Total	94.8	1.8	2.0	0.2	0.2	1.1	100.0

— nil or rounded to zero (including null cells)

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Some 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

(b) Includes funding from Joint business/government, Higher education and Private non-profit organisations.

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Overseas	Total expenditure on R&D
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
2009–10										
Agriculture, Forestry and Fishing	39 395	11 305	29 276	12 764	67 754	14 702	np	—	np	183 848
Mining	519 725	98 375	803 929	125 625	2 047 101	5 817	90 122	1 708	2 389	3 694 791
Manufacturing	1 359 946	1 591 669	432 581	247 753	330 601	48 730	np	np	171 821	4 218 622
Electricity, Gas, Water and Waste Services	89 378	188 287	56 119	np	35 910	np	—	np	np	394 712
Construction	368 686	172 881	291 060	42 467	88 094	np	np	np	1 250	976 557
Wholesale Trade	394 849	221 369	63 205	34 742	34 845	1 929	np	np	8 336	760 751
Retail Trade	24 305	64 154	12 753	3 108	4 167	np	np	np	np	111 815
Accommodation and Food Services	1 691	np	6 058	np	np	np	—	—	—	22 203
Transport, Postal and Warehousing	82 180	65 562	55 977	22 945	17 267	np	np	—	np	251 934
Information Media and Telecommunications	245 410	190 764	28 134	6 858	8 112	np	np	1 155	np	481 901
Financial and Insurance Services	2 063 041	362 622	62 591	np	60 190	np	np	np	np	2 650 691
Rental, Hiring and Real Estate Services	52 146	74 530	10 966	4 468	11 978	np	—	—	np	154 372
Professional, Scientific and Technical Services	844 699	606 699	467 391	179 252	221 815	27 986	2 787	48 703	116 654	2 515 986
Administrative and Support Services	36 430	19 877	11 740	3 286	4 346	np	—	np	np	76 800
Public Administration and Safety	7 638	np	np	440	482	np	np	np	—	9 447
Education and Training	3 908	1 018	np	np	np	np	—	—	np	10 261
Health Care and Social Assistance	41 273	27 041	4 648	np	3 745	—	—	np	np	77 226
Arts and Recreation Services	2 344	np	np	np	np	—	—	np	np	33 754
Other Services	17 122	22 871	7 827	8 888	np	np	—	np	—	59 411
Total	6 194 166	3 750 436	2 350 284	788 631	2 941 090	116 485	122 020	85 714	336 256	16 685 082
2008–09 (a)										
Agriculture, Forestry and Fishing	33 191	10 360	29 714	10 795	41 304	17 329	np	—	np	146 319
Mining	695 768	56 709	724 595	248 648	2 520 331	19 974	64 146	1 086	2 280	4 333 537
Manufacturing	1 125 599	1 637 102	475 848	298 663	583 446	57 206	np	np	150 224	4 377 014
Electricity, Gas, Water and Waste Services	89 534	128 613	61 851	15 391	47 760	np	—	np	np	359 863
Construction	240 929	221 215	354 601	31 394	84 056	499	np	np	538	934 668
Wholesale Trade	363 704	340 405	78 042	35 269	45 396	np	np	4 540	17 406	888 112
Retail Trade	21 059	50 554	4 527	4 656	6 067	np	np	—	1 054	88 356
Accommodation and Food Services	1 280	8 960	7 898	np	np	np	np	—	np	26 782
Transport, Postal and Warehousing	62 241	91 620	45 618	13 683	15 106	np	np	np	—	234 178
Information Media and Telecommunications	294 022	np	26 353	10 397	5 740	np	—	1 539	675	828 141
Financial and Insurance Services	1 479 188	382 317	117 876	61 676	39 137	np	—	np	22 343	2 102 722
Rental, Hiring and Real Estate Services	54 140	47 528	4 769	np	3 633	—	—	—	np	112 299
Professional, Scientific and Technical Services	801 925	625 641	533 294	184 450	226 409	22 740	2 514	56 233	127 860	2 581 066
Administrative and Support Services	np	np	5 682	4 922	1 979	—	np	np	np	64 916
Public Administration and Safety	5 382	np	—	np	np	np	np	—	—	9 135
Education and Training	4 394	1 746	2 436	np	745	np	—	—	np	9 956
Health Care and Social Assistance	38 588	26 921	3 324	702	4 874	—	—	—	499	74 908
Arts and Recreation Services	np	np	9 473	np	—	np	—	np	np	32 826
Other Services	14 472	20 253	10 754	8 797	3 942	np	—	np	501	58 893
Total	5 362 149	4 174 766	2 496 655	937 722	3 630 542	137 260	101 476	93 418	329 703	17 263 691

— nil or rounded to zero (including null cells)

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Some 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Overseas	Total expenditure on R&D
	%	%	%	%	%	%	%	%	%	%
2009–10										
Agriculture, Forestry and Fishing	21.4	6.1	15.9	6.9	36.9	8.0	np	—	np	100.0
Mining	14.1	2.7	21.8	3.4	55.4	0.2	2.4	—	0.1	100.0
Manufacturing	32.2	37.7	10.3	5.9	7.8	1.2	np	np	4.1	100.0
Electricity, Gas, Water and Waste Services	22.6	47.7	14.2	np	9.1	np	—	np	np	100.0
Construction	37.8	17.7	29.8	4.3	9.0	np	np	np	0.1	100.0
Wholesale Trade	51.9	29.1	8.3	4.6	4.6	0.3	np	np	1.1	100.0
Retail Trade	21.7	57.4	11.4	2.8	3.7	np	np	np	np	100.0
Accommodation and Food Services	7.6	np	27.3	np	np	np	—	—	—	100.0
Transport, Postal and Warehousing	32.6	26.0	22.2	9.1	6.9	np	np	—	np	100.0
Information Media and Telecommunications	50.9	39.6	5.8	1.4	1.7	np	np	0.2	np	100.0
Financial and Insurance Services	77.8	13.7	2.4	np	2.3	np	np	np	np	100.0
Rental, Hiring and Real Estate Services	33.8	48.3	7.1	2.9	7.8	np	—	—	np	100.0
Professional, Scientific and Technical Services	33.6	24.1	18.6	7.1	8.8	1.1	0.1	1.9	4.6	100.0
Administrative and Support Services	47.4	25.9	15.3	4.3	5.7	np	—	np	np	100.0
Public Administration and Safety	80.9	np	np	4.7	5.1	np	np	np	—	100.0
Education and Training	38.1	9.9	np	np	np	np	—	—	np	100.0
Health Care and Social Assistance	53.4	35.0	6.0	np	4.8	—	—	np	np	100.0
Arts and Recreation Services	6.9	np	np	np	np	—	—	np	np	100.0
Other Services	28.8	38.5	13.2	15.0	np	np	—	np	—	100.0
Total	37.1	22.5	14.1	4.7	17.6	0.7	0.7	0.5	2.0	100.0

