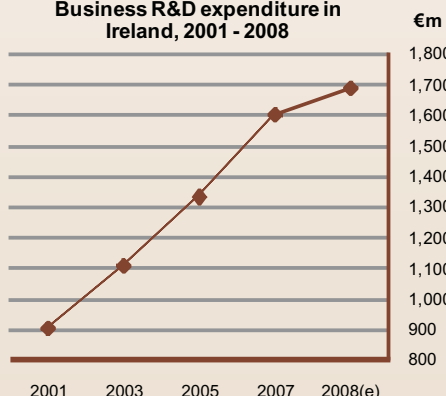




Business R&D expenditure in Ireland, 2001 - 2008



e: Expected expenditure

This release presents preliminary results from the Business Expenditure on Research and Development (BERD) Survey of enterprises in Ireland and it is expected that a more detailed report will be published in the coming months. The survey collected information about research and development activities of enterprises in 2007 and 2008.

The BERD Survey was previously conducted by Forfás but is now jointly conducted by the CSO and Forfás to increase efficiency in the collection of statistical data and to reduce the burden on the participating enterprises. Data were collected in accordance with Section 33 of the Statistics Act, 1993 and with EU law and the survey was carried out under the agreed set of international rules as laid out in the OECD Frascati manual. Data are strictly confidential and will be used only for statistical purposes. See *Background Notes on page 7* for further information.

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Business Expenditure on Research and Development 2007/2008 Preliminary Findings

Total business expenditure on research and development by size of enterprise, 2001 - 2008

	2001	2003	2005	2007	2008 ^e
Small (<50 persons engaged)	192	265	320	284	348
Medium/Large (50+ persons engaged)	709	840	1,009	1,314	1,336
Total expenditure	900	1,105	1,329	1,598	1,684

Source: CSO/Forfás - Business Expenditure on Research and Development, 2007 - 2008

e: Expected expenditure

Almost €1.6bn spent on research and development activities in the business sector in Ireland in 2007

Preliminary figures indicate that in 2007 just under €1.6bn was spent on research and development activities by enterprises across all business sectors in Ireland. In addition, estimates of expected expenditure by enterprises in 2008 indicate that this spend should have increased to over €1.68bn in 2008.

Small enterprises with less than 50 persons engaged spent almost €285m on research and development in 2007 while medium/large enterprises with 50 or more persons engaged spent €1.31bn in the same period. In 2008 small enterprises estimated that they would spend almost €350m while medium/large enterprises estimated a spend of €1.34bn.

Preliminary figures in this release also show that:

- ◆ Current expenditure on research and development activities in 2007 was €1.32bn while capital expenditure was €279m.
- ◆ There were almost 13,900 persons engaged in research and development activities in Ireland in 2007 of whom 8,300 were researchers. One quarter of these 13,900 research persons were female.
- ◆ In total, there were more than 10,900 full time equivalents engaged in research and development activities of which 7,300 were researchers.
- ◆ There were more than 1,200 enterprises engaged in research and development activities in Ireland in 2007 and a third of these enterprises spent €500,000 or more on such activities.

The figures in this release are preliminary and are subject to revision. Final results are expected to be issued in April 2009.

Methodological changes have been introduced in the BERD 2007-2008 Survey. As a consequence of this, no conclusions should be drawn regarding the direction or scale of any real changes between BERD 2005-2006 and BERD 2007-2008. Results for previous years are included but comparisons should be treated with caution.

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Research and Development - Expenditure

Enterprises were asked to detail their expenditure on research and development for 2007 under the broad headings of current and capital expenditure. They were also asked to provide estimates of expected spend in 2008.

Current expenditure on research and development activities in 2007 was €1.32bn while capital expenditure was €279m. Enterprises estimated that current expenditure was expected to increase by 7% to €1.41bn in 2008 while the spend on capital expenditure was expected to drop by 2.5% to €272m in 2008.

In 2007 current expenditure accounted for 83% of all research and development expenditure while capital expenditure accounted for the other 17%. Based on 2008 estimates the current to capital split should be almost identical, being 84% to 16%. The corresponding split of expenditure in 2005 was 86% to 14%. See *Table 1 and Figure 1*.

