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24 November 2006

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NORTHERN IRELAND RESEARCH AND DEVELOPMENT STATISTICS 2005

Published 24th November 2006

- Total expenditure on Research and Development in Northern Ireland was £302.4 million in 2005, of which £142.6 million (47.2%) was spent by businesses, £146.2 million (48.3%) by the Higher Education sector and the remainder (£13.6m) was Government expenditure.
- There was a rise of £29.7 million (10.9%) in cash terms and a rise of £24.5 million (8.8%) in real terms in Northern Ireland total R&D expenditure between 2004 and 2005 (from £277.9m to £302.4m).
- For the third consecutive year in 2005 Northern Ireland Higher Education accounts for a greater share of total R&D expenditure (48.3%) than the Business sector (47.2%).
- Northern Ireland Business, Higher Education and Government R&D expenditure rose in real terms, by £15.9 million (12.6%), £7.6 million (5.4%) and £1.0 million (8.2%) respectively.
- In cash terms total business R&D expenditure in 2005 was £142.6 million, up £18.3 million (14.7%) on the previous year.
- Within company expenditure (intramural), a subset of business R&D expenditure, increased by 17.8% in cash terms in Northern Ireland from £115.5 million to £136.1 million. Such spending in the UK increased by 4.6%.
- There was an increase (6.6%) in R&D expenditure by the Manufacturing sector from £82.8 million in 2004 to £88.3 million in 2005. A larger increase occurred in the Services and Other sector with R&D expenditure increasing by 30.8% from £41.5 million to £54.3 million in the same period.

Department of Enterprise,
Trade and Investment

Northern Ireland Research & Development Statistics 2005

24 November 2006

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Executive Summary

1

1. Introduction

This bulletin provides information on the level of Research & Development (R&D) activity in Northern Ireland. R&D activity contributes to the development of new technologies, products and processes and is a key driver of productivity growth. The Northern Ireland R&D surveys cover the business sector, higher education and other government financed activities.

It includes information on: The level of R&D; Sources of funding for R&D; Employment in R&D.

It provides important indicators of the extent to which Northern Ireland companies and higher education establishments are investing in the activities that underlie future economic development.

Coverage and Results

All companies believed to be performing R&D are included in the survey - in effect, therefore, a 'census' of known R&D performers was carried out. A total of 744 returns were received by the Department – some 87% of those sampled. Estimates are made for those companies that failed to respond to the survey.

All results contained in this bulletin are provisional and may be subject to revision to take account of any additional information.

2. Total Expenditure on R&D in cash terms

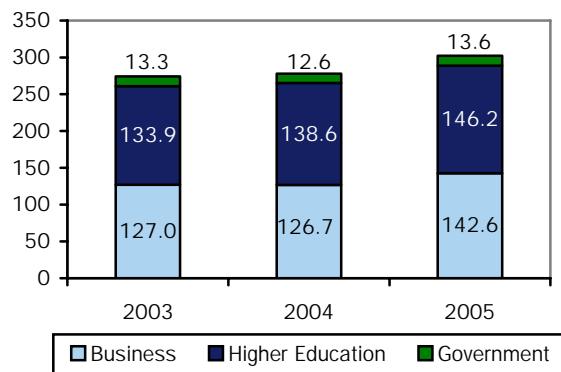
Total expenditure on Research and Development in Northern Ireland in cash terms was £302.4 million in 2005, of which £142.6 million (47.2%) was spent by businesses, £146.2 million (48.3%) by the Higher Education sector and the remainder was other government expenditure.

3. Total expenditure on R&D in real terms

In 2005 Northern Ireland Higher Education accounted for a greater share of total R&D expenditure (48.3%) than the Business sector (47.2%) as in 2004 (49.9% and 45.6%) respectively.

In real terms, total expenditure increased by £24.5m or 8.8% between 2004 and 2005, when the total expenditure was £302.4m.

Figure 1
Main split of R&D expenditure in Real Terms



Over the year to 2005 there were increases in expenditure by Businesses, Higher Education and Government. The largest increase in expenditure occurred by Businesses. In real terms, expenditure by Business increased by £15.9m (12.6%) whilst Government expenditure increased by £1.0m (8.2%). The smallest percentage increase occurred in expenditure by Higher Education, increasing over the year by £7.6m (5.4%).