2008–09 (a)

Agriculture, Forestry and Fishing	22.7	7.1	20.3	7.4	28.2	11.8	np	—	np	100.0
Mining	16.1	1.3	16.7	5.7	58.2	0.5	1.5	—	0.1	100.0
Manufacturing	25.7	37.4	10.9	6.8	13.3	1.3	np	np	3.4	100.0
Electricity, Gas, Water and Waste Services	24.9	35.7	17.2	4.3	13.3	np	—	np	np	100.0
Construction	25.8	23.7	37.9	3.4	9.0	0.1	np	np	0.1	100.0
Wholesale Trade	41.0	38.3	8.8	4.0	5.1	np	np	0.5	2.0	100.0
Retail Trade	23.8	57.2	5.1	5.3	6.9	np	np	—	1.2	100.0
Accommodation and Food Services	4.8	33.5	29.5	np	np	np	np	—	np	100.0
Transport, Postal and Warehousing	26.6	39.1	19.5	5.8	6.5	np	np	np	—	100.0
Information Media and Telecommunications	35.5	np	3.2	1.3	0.7	np	—	0.2	0.1	100.0
Financial and Insurance Services	70.3	18.2	5.6	2.9	1.9	np	—	np	1.1	100.0
Rental, Hiring and Real Estate Services	48.2	42.3	4.2	np	3.2	—	—	—	np	100.0
Professional, Scientific and Technical Services	31.1	24.2	20.7	7.1	8.8	0.9	0.1	2.2	5.0	100.0
Administrative and Support Services	np	np	8.8	7.6	3.0	—	np	np	np	100.0
Public Administration and Safety	58.9	np	—	np	np	np	np	—	—	100.0
Education and Training	44.1	17.5	24.5	np	7.5	np	—	—	np	100.0
Health Care and Social Assistance	51.5	35.9	4.4	0.9	6.5	—	—	—	0.7	100.0
Arts and Recreation Services	np	np	28.9	np	—	np	—	np	np	100.0
Other Services	24.6	34.4	18.3	14.9	6.7	np	—	np	0.9	100.0
Total	31.1	24.2	14.5	5.4	21.0	0.8	0.6	0.5	1.9	100.0

— nil or rounded to zero (including null cells)

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Some 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

BUSINESS EXPENDITURE ON R&D, by industry—by type of activity—
2008–09 and 2009–10(a)

	<i>Pure basic research</i>	<i>Strategic basic research</i>	<i>Applied research</i>	<i>Experimental development</i>	<i>Total expenditure on R&D</i>
	\$'000	\$'000	\$'000	\$'000	\$'000
2009–10					
Agriculture, Forestry and Fishing	2 023	20 054	73 656	88 115	183 848
Mining	5 651	145 027	1 537 469	2 006 644	3 694 791
Manufacturing	24 928	227 752	1 296 319	2 669 623	4 218 622
Electricity, Gas, Water and Waste Services	1 238	15 389	213 885	164 200	394 712
Construction	2 605	26 234	385 936	561 782	976 557
Wholesale Trade	5 971	28 767	242 461	483 552	760 751
Retail Trade	1 356	7 738	24 577	78 144	111 815
Accommodation and Food Services	np	np	np	19 554	22 203
Transport, Postal and Warehousing	2 378	10 803	53 493	185 260	251 934
Information Media and Telecommunications	2 373	21 077	146 980	311 471	481 901
Financial and Insurance Services	2 652	38 411	570 678	2 038 950	2 650 691
Rental, Hiring and Real Estate Services	1 593	7 754	27 290	117 735	154 372
Professional, Scientific and Technical Services	25 600	179 149	1 095 430	1 215 807	2 515 986
Administrative and Support Services	990	3 208	35 686	36 916	76 800
Public Administration and Safety	np	420	np	4 866	9 447
Education and Training	np	np	3 883	5 623	10 261
Health Care and Social Assistance	3 242	14 992	33 635	25 357	77 226
Arts and Recreation Services	np	np	8 678	21 350	33 754
Other Services	1 515	3 672	15 375	38 849	59 411
Total	85 162	754 417	5 771 705	10 073 798	16 685 082
2008–09 (a)					
Agriculture, Forestry and Fishing	1 601	7 888	62 082	74 748	146 319
Mining	4 857	145 106	1 899 023	2 284 551	4 333 537
Manufacturing	27 313	243 108	1 251 254	2 855 339	4 377 014
Electricity, Gas, Water and Waste Services	1 454	23 127	161 488	173 794	359 863
Construction	1 836	21 721	256 688	654 423	934 668
Wholesale Trade	5 473	25 958	242 577	614 104	888 112
Retail Trade	329	4 832	40 671	42 524	88 356
Accommodation and Food Services	—	—	2 808	23 974	26 782
Transport, Postal and Warehousing	1 003	6 556	62 081	164 538	234 178
Information Media and Telecommunications	1 032	23 493	75 788	727 828	828 141
Financial and Insurance Services	3 400	141 409	618 376	1 339 537	2 102 722
Rental, Hiring and Real Estate Services	488	5 397	28 715	77 699	112 299
Professional, Scientific and Technical Services	28 489	191 219	1 111 688	1 249 670	2 581 066
Administrative and Support Services	1 167	2 986	35 578	25 185	64 916
Public Administration and Safety	—	np	5 415	np	9 135
Education and Training	np	np	2 674	6 461	9 956
Health Care and Social Assistance	7 258	9 572	33 940	24 138	74 908
Arts and Recreation Services	np	7 818	10 646	np	32 826
Other Services	1 077	3 513	19 880	34 423	58 893
Total	87 249	864 799	5 921 372	10 390 271	17 263 691

— nil or rounded to zero (including null cells)

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Some 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