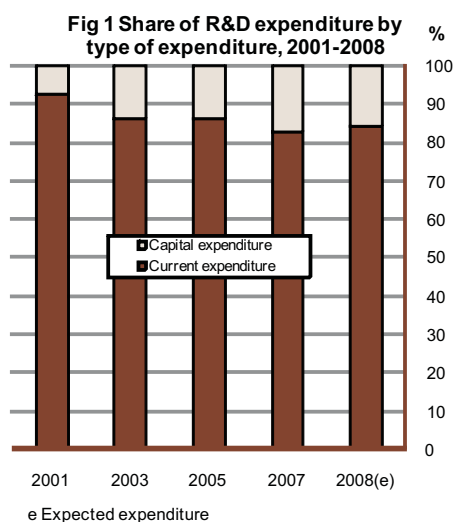


Table 1 Business expenditure on research and development by type of expenditure, 2001 - 2008

	€m				
	2001	2003	2005	2007	2008 ^e
Current expenditure	833	952	1,140	1,319	1,412
Capital expenditure	67	153	189	279	272
Total expenditure	900	1,105	1,329	1,598	1,684

Source: CSO/Forfás - Business Expenditure on R & D Survey, 2007 - 2008

e: Expected expenditure

Research and Development – Human Resources (Headcount)

Enterprises were asked to indicate the numbers of both male and female staff they had engaged who devoted any of their time to research and development activities in 2007.

There were 13,861 persons engaged in research and development activities in Ireland in 2007. The corresponding figure for 2005 was 13,621. The number of research personnel in small enterprises in 2007 was 3,864 while the number of research personnel in medium/large enterprises was 9,997. See Table 2 and Figure 2.

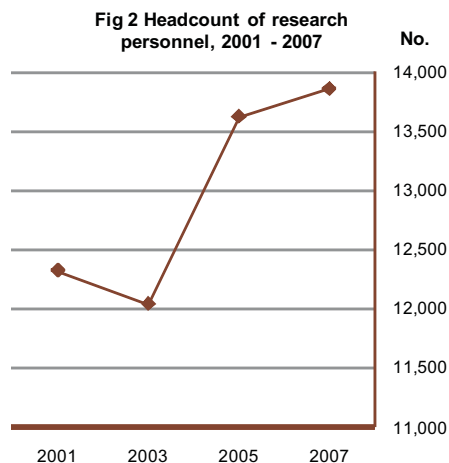


Table 2 Total headcount of research personnel by size of enterprise, 2001 - 2007

	No.			
	2001	2003	2005	2007
Small (<50 persons engaged)	4,057	4,669	5,287	3,864
Medium/Large (50+ persons engaged)	8,263	7,367	8,335	9,997
Total research personnel (headcount)	12,320	12,037	13,621	13,861

Source: CSO/Forfás - Business Expenditure on Research and Development, 2007 - 2008

In 2007 there were 8,304 persons engaged as researchers working on research and development activities in enterprises in Ireland. These researchers were made up of 1,191 PhD qualified researchers together with 7,113 researchers with other qualifications. There were 2,804 persons engaged as technicians and there were 2,753 support staff. In 2005, the corresponding figures were 7,696 researchers, 3,095 technicians and 2,830 support staff. See Table 3 and Figure 3.

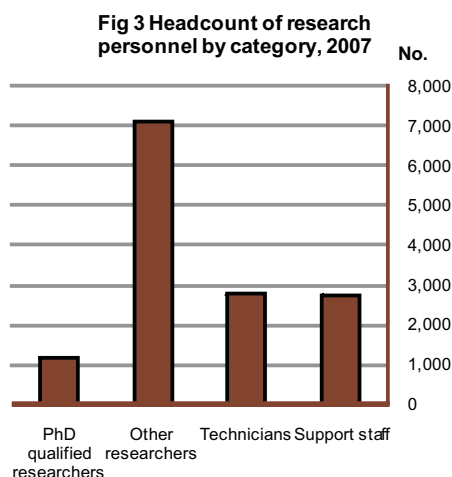
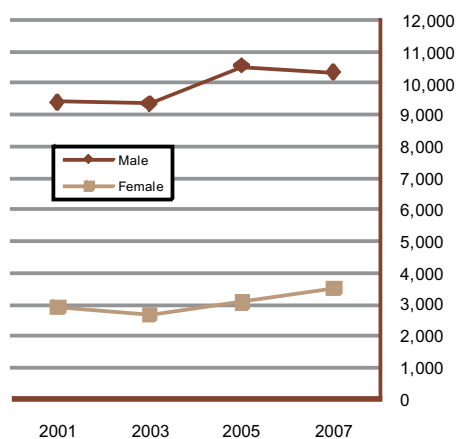