Overall R&D business expenditure fell by 17.2% between 2001 and 2005 in real terms.

Detailed analysis of company spend in the rest of the survey is undertaken in cash terms, except where otherwise stated.

4. Business R&D: Intramural Expenditure

Spending carried out within a company in Northern Ireland (intramural), accounted for 95.4% (£136.1 million) of total expenditure in 2005. Intramural expenditure increased by 17.8% between 2004 and 2005.

5. Business R&D: Sectoral Analysis

In 2005, the majority of R&D was carried out within the Manufacturing sector (61.9%) with the remaining 38.1% carried out in Services & Other industries categories. This shows an increased share of expenditure in the Services & Other sector compared to previous years (for example, in 2004 Manufacturing accounted for 66.6% and Services & Other 33.4%).

Over the year to 2005, increases in expenditure occurred in both the Manufacturing and Services & Other sectors. The increase in expenditure in the Services & Other sector, (£12.8m or 30.8%) was larger in values and proportional terms than the increase of £5.5m (6.6%) in the Manufacturing sector.

6. Business R&D: by Company Size

The importance of large companies to R&D expenditure has been falling in recent years. Medium sized firms (those firms with between 50 and 499 employees) accounted for a larger proportion of R&D expenditure in 2005 than large firms (41.1% and 34.8% respectively). The proportion that large firms contribute to total R&D expenditure was lower than last year (37.1%).

Large companies represented only 5.2% of the total number of firms that performed R&D in 2005, compared with 7.1% in 2004.

The importance of medium sized companies (50-499 employees) has increased over the past year. The proportion of R&D expenditure carried out by medium sized companies increased from 34.6% in 2004 to 41.1% in 2005.

7. Business R&D: Source of funds

The majority of funding came from companies' own funds (82.9%), with 11.7% from Government, 2.4% from overseas and 3.1% from other sources. The proportion of funding from own funds increased from 76.8% in 2004 to 82.9% in 2005.

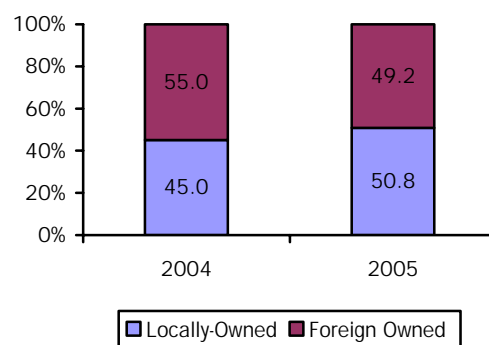
8. Business R&D: Ownership

Companies with ownership outside NI play an important role in financing R&D activities in the region. Almost half, £70.1m (49.2%) of total R&D spend was by such foreign owned companies although they accounted for one-fifth (20.4%) of all R&D-performing companies. Their contribution to the total R&D spend was relatively lower than in 2004 (55.0%), although the cash value increased from £68.4m.

R&D expenditure by locally-owned companies increased by 29.6% (£16.6m) between 2004 and 2005 while R&D Expenditure by foreign-owned companies increased by 2.5% (£1.7m).

The majority of R&D expenditure in Manufacturing is carried out by foreign-owned companies (62.1%), whereas the converse is true for Services & Other sector (28.1%).

Figure 2
Expenditure by Ownership 2004-2005
(percentages)



9. Business R&D: Employment

In 2005, companies surveyed reported a total of 2,720 employees working on R&D, some 5.5% of all employees in companies carrying out R&D. The whole time equivalent figure (WTE) for the same period was 2,600.

The number of R&D employees fell between 2004 and 2005 and is now equal to the 2002 value.

Table 1: R&D Employment

	2002	2003	2004	2005
Number	2,720	2,930	2,880	2,720
WTE	2,590	2,770	2,660	2,600

91.0% of all R&D employees were full-time. Of all R&D employees, 67.4% were scientists, 16.1% were technicians and a further 16.5% were classed as other employees e.g. professional, administrative, clerical and industrial). In terms of WTE the proportions were 68.6%, 15.8%, and 15.6% for scientists, technicians and other employees respectively.