	<i>Pure basic research</i>	<i>Strategic basic research</i>	<i>Applied research</i>	<i>Experimental development</i>	<i>Total expenditure on R&D</i>
	%	%	%	%	%
2009–10					
Agriculture, Forestry and Fishing	1.1	10.9	40.1	47.9	100.0
Mining	0.2	3.9	41.6	54.3	100.0
Manufacturing	0.6	5.4	30.7	63.3	100.0
Electricity, Gas, Water and Waste Services	0.3	3.9	54.2	41.6	100.0
Construction	0.3	2.7	39.5	57.5	100.0
Wholesale Trade	0.8	3.8	31.9	63.6	100.0
Retail Trade	1.2	6.9	22.0	69.9	100.0
Accommodation and Food Services	np	np	np	88.1	100.0
Transport, Postal and Warehousing	0.9	4.3	21.2	73.5	100.0
Information Media and Telecommunications	0.5	4.4	30.5	64.6	100.0
Financial and Insurance Services	0.1	1.4	21.5	76.9	100.0
Rental, Hiring and Real Estate Services	1.0	5.0	17.7	76.3	100.0
Professional, Scientific and Technical Services	1.0	7.1	43.5	48.3	100.0
Administrative and Support Services	1.3	4.2	46.5	48.1	100.0
Public Administration and Safety	np	4.4	np	51.5	100.0
Education and Training	np	np	37.8	54.8	100.0
Health Care and Social Assistance	4.2	19.4	43.6	32.8	100.0
Arts and Recreation Services	np	np	25.7	63.3	100.0
Other Services	2.6	6.2	25.9	65.4	100.0
Total	0.5	4.5	34.6	60.4	100.0

2008–09 (a)					
Agriculture, Forestry and Fishing	1.1	5.4	42.4	51.1	100.0
Mining	0.1	3.3	43.8	52.7	100.0
Manufacturing	0.6	5.6	28.6	65.2	100.0
Electricity, Gas, Water and Waste Services	0.4	6.4	44.9	48.3	100.0
Construction	0.2	2.3	27.5	70.0	100.0
Wholesale Trade	0.6	2.9	27.3	69.1	100.0
Retail Trade	0.4	5.5	46.0	48.1	100.0
Accommodation and Food Services	—	—	10.5	89.5	100.0
Transport, Postal and Warehousing	0.4	2.8	26.5	70.3	100.0
Information Media and Telecommunications	0.1	2.8	9.2	87.9	100.0
Financial and Insurance Services	0.2	6.7	29.4	63.7	100.0
Rental, Hiring and Real Estate Services	0.4	4.8	25.6	69.2	100.0
Professional, Scientific and Technical Services	1.1	7.4	43.1	48.4	100.0
Administrative and Support Services	1.8	4.6	54.8	38.8	100.0
Public Administration and Safety	—	np	59.3	np	100.0
Education and Training	np	np	26.9	64.9	100.0
Health Care and Social Assistance	9.7	12.8	45.3	32.2	100.0
Arts and Recreation Services	np	23.8	32.4	np	100.0
Other Services	1.8	6.0	33.8	58.5	100.0
Total	0.5	5.0	34.3	60.2	100.0

— nil or rounded to zero (including null cells)

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Some 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

BUSINESS EXPENDITURE ON R&D, by fields of research(a): values and proportions—2007–08 to 2009–10(b)

	EXPENDITURE ON R&D			PROPORTION OF TOTAL EXPENDITURE ON R&D		
	2007–08(b)	2008–09(b)	2009–10	2007–08(b)	2008–09(b)	2009–10
	\$'000	\$'000	\$'000	%	%	%
Mathematical Sciences	12 455	18 466	13 478	0.1	0.1	0.1
Physical Sciences	28 976	19 221	21 414	0.2	0.1	0.1
Chemical Sciences	223 991	269 862	253 718	1.5	1.6	1.5
Earth Sciences	206 896	186 846	197 231	1.4	1.1	1.2
Environmental Sciences	128 348	178 407	151 780	0.9	1.0	0.9
Biological Sciences	99 843	73 342	69 628	0.7	0.4	0.4
Agricultural and Veterinary Sciences	329 550	367 414	431 001	2.2	2.1	2.6
Information and Computing Sciences	3 763 262	4 503 034	4 762 780	25.0	26.1	28.5
Engineering	8 424 286	9 538 348	8 789 653	56.0	55.3	52.7
Technology	704 441	779 682	758 370	4.7	4.5	4.5
Medical and Health Sciences	899 702	1 010 656	924 043	6.0	5.9	5.5
Built Environment and Design	113 663	177 889	166 759	0.8	1.0	1.0
Education	7 928	12 519	19 369	0.1	0.1	0.1
Economics	12 737	12 229	8 006	0.1	0.1	—
Commerce, Management, Tourism and Services	78 639	94 037	97 832	0.5	0.5	0.6
Studies in Human Society	np	np	2 232	np	np	—
Psychology and Cognitive Sciences	2 646	4 088	1 780	—	—	—
Law and Legal Studies	1 416	5 199	4 204	—	—	—
Studies in Creative Arts and Writing	6 151	9 448	10 676	—	0.1	0.1
Language, Communication and Culture	1 471	1 627	np	—	—	np
History and Archaeology	np	np	np	np	np	np
Total	15 047 360	17 263 691	16 685 082	100.0	100.0	100.0

— nil or rounded to zero (including null cells)

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Based on the 2008 edition of the ANZSRC. See Explanatory Notes 27 and 28 for further details.

(b) Some 2007–08 and 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

	EXPENDITURE ON R&D			PROPORTION OF TOTAL EXPENDITURE ON R&D		
	2007–08(b)	2008–09(b)	2009–10	2007–08(b)	2008–09(b)	2009–10
	\$'000	\$'000	\$'000	%	%	%
Defence	286 795	259 388	221 345	1.9	1.5	1.3
Economic Development						
Plant Production and Plant Primary Products	178 789	174 666	240 009	1.2	1.0	1.4
Animal Production and Animal Primary Products	108 400	132 120	159 704	0.7	0.8	1.0
Mineral Resources (Excl. Energy Resources)	2 188 693	2 661 862	1 815 950	14.5	15.4	10.9
Energy	2 095 938	2 678 199	2 722 274	13.9	15.5	16.3
Manufacturing	4 642 942	4 615 117	4 382 634	30.9	26.7	26.3
Construction	903 334	1 122 413	1 128 404	6.0	6.5	6.8
Transport	383 932	429 925	402 314	2.6	2.5	2.4
Information and Communication Services	1 927 093	2 045 692	1 671 065	12.8	11.8	10.0
Commercial Services and Tourism	1 714 839	2 415 946	3 160 591	11.4	14.0	18.9
Economic Framework	31 427	32 687	23 505	0.2	0.2	0.1
<i>Total</i>	14 175 385	16 308 625	15 706 450	94.2	94.5	94.1
Society						
Health	402 174	436 844	451 875	2.7	2.5	2.7
Education and Training	25 675	37 606	44 697	0.2	0.2	0.3
Law, Politics and Community Services	13 144	12 076	13 585	0.1	0.1	0.1
Cultural Understanding	14 047	17 351	14 115	0.1	0.1	0.1
<i>Total</i>	455 041	503 876	524 272	3.0	2.9	3.1
Environment	125 399	182 200	218 749	0.8	1.1	1.3
Expanding Knowledge	4 739	9 602	14 266	—	0.1	0.1
Total	15 047 360	17 263 691	16 685 082	100.0	100.0	100.0

— nil or rounded to zero (including null cells)

(a) Based on the 2008 edition of the ANZSRC. See the Explanatory Notes 27 and 28 for further details.