Table 3 Total headcount of research personnel by type of activity, 2001 - 2007

	No.			
	2001	2003	2005	2007
Researchers	6,937	6,611	7,696	8,304
of which:				
PhD qualified researchers	420	466	830	1,191
Other researchers	6,517	6,145	6,866	7,113
Technicians	2,642	2,799	3,095	2,804
Support staff	2,741	2,627	2,830	2,753
Total research personnel (headcount)	12,320	12,037	13,621	13,861

Source: CSO/Forfás - Business Expenditure on Research and Development, 2007 - 2008

Fig 4 Headcount of research personnel by sex, 2001 - 2007



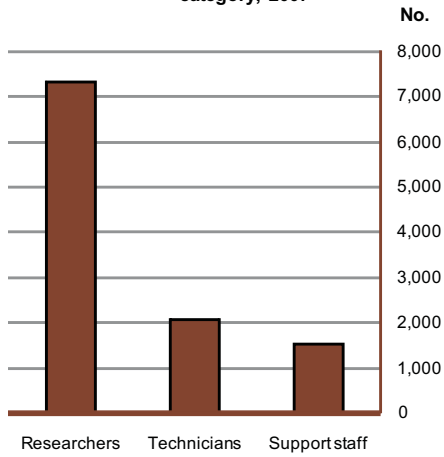
Enterprises indicated that there were 10,346 male research personnel engaged in enterprises in Ireland in 2007 and that there were 3,516 female research personnel in the period. In 2005, there were 10,547 males while there were 3,074 females. See Table 4 and Figure 4.

Table 4 Total headcount of research personnel by sex, 2001 - 2007

	2001	2003	2005	No. 2007
Male	9,413	9,367	10,547	10,346
Female	2,907	2,670	3,074	3,516
Total research personnel (headcount)	12,320	12,037	13,621	13,861

Source: CSO/Forfás - Business Expenditure on Research and Development, 2007 - 2008

Fig 5 FTE research personnel by category, 2007



Research and Development – Human Resources (Full Time Equivalents (FTE))

When enterprises were asked to provide staffing numbers in relation to research and development, they were also asked to indicate the average percentage of time these staff members spent on such activities to allow a calculation of Full Time Equivalent (FTE) research staff numbers.

In total, there were 10,920 FTEs engaged in research and development activities in Ireland in 2007. There were 7,323 FTE researchers, 2,060 FTE technicians and 1,537 FTE support staff in 2007. In 2005 there were 6,768 FTE researchers, 2,314 FTE technicians and 1,256 FTE support staff. See Table 5 and Figure 5.

Table 5 Total full time equivalent (FTE) research personnel by type of activity, 2001 - 2007

	No.			
	2001	2003	2005	2007
Researchers	5,971	6,012	6,768	7,323
Technicians	1,748	1,909	2,314	2,060
Support staff	1,407	1,359	1,256	1,537
Total research personnel (FTE)	9,126	9,280	10,338	10,920

Source: CSO/Forfás - Business Expenditure on Research and Development, 2007 - 2008

Research and Development – Active Enterprises

There were 1,211 enterprises engaged in research and development activities in Ireland in 2007. The corresponding figure for 2005 was 1,370; for 2003 it was 1,125 and for 2001 it was 1,264. See Table 6 and Figure 6.