10. Intramural Business R&D: UK and Regional Comparisons

Of the 12 UK regions, eight showed a rise in intramural business R&D expenditure in cash terms over the period 2004-2005 including Northern Ireland which increased by 17.8%, while four showed a fall. In the UK as a whole such expenditure increased by 4.6%. Changes varied from an increase of 22.7% in the East of England to a decrease of 20.5% in London region.

Over the two year period 2003-2005, intramural business R&D expenditure in cash terms in Northern Ireland increased by 16.8%. In the UK as a whole such expenditure rose by 5.8%.

11. Higher Education R&D: Summary

R&D expenditure in the Higher Education sector increased by 7.2% in cash terms between 2004 and 2005 (from £136.9m to £146.8m) reflecting its importance to Northern Ireland. Net expenditure in 2005 (excluding spend by businesses undertaken by higher education) was £146.2m.

Half of funding (50.1%) for Higher Education R&D in 2005 came from the Government block grant (£73.6million). In 2005, there were some 1,770 full-time equivalent employees in the Higher Education sector engaged in R&D, decreasing from 1,850 employees in 2004.

12. R&D Investment Rate

The most recent information for R&D expenditure as a percentage of Regional Gross Value Added relates to 2004. This shows that Northern Ireland was the fourth lowest of the twelve UK regions (a lower proportion was recorded in North East, Yorkshire & Humber and London). The proportion for NI in 2004 at 0.50% is two-fifths the UK average of 1.24%. Northern Ireland businesses would have needed to invest some £170 million more in R&D in 2004 to reach the UK average rate.

13. Other Sources

The most recent UK Innovation (2005) Survey estimated that 55.9% of all NI businesses had undertaken some form of innovation activity over the 3-year sample period (2002-2004) compared to 56.6% of all firms in the UK. In addition, the survey showed that 54.4% of NI and UK enterprises had some innovation-related expenditure.

Northern Ireland results from the 2005 Innovation Survey are available at http://www.detini.gov.uk/cgi-bin/get_builder_page?page=2338&site=4&parent=57&prevpage=2665

UK results along with further details from this survey are available at <http://www.dti.gov.uk/innovation/innovation-statistics/cis/page10957.html>

According to the 2004 Northern Ireland Annual Business Inquiry (NIABI) 6.5% of companies had someone in their business engaged in research and development work during the year. This is slightly less than 6.6% of companies reported by the 2003 NIABI. The Manufacturing sector was the sector with the highest proportion (16.3%), while the proportion in the Service sector was 3.0%. The 2005 NIABI is due to publish results in Dec 2006.

Introduction

2

The performance and funding of most research & development (R&D) activity occurs in four main economic sectors:- the Business sector, Higher Education Institutions, Government and the Private Non-Profit sector.

The Department of Enterprise, Trade and Investment (DETI) carries out annual surveys of R&D expenditure in the Business sector and Higher Education Institutions in Northern Ireland (see Sections 3 and 7 respectively of this Statistics Bulletin). Information on Government R&D comes from an annual survey conducted by the Office for National Statistics (ONS), which is addressed to all Government departments, including those in Northern Ireland¹.

This year a sample of NI companies in the Private Non-Profit sector were also surveyed, however all returns in Northern Ireland were zero.

Headline results from the surveys are provided in both cash and real terms while detailed analysis is provided mainly in cash terms.

RESULTS

Total expenditure on Research and Development in Northern Ireland in cash terms was £302.4 million in 2005, of which £142.6 million (47.2%) was spent by businesses, £146.2 million (48.3%) by the Higher Education sector and the remainder was other government expenditure.

Total expenditure was 11% higher than that in 2004 (£272.7m) and 16% higher than that in 2003 (£261.8).