(b) Some 2007–08 and 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

	HUMAN RESOURCES DEVOTED TO R&D			PROPORTION OF TOTAL HUMAN RESOURCES DEVOTED TO R&D		
	2007–08(a)	2008–09(a)	2009–10	2007–08(a)	2008–09(a)	2009–10
	PYE	PYE	PYE	%	%	%
Employment size						
0–4 persons	1 436	1 688	1 770	2.8	3.1	3.1
5–19 persons	6 437	6 844	7 248	12.6	12.7	12.6
20–199 persons	14 029	14 219	14 467	27.6	26.3	25.2
200 or more persons	28 993	31 247	33 973	57.0	57.9	59.1
Type of resource						
Researchers	26 102	27 704	29 085	51.3	51.3	50.6
Technicians	16 453	17 207	18 859	32.3	31.9	32.8
Other staff	8 341	9 087	9 514	16.4	16.8	16.6
Total human resources devoted to R&D	50 896	53 998	57 457	100.0	100.0	100.0

(a) Some 2007–08 and 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

	HUMAN RESOURCES DEVOTED TO R&D			PROPORTION OF TOTAL HUMAN RESOURCES DEVOTED TO R&D		
	2007–08(a)	2008–09(a)	2009–10	2007–08(a)	2008–09(a)	2009–10
	PYE	PYE	PYE	%	%	%
Agriculture, Forestry and Fishing	570	615	658	1.1	1.1	1.1
Mining	3 591	4 622	3 999	7.1	8.6	7.0
Manufacturing	18 385	17 317	17 339	36.1	32.1	30.2
Electricity, Gas, Water and Waste Services	483	643	715	0.9	1.2	1.2
Construction	1 939	2 482	2 211	3.8	4.6	3.8
Wholesale Trade	3 834	3 899	3 342	7.5	7.2	5.8
Retail Trade	448	423	475	0.9	0.8	0.8
Accommodation and Food Services	67	139	115	0.1	0.3	0.2
Transport, Postal and Warehousing	595	575	708	1.2	1.1	1.2
Information Media and Telecommunications	1 812	1 734	1 679	3.6	3.2	2.9
Financial and Insurance Services	3 758	5 580	9 640	7.4	10.3	16.8
Rental, Hiring and Real Estate Services	288	330	619	0.6	0.6	1.1
Professional, Scientific and Technical Services	13 804	14 166	14 355	27.1	26.2	25.0
Administrative and Support Services	523	388	482	1.0	0.7	0.8
Public Administration and Safety	34	47	52	0.1	0.1	0.1
Education and Training	38	80	101	0.1	0.1	0.2
Health Care and Social Assistance	296	467	447	0.6	0.9	0.8
Arts and Recreation Services	119	166	195	0.2	0.3	0.3
Other Services	310	328	325	0.6	0.6	0.6
Total	50 896	53 998	57 457	100.0	100.0	100.0

(a) Some 2007–08 and 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

BUSINESS HUMAN RESOURCES DEVOTED TO R&D, by industry—by employment size—2008–09 and 2009–10(a)

	0–4 persons	5–19 persons	20–199 persons	200 or more persons	Total human resources devoted to R&D
	PYE	PYE	PYE	PYE	PYE
2009–10					
Agriculture, Forestry and Fishing	50	109	317	182	658
Mining	48	189	550	3 211	3 999
Manufacturing	307	1 370	4 787	10 875	17 339
Electricity, Gas, Water and Waste Services	31	70	192	423	715
Construction	34	244	394	1 539	2 211
Wholesale Trade	107	412	1 091	1 732	3 342
Retail Trade	31	143	112	189	475
Accommodation and Food Services	4	16	21	74	115
Transport, Postal and Warehousing	np	46	np	592	708
Information Media and Telecommunications	59	238	298	1 084	1 679
Financial and Insurance Services	62	182	297	9 099	9 640
Rental, Hiring and Real Estate Services	44	68	149	358	619
Professional, Scientific and Technical Services	903	3 775	5 750	3 926	14 355
Administrative and Support Services	20	110	98	255	482
Public Administration and Safety	np	19	27	np	52
Education and Training	17	58	25	—	101
Health Care and Social Assistance	13	77	81	276	447
Arts and Recreation Services	13	13	np	np	195
Other Services	np	109	179	np	325
Total	1 770	7 248	14 467	33 973	57 457

2008–09 (a)					
Agriculture, Forestry and Fishing	34	101	280	199	615
Mining	40	197	472	3 913	4 622
Manufacturing	296	1 205	4 841	10 974	17 317
Electricity, Gas, Water and Waste Services	13	63	166	401	643
Construction	26	181	397	1 879	2 482
Wholesale Trade	89	409	1 128	2 273	3 899
Retail Trade	34	135	112	141	423
Accommodation and Food Services	5	7	42	85	139
Transport, Postal and Warehousing	13	38	54	470	575
Information Media and Telecommunications	90	198	315	1 131	1 734
Financial and Insurance Services	36	165	331	5 047	5 580
Rental, Hiring and Real Estate Services	44	40	132	115	330
Professional, Scientific and Technical Services	869	3 744	5 509	4 044	14 166
Administrative and Support Services	19	99	101	169	388
Public Administration and Safety	np	16	16	np	47
Education and Training	np	47	7	np	80
Health Care and Social Assistance	15	70	84	297	467
Arts and Recreation Services	np	15	65	np	166
Other Services	np	115	167	np	328
Total	1 688	6 844	14 219	31 247	53 998

— nil or rounded to zero (including null cells)

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Some 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

BUSINESS HUMAN RESOURCES DEVOTED TO R&D, by industry—by employment size:
 proportions—2008–09 and 2009–10(a)

	0–4 persons	5–19 persons	20–199 persons	200 or more persons	Total human resources devoted to R&D
	%	%	%	%	%
2009–10					
Agriculture, Forestry and Fishing	7.6	16.5	48.2	27.7	100.0
Mining	1.2	4.7	13.8	80.3	100.0
Manufacturing	1.8	7.9	27.6	62.7	100.0
Electricity, Gas, Water and Waste Services	4.3	9.7	26.9	59.1	100.0
Construction	1.5	11.0	17.8	69.6	100.0
Wholesale Trade	3.2	12.3	32.6	51.8	100.0
Retail Trade	6.5	30.1	23.6	39.7	100.0
Accommodation and Food Services	3.6	14.0	17.9	64.5	100.0
Transport, Postal and Warehousing	np	6.5	np	83.6	100.0
Information Media and Telecommunications	3.5	14.2	17.7	64.5	100.0
Financial and Insurance Services	0.6	1.9	3.1	94.4	100.0
Rental, Hiring and Real Estate Services	7.2	11.0	24.0	57.7	100.0
Professional, Scientific and Technical Services	6.3	26.3	40.1	27.4	100.0
Administrative and Support Services	4.2	22.8	20.2	52.8	100.0
Public Administration and Safety	np	35.4	51.1	np	100.0
Education and Training	17.0	57.8	25.2	—	100.0
Health Care and Social Assistance	2.9	17.3	18.1	61.7	100.0
Arts and Recreation Services	6.8	6.7	np	np	100.0
Other Services	np	33.5	55.0	np	100.0
Total	3.1	12.6	25.2	59.1	100.0