Fig 6 Number of enterprises engaged in R&D activities, 2001 - 2007

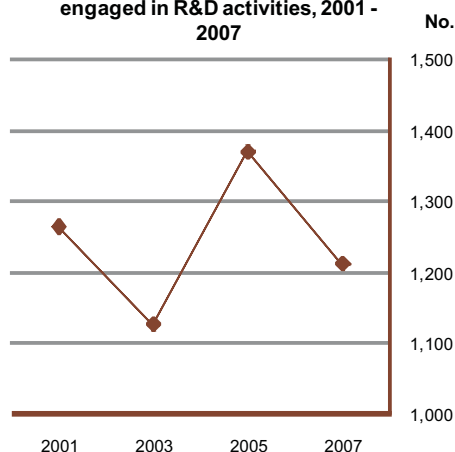


Table 6 Number of enterprises engaged in research and development activities, 2001 - 2007

	2001	2003	2005	No. 2007
All enterprises	1,264	1,125	1,370	1,211

Source: CSO/Forfás - Business Expenditure on Research and Development, 2007 - 2008

In 2007 just under 420 enterprises spent less than €100,000 on research and development activities. Almost 400 enterprises spent between €100,000 and €500,000, nearly 230 enterprises spent between €500,000 and €2m while just over 90 enterprises spent between €2m and €5m. In addition, 72 enterprises spent more than €5m on research and development in the period.

In terms of distribution share, two thirds of enterprises spent less than €500,000 while a third of enterprises spent €500,000 or more. See Table 7 and Figure 7.

Fig 7 Distribution of R&D expenditure by size of spend, 2007 %

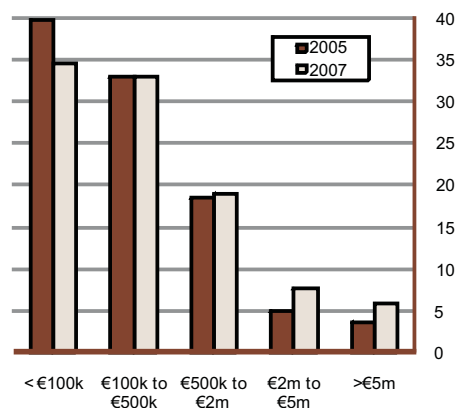


Table 7 Distribution of research and development expenditure by size of spend, 2003 - 2007

	2003	2005	No. 2007
< €100,000	451	546	419
€100,000 to €500,000	411	453	399
€500,000 to €2,000,000	181	253	229
€2,000,000 to €5,000,000	39	68	92
>€5,000,000	42	50	72
Total	1,125	1,370	1,211

Source: CSO/Forfás - Business Expenditure on Research and Development, 2007 - 2008

Background Notes

Introduction The Business Expenditure on Research and Development (BERD) Survey 2007-2008 is a survey of the research and development activities of enterprises in Ireland and other EU Member States. The BERD Survey is carried out under Commission Regulation (EC) No 753/2004 implementing Decision No 1608/2003/EC. The survey collected information about the research and development activities of enterprises across all business sectors of the economy. Most questions gather information on the spending and performance of research and development.

The BERD Survey was previously conducted by Forfás but is now jointly conducted by the CSO and Forfás under Section 11 of the Statistics Act, 1993 to increase efficiency in the collection of statistical data and to reduce the burden on the participating enterprises. Data were collected in accordance with Section 33 of the Statistics Act, 1993 and with EU law and the survey was carried out under the agreed set of international rules as laid out in the OECD Frascati manual. Data are strictly confidential and will be used only for statistical purposes.

Survey The BERD Survey is a targeted survey which is issued to all enterprises which are believed to be actively engaged in research and development across all business sectors of the economy. These enterprises were identified from various sources which included previous responses to the survey, other CSO and Forfás data and other administrative sources.

Questionnaire The BERD questionnaire is available from the CSO website. Go to www.cso.ie and then go to Business Sectors: Science and Technology.

Definition **Research and Development:** Research and Development (R&D) is creative work undertaken on a systematic basis in order to create new or improved products, processes, services or other applications. R&D is distinguishable from other activities by the presence of an appreciable element of novelty and by the resolution of problems and uncertainties using scientific or technological means. Routine activities, such as routine software development, routine monitoring/analysis or pre-production preparation, where there is no appreciable novelty or problem resolution, are not considered to be R&D for the purpose of this survey.