2008–09 (a)					
Agriculture, Forestry and Fishing	5.5	16.5	45.6	32.4	100.0
Mining	0.9	4.3	10.2	84.7	100.0
Manufacturing	1.7	7.0	28.0	63.4	100.0
Electricity, Gas, Water and Waste Services	2.0	9.8	25.8	62.4	100.0
Construction	1.1	7.3	16.0	75.7	100.0
Wholesale Trade	2.3	10.5	28.9	58.3	100.0
Retail Trade	8.1	32.0	26.5	33.3	100.0
Accommodation and Food Services	3.9	5.1	30.4	60.7	100.0
Transport, Postal and Warehousing	2.3	6.7	9.4	81.6	100.0
Information Media and Telecommunications	5.2	11.4	18.2	65.2	100.0
Financial and Insurance Services	0.6	3.0	5.9	90.4	100.0
Rental, Hiring and Real Estate Services	13.3	12.0	40.0	34.8	100.0
Professional, Scientific and Technical Services	6.1	26.4	38.9	28.5	100.0
Administrative and Support Services	5.0	25.5	26.0	43.5	100.0
Public Administration and Safety	np	34.7	33.0	np	100.0
Education and Training	np	59.0	8.6	np	100.0
Health Care and Social Assistance	3.2	15.0	18.0	63.7	100.0
Arts and Recreation Services	np	8.7	38.8	np	100.0
Other Services	np	35.0	51.1	np	100.0
Total	3.1	12.7	26.3	57.9	100.0

— nil or rounded to zero (including null cells)

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Some 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

	Researchers	Technicians	Other staff	Total human resources devoted to R&D
	PYE	PYE	PYE	PYE
2009–10				
Agriculture, Forestry and Fishing	193	288	177	658
Mining	1 162	2 061	775	3 999
Manufacturing	8 548	5 614	3 177	17 339
Electricity, Gas, Water and Waste Services	251	299	165	715
Construction	1 046	760	405	2 211
Wholesale Trade	1 788	1 058	496	3 342
Retail Trade	213	192	70	475
Accommodation and Food Services	57	41	16	115
Transport, Postal and Warehousing	330	285	93	708
Information Media and Telecommunications	862	609	208	1 679
Financial and Insurance Services	5 420	2 387	1 833	9 640
Rental, Hiring and Real Estate Services	246	180	193	619
Professional, Scientific and Technical Services	8 260	4 482	1 614	14 355
Administrative and Support Services	181	182	119	482
Public Administration and Safety	21	23	8	52
Education and Training	46	34	21	101
Health Care and Social Assistance	233	159	56	447
Arts and Recreation Services	61	81	53	195
Other Services	166	125	35	325
Total	29 085	18 859	9 514	57 457

2008–09 (a)				
Agriculture, Forestry and Fishing	186	229	201	615
Mining	1 200	1 918	1 504	4 622
Manufacturing	8 578	5 373	3 366	17 317
Electricity, Gas, Water and Waste Services	236	258	149	643
Construction	1 056	941	485	2 482
Wholesale Trade	2 279	1 166	453	3 899
Retail Trade	159	184	80	423
Accommodation and Food Services	89	33	18	139
Transport, Postal and Warehousing	257	230	88	575
Information Media and Telecommunications	1 072	502	159	1 734
Financial and Insurance Services	3 641	1 327	612	5 580
Rental, Hiring and Real Estate Services	192	95	43	330
Professional, Scientific and Technical Services	8 132	4 358	1 676	14 166
Administrative and Support Services	134	164	89	388
Public Administration and Safety	14	26	6	47
Education and Training	45	29	7	80
Health Care and Social Assistance	192	210	64	467
Arts and Recreation Services	55	72	39	166
Other Services	187	92	48	328
Total	27 704	17 207	9 087	53 998

(a) Some 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

BUSINESS HUMAN RESOURCES DEVOTED TO R&D, by industry—by type of resource:
proportions—2008–09 and 2009–10(a)

	Researchers	Technicians	Other staff	Total human resources devoted to R&D
	%	%	%	%
2009–10				
Agriculture, Forestry and Fishing	29.3	43.8	26.9	100.0
Mining	29.1	51.5	19.4	100.0
Manufacturing	49.3	32.4	18.3	100.0
Electricity, Gas, Water and Waste Services	35.1	41.8	23.1	100.0
Construction	47.3	34.4	18.3	100.0
Wholesale Trade	53.5	31.7	14.8	100.0
Retail Trade	44.8	40.4	14.8	100.0
Accommodation and Food Services	50.0	36.2	13.9	100.0
Transport, Postal and Warehousing	46.6	40.3	13.1	100.0
Information Media and Telecommunications	51.4	36.3	12.4	100.0
Financial and Insurance Services	56.2	24.8	19.0	100.0
Rental, Hiring and Real Estate Services	39.8	29.1	31.1	100.0
Professional, Scientific and Technical Services	57.5	31.2	11.2	100.0
Administrative and Support Services	37.4	37.8	24.8	100.0
Public Administration and Safety	40.7	44.6	14.7	100.0
Education and Training	45.9	33.4	20.7	100.0
Health Care and Social Assistance	52.0	35.5	12.5	100.0
Arts and Recreation Services	31.2	41.6	27.2	100.0
Other Services	50.9	38.3	10.8	100.0
Total	50.6	32.8	16.6	100.0
2008–09 (a)				
Agriculture, Forestry and Fishing	30.2	37.2	32.6	100.0
Mining	26.0	41.5	32.5	100.0
Manufacturing	49.5	31.0	19.4	100.0
Electricity, Gas, Water and Waste Services	36.7	40.1	23.1	100.0
Construction	42.6	37.9	19.6	100.0
Wholesale Trade	58.5	29.9	11.6	100.0
Retail Trade	37.6	43.5	18.9	100.0
Accommodation and Food Services	63.7	23.3	12.9	100.0
Transport, Postal and Warehousing	44.7	40.1	15.3	100.0
Information Media and Telecommunications	61.9	29.0	9.2	100.0
Financial and Insurance Services	65.3	23.8	11.0	100.0
Rental, Hiring and Real Estate Services	58.2	28.7	13.0	100.0
Professional, Scientific and Technical Services	57.4	30.8	11.8	100.0
Administrative and Support Services	34.7	42.4	22.9	100.0
Public Administration and Safety	30.6	55.7	13.6	100.0
Education and Training	56.0	35.6	8.3	100.0
Health Care and Social Assistance	41.2	45.1	13.8	100.0
Arts and Recreation Services	33.1	43.4	23.5	100.0
Other Services	57.1	28.2	14.7	100.0
Total	51.3	31.9	16.8	100.0

(a) Some 2008–09 data have been revised. See the Revisions section of the Technical Note for details.

EXPLANATORY NOTES

INTRODUCTION

1 The statistics presented in this release have been compiled from data collected from businesses in the *Survey of Research and Experimental Development (R&D), Businesses* for 2009–10.

2 The survey was conducted by the Australian Bureau of Statistics (ABS) via mail questionnaire and achieved a response rate of 91%.

REFERENCE PERIOD

3 The period covered by the survey is, in general, the 12 months ended 30 June. Where businesses were unable to supply information on this basis, an accounting period for which data could be provided was used. Such businesses make a substantial contribution to some of the estimates presented in this release. As a result, some estimates may reflect economic conditions that existed in periods outside the 12 months ended June in the relevant year.

DEFINITION OF R&D

4 R&D, as collected by the ABS, is defined in accordance with the Organisation for Economic Co-operation and Development (OECD) standard as 'creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications'.

5 For a more comprehensive interpretation of the definition of R&D, see the OECD publication *The Measurement of Scientific and Technological Activities: Proposed Standard Practice for Surveys of Research and Experimental Development - Frascati Manual 2002*.

6 Data providers report and self-classify R&D survey information based on their interpretation of OECD and ABS definitions and classifications. The ABS makes every effort to ensure correct and consistent interpretation and reporting of these data by applying consistent processing methodologies. See also the Reliability of statistics and Revisions sections of the Technical Note.

FRAME

7 The source of the frame for the *Survey of R&D, Businesses* is the ABS Business Register (ABSBR). The ABSBR records information about statistical units and is used to create the frames for most ABS economic collections.

Statistical units defined on the ABSBR

8 Statistical units are those entities from which statistics are collected, or about which statistics are compiled. In ABS economic statistics, the statistical unit is generally the business.

9 The ABS uses an economic statistics units model on the ABSBR to describe the characteristics of businesses, and the structural relationships between related businesses. Within large, complex and diverse businesses, the units model is also used to define reporting units that can provide data to the ABS at suitable levels of detail.

10 The units model allocates businesses to one of two sub-populations. The vast majority of businesses are in what is called the Australian Taxation Office (ATO) Maintained Population (ATOMP), while the remaining businesses are in the ABS Maintained Population (ABSMP). Together these two sub-populations make up the ABSBR population.

11 Most businesses and organisations in Australia need to obtain an Australian Business Number (ABN) and are then included on the whole-of-government register of businesses, the Australian Business Register (ABR), which is maintained by the ATO. Most of these businesses have simple structures; therefore, the unit registered for an ABN will satisfy ABS statistical requirements. For these businesses, the ABS has aligned its statistical units structure with the ABN unit. The businesses with simple structures constitute the ATOMP, and the ABN unit is used as the statistical unit for ABS economic collections.

EXPLANATORY NOTES *continued*

Statistical units defined on the ABSBR *continued*

12 For the population of businesses where the ABN is not suitable for ABS statistical requirements, the ABS maintains its own units structure through direct contact with each business. These businesses constitute the ABSMP. This population consists typically of large, complex and diverse businesses. For businesses in the ABSMP, statistical units comprise the Enterprise Group, the Enterprise and the Type of Activity Unit (TAU). The range of activities across the Enterprise Group can be very diverse. The TAU represents a grouping of one or more business entities within the Enterprise that cover all of the operations within an industry subdivision and for which a basic set of financial production and employment data can be reported.

13 The current economic statistics units model was introduced into the ABS in mid 2002, to better use the information available as a result of The New Tax System (TNTS). For more information please refer to the *Information Paper: Improvements in ABS Economic Statistics [Arising from The New Tax System], 2002* (cat.no.1372.0).

14 Statistical units for the *Survey of R&D, Businesses* consist of ABN units for the ATOMP and TAUs from the ABSMP, except for a small number of cases where unit splitting occurs.

Unit splitting

15 In cases where a TAU is deemed to have significant activities applying to more than one industry subdivision, the TAU is split for statistical purposes and the 'TAU splits' become the statistical units. TAU splits were implemented in the R&D survey for the first time in the 2005–06 cycle, and were applied for previous cycles according to the revision rules outlined in the Technical Note.

SCOPE AND COVERAGE

16 The *Survey of R&D, Businesses* aims to be a complete enumeration of businesses within the Australian business sector (i.e. all businesses and the private non-profit institutions mainly serving them) with intramural expenditure on R&D of \$100,000 or more during the reference period.

17 Intramural expenditure is defined as expenditure for R&D performed by the statistical unit regardless of the source of funds. Expenditures made outside the statistical unit but in support of intramural R&D are included; for example, payments for analytical work, engineering or specialised services which form part of an R&D project performed by the statistical unit. R&D funded by the statistical unit but performed wholly by another on their behalf (extramural R&D) is excluded. R&D performed overseas by Australian businesses is included. For further information, refer to the OECD *Frascati Manual 2002*.

18 The ABS identifies businesses for inclusion in the survey if the business:

- reported expenditure on R&D in previous surveys;
- applied for an AusIndustry administered R&D Tax Concession and/or grant for industry R&D;
- indicated expenditure on R&D of \$100,000 or more in the reference year, via a coverage questionnaire; or
- were identified through other sources such as newspapers, journals, research compendia, etc. as likely to have expenditure on R&D.

Changes to survey scope

19 Prior to the 2005–06 cycle, the *Survey of R&D, Businesses* included all Australian businesses performing R&D (regardless of the expenditure value) with the exception of businesses mainly engaged in agriculture, forestry and fishing activities. From 2005–06, the survey scope was adjusted to:

- include businesses classified to Division A (Agriculture, forestry and fishing) of the Australian and New Zealand Standard Industrial Classification (ANZSIC); and
- exclude businesses with expenditure on R&D of less than \$100,000 in the reference period (i.e. introduction of an expenditure based scope cut-off).

EXPLANATORY NOTES *continued*

Changes to survey scope *continued*

20 Strong growth in the number of businesses performing R&D and the inclusion of Division A resulted in the implementation of the scope cut-off. This approach was taken to enable continued release of detailed R&D statistics within available resources.

21 The impact of the two scope changes on key survey estimates was relatively minor due to the changes largely 'offsetting' each other; as such, estimates for previous reference periods were not recalculated (or backcast) based on the new scope.

22 It is estimated the scope cut-off has resulted in total business expenditure on R&D being understated by less than 1%. Users should, however, exercise caution when comparing estimates for businesses with 0–4 employees prior to 2005–06, as the majority of units with expenditure below \$100,000 fell into this employment size range. Most affected were estimates for human resources devoted to R&D.

INDUSTRY CLASSIFICATION

23 The statistics in this release are classified to industry in accordance with the *Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006* (cat. no. 1292.0).

24 Each ABN unit/TAU is classified by the ABS to the industry in which it mainly operates. For the purposes of the *Survey of R&D, Businesses*, in accordance with standards set out in the *OECD Frascati Manual 2002*, for cases where an Enterprise Group sets up a dedicated research unit, that unit is classified to the predominant industry of the group rather than to Scientific research services (ANZSIC 6910).

EMPLOYMENT SIZE

25 For output purposes, businesses are classified to employment size groups based on data reported in the survey. Businesses were asked to report the number of persons working for the business during the last pay period in June 2010.

LOCATION OF EXPENDITURE

26 Location of expenditure relates to the region(s) in which the business reported having performed R&D during the reference period. This may not be the head office location of the business.

TYPE OF ACTIVITY (TOA), FIELDS OF RESEARCH (FOR) AND SOCIO-ECONOMIC OBJECTIVE (SEO)

27 TOA, FOR and SEO statistics presented in this release have been collected and compiled based on the *Australian and New Zealand Standard Research Classification (ANZSRC), 2008* (cat. no. 1297.0).

28 Some businesses may have experienced difficulty in classifying their R&D projects to TOA, FOR and SEO. See also the Reliability of statistics and Revisions sections of the Technical Note.

GROSS DOMESTIC PRODUCT (GDP) AND GROSS STATE PRODUCT (GSP)

29 The most recent GDP and GSP values available were used to calculate the R&D expenditure/GDP and R&D expenditure/GSP ratios presented in this issue. These values are referenced in the tables below and have been revised from those used to calculate ratios in previous issues.

GROSS DOMESTIC PRODUCT, current prices

	2005–06	2006–07	2007–08	2008–09	2009–10
	\$m	\$m	\$m	\$m	\$m
Gross Domestic Product	1 001 440	1 091 633	1 185 740	1 255 241	1 284 827

Source: *Australian National Accounts: National Income, Expenditure and Product, Mar 2011* (cat. no. 5206.0), released 1 June 2011.

EXPLANATORY NOTES *continued*

GROSS DOMESTIC PRODUCT (GDP) AND GROSS STATE PRODUCT (GSP) *continued*

GROSS STATE PRODUCT, current prices

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
2009–10	406 917	301 438	244 160	80 356	184 438	23 340	16 248	27 773
2008–09	394 980	287 619	250 573	77 407	180 008	22 247	16 658	25 748

Source: *Australian National Accounts: State Accounts, 2009–10* (cat. no. 5220.0), released 19 November 2010.

30 GDP is estimated by the ABS according to the recently updated international standards contained in the *System of National Accounts, 2008* (2008 SNA) and is not directly comparable to GDP from countries where these standards have not been applied.

CHAIN VOLUME MEASURES

31 The chain volume measures appearing in this release are annually reweighted chain Laspeyres indexes referenced to the current price values in a chosen reference year (currently 2009–10). They can be thought of as current price values re-expressed in (i.e. based on) the prices of the previous year and linked together to form continuous time series. They are formed in a multi-stage process of which the major steps are described in Section 15 of the *Information Paper: Australian National Accounts, Introduction of Chain Volume Measures and Price Indexes* (cat. no. 5248.0).

R&D deflators

32 With the implementation of 2008 SNA, deflators used to calculate the chain volume measure of expenditure on R&D were revised to: better capture changes in the unit value of labour used in the production of R&D services; and, to increase and refine the number of products included in the deflators. The revised deflators have been used for Business R&D statistics from the 2007–08 survey cycle.

UPCOMING RELATED RELEASES

33 Upcoming releases of related statistics include:
Selected Characteristics of Australian Business, 2009–10 (cat. no. 8167.0), to be released 15 September 2011.
Research and Experimental Development, Higher Education Organisations, Australia, 2010 (cat. no. 8111.0), scheduled for release in May 2012.

OTHER RELATED RELEASES

34 Users may also wish to refer to the following releases:
Australian and New Zealand Standard Research Classification (ANZSRC), 2008 (cat. no. 1297.0)
Innovation in Australian Business, 2008–09 (cat. no. 8158.0)
Microdata: Business Longitudinal Database, Expanded CURF, Australia, 2004–05, 2005–06 and 2006–07 (cat. no. 8168.0.55.001)
Research and Experimental Development, All Sector Summary, Australia, 2008–09 (cat. no. 8112.0)
Research and Experimental Development, Government and Private Non-Profit Organisations, Australia, 2008–09 (cat. no. 8109.0)
Research and Experimental Development, Higher Education Organisations, Australia, 2008 (cat. no. 8111.0)
Selected Characteristics of Australian Business, 2008–09 (cat. no. 8167.0)
Summary of IT Use and Innovation in Australian Business, 2009–10 (cat. no. 8166.0)

35 Relevant OECD publications include:
Main Science and Technology Indicators, Vol. 2011/1

EXPLANATORY NOTES *continued*

ABS WEBSITE

36 Other information relating to R&D and Innovation (including data cubes in spreadsheet format) can be found on the ABS website <www.abs.gov.au>. See the Innovation, Science and Technology theme page under Topics @ a Glance/Industry.

ROUNDING

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

TECHNICAL NOTE DATA QUALITY

NON-SAMPLING ERROR

1 Non-sampling errors may arise as a result of errors in the reporting, recording or processing of data. These errors can be introduced through inadequacies in the questionnaire, treatment of non-response, inaccurate reporting by data providers, errors in the application of survey procedures, incorrect recording of answers and errors in data capture and processing.

2 The extent to which non-sampling error affects the results is difficult to measure. Every effort is made to minimise non-sampling error by careful design and testing of the collection instrument, the use of efficient operating procedures and systems, and the use of appropriate methodologies.

Reliability of statistics

3 When interpreting the statistics in this release, the reliability and comparability of the estimates may be affected by the following specific non-sampling errors:

- Many businesses provided estimates due to a lack of separately recorded data on R&D activity.
- Some businesses may not have reported data as per the definition of R&D used in this survey. This is potentially a result of slight differences in the survey definition of R&D and those used in: industry R&D schemes for the allocation of grants; and, the AusIndustry administered R&D Tax Concession scheme for tax deductibility for specific R&D activities.
- Data were self-classified by businesses to Type of activity, Fields of research and Socio-economic objective at the time of reporting. Some businesses may have experienced difficulty in classifying their R&D projects. The ABS makes every effort to ensure correct and consistent interpretation and reporting of these data by applying consistent processing methodologies.
- The estimation method for R&D related overhead costs varied across businesses and reference periods.

Treatment of non-response

4 For non-responding businesses that had reported R&D activity in the 2008–09 survey, data for 2009–10 were imputed using previous cycle data.

5 For non-responding businesses that did not report R&D activity in the previous cycle, data were not imputed. These businesses are not expected to have significant levels of R&D activity.

REVISIONS

6 Revisions to previous cycle data occur on discovery of:

- errors in reported data, typically a result of the specific non-sampling errors outlined in the Reliability of statistics section above; and
- newly identified R&D performers who indicated they had significant levels of R&D in earlier years (details are collected and used to revise previously released estimates).

7 Revisions are applied up to two cycles prior to the current cycle, but only where the impact on:

- R&D expenditure is equal to \$5 million or more;
- Human resources devoted to R&D is equal to 25 PYE or more; or
- Published level data is of proportional significance.

8 In processing 2009–10 data, revisions were applied to 2007–08 and 2008–09 estimates. Revisions must be taken into consideration when interpreting results, particularly when comparing estimates over time.

GLOSSARY

Applied research	Original work undertaken primarily to acquire new knowledge with a specific application in view. It is undertaken either to determine possible uses for the findings of basic research or to determine new ways of achieving some specific and predetermined objectives.
Capital expenditure	Expenditure on the acquisition of fixed tangible assets such as land, buildings, vehicles, plant, machinery and equipment which is attributable to R&D activity.
Commonwealth government funds	As a source of R&D funding, this includes R&D grants, and payments for R&D projects carried out on contract for Commonwealth government organisations.
Current expenditure	Expenditure on direct labour costs, materials, fuels, rent and hiring, repairs and maintenance, data processing etc. and the proportion of expenditure on general services and overheads which is attributable to R&D activity.
Employees	Persons who worked for a private or public employer and received pay for the reference period in the form of wages or salaries, a commission while also receiving a retainer, tips, piece rates or payment in kind. Persons who operated their own incorporated business with or without hiring employees are also included as employees.
Experimental development	Systematic work, using existing knowledge gained from research or practical experience, which is directed to producing new materials, products, devices, policies, behaviours or outlooks; to installing new processes, systems and services; or to improving substantially those already produced or installed.
Fields of research (FOR)	The FOR classification allows R&D activity to be categorised according to the methodology used in the R&D, rather than the activity of the unit performing the R&D or the purpose of the R&D. The FOR reflects the field in which the research was undertaken and is based on the processes and techniques used.
Human resources devoted to R&D	The effort of researchers, technicians and other staff directly involved with R&D activity. Overhead staff (e.g. administrative and general service employees such as personnel officers, janitors, etc.) whose work indirectly supports R&D, are excluded.
Joint business/government funds	As a source of R&D funding, this includes R&D funding raised via industry levies.
Labour costs	Expenditure relating to: wages and salaries; overtime earnings; penalty payments; shift allowances; employer contributions into superannuation; fringe benefits and payroll taxes; severance, termination and redundancy payments; workers' compensation premiums/costs; provisions for employee entitlements; salaries and fees of directors and executives; retainers and commissions of persons who received a retainer; bonuses; annual and other types of paid leave.
Location	The region(s) in which the business performed the R&D. This may not be the head office location of the business.
Other business funds	As a source of R&D funding, this includes payments for R&D projects carried out on contract for other businesses located in Australia. Transfers from related entities are only included if they specifically relate to R&D being undertaken (by the reporting business) on behalf of the related entity.
Other current expenditure	All other non-staff expenditures including: materials, fuels and other inputs; rent, leasing and hiring expenses; repair and maintenance expenses; payments to outside organisations for use of specialised testing facilities or for analytical work, engineering or other specialised services in support of R&D projects carried out by the business; commission and consultant expenses for research projects carried out by the business (except direct labour costs); software for own account produced as part of R&D; and the proportion of expenditure on general services and overheads which is attributable to R&D activity.

GLOSSARY *continued*

Other staff	Skilled and unskilled craftpersons, secretarial and clerical staff directly associated with R&D activity.
Overseas funds	As a source of R&D funding, this includes grants, and payments for R&D projects carried out on contract for overseas organisations. Transfers from related entities are only included if they specifically relate to R&D being undertaken (by the reporting business) on behalf of the related entity.
Overseas location	Includes R&D performed overseas, but controlled by the Australian business. This includes analytical work, engineering or other specialised services performed by another organisation which are part of an R&D project being performed by the Australian business.
Own funds	Includes all funding for R&D sourced from the business itself, including: equity; borrowings; retained earnings; and non-R&D specific transfers from related entities.
Person years of effort	One person year of effort is equal to a full time employee whose time is wholly devoted to R&D for a whole year.
Pure basic research	Experimental and theoretical work undertaken to acquire new knowledge without looking for long term benefits other than the advancement of knowledge.
R&D activity	Systematic investigation or experimentation involving innovation or technical risk, the outcome of which is new knowledge, with or without a specific practical application, or new or improved products, processes, materials, devices or services. R&D activity extends to modifications to existing products/processes. R&D activity ceases and pre-production begins when work is no longer experimental.
Researchers	Those involved with the conception and/or development of new products/processes (e.g. executives and directors involved in the planning or management of scientific and technical aspects of R&D projects; and software developers/programmers). They exclude executives and directors concerned primarily with budgets and human resources rather than project content.
Socio-economic objective (SEO)	The SEO classification allows R&D activity to be categorised according to the intended purpose or outcome of the research, rather than the processes or techniques used in order to achieve this objective. The SEO reflects the dominant beneficiary or beneficiaries of the research output.
State and local government funds	As a source of R&D funding, this includes R&D grants, and payments for R&D projects carried out on contract for state and local government organisations.
Strategic basic research	Experimental and theoretical work undertaken to acquire new knowledge directed into specified broad areas in the expectation of practical discoveries. It provides the broad base of knowledge necessary for the solution of recognised practical problems.
Technicians	Those performing technical tasks in support of R&D activity, normally under the direction and supervision of a researcher. These tasks include preparation of experiments, taking records, preparation of charts and graphs, etc.
Type of activity	This classification allows R&D activity to be categorised according to the type of research effort, namely, pure basic research, strategic basic research, applied research and experimental development.

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