Table 2: Total Expenditure on R&D² in cash terms (£million)

	2003	2004	2005
Total expenditure on R&D (of which)	261.8	272.7	302.4
Expenditure by Businesses	121.3	124.3	142.6
Expenditure by Higher Education³	127.8	136.1	146.2
Other expenditure by Government⁴	12.7	12.3	13.6

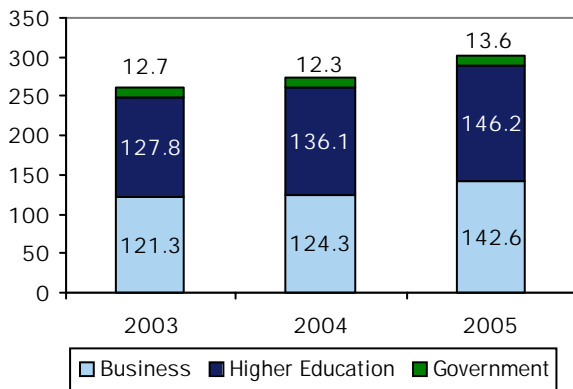
¹ The latest details are available on the Office for Science and Innovation's website at www.dti.gov.uk/science

² Figures contained within all tables in this Bulletin may not add due to rounding.

³ To avoid double counting, this figure excludes £0.7m in 2005, £0.9m in 2004, £1.2m in 2003, of expenditure on R&D by businesses that was undertaken by universities or higher education establishments.

⁴ 2004/05 Forward Look expenditure by NI Departments (see Notes to Editors, note 5) excluding grants to businesses to conduct R&D and funding to higher education institutions. The figure does not include expenditure by higher education establishments as this is detailed separately.

Figure 3: Main Split of R&D Expenditure in cash terms (£million)



In 2005 expenditure by Higher Education was higher than Business (48.3% and 47.2% respectively). Higher Education accounted for the greater proportion of expenditure in the previous two years, (49.9% in 2004 and 48.8% in 2003).

Table 3: Total Expenditure on R&D in real terms⁵ (£million)

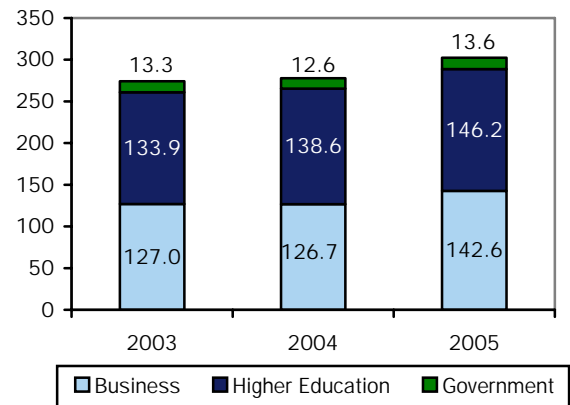
	2003	2004	2005
Total expenditure on R&D (of which)	274.1	277.9	302.4
Expenditure by Businesses	127.0	126.7	142.6
Expenditure by Higher Education⁶	133.9	138.6	146.2
Other expenditure by Government⁷	13.3	12.6	13.6

⁵GDP deflator used to convert cash terms to real terms: 95.5 (2003) and 98.1 (2004) where 2005 = 100

⁶ To avoid double counting, this figure excludes £0.7m in 2005, £0.9m in 2004, £1.2m in 2003, of expenditure on R&D by businesses that was undertaken by universities or higher education establishments.

⁷ 2004/05 Forward Look expenditure by NI Departments (see Notes to Editors, note 5) excluding grants to businesses to conduct R&D and funding to higher education institutions. The figure does not include expenditure by higher education establishments as this is detailed separately.

Figure 4: Main Split of R&D Expenditure in real terms (£million)



In real terms total expenditure in 2005 (£302.4m) has increased by 8.8% (£24.5m) from expenditure in 2004 (£277.9m).

Over the year to 2005 there were increases in expenditure by Businesses, Higher Education and Government. The largest increase in expenditure occurred by Businesses. In real terms, expenditure by Businesses increased by £15.9m (12.6%) whilst Government expenditure increased by £1.0m (8.2%). The smallest percentage increase occurred in expenditure by Higher Education, increasing over the year by £7.6m (5.4%).

Business Expenditure on Research & Development in 2005

3

Table 4 details the headline results from the 2005 Business Expenditure on Research & Development (BERD) survey. The table shows that in 2005, total expenditure (in cash terms) on R&D by Northern Ireland businesses was an estimated £142.6 million.

Total BERD consists of intramural expenditure (i.e. R&D carried out within the company) and extramural expenditure (i.e. R&D funded by firms in Northern Ireland but undertaken by other firms in the UK and abroad). The vast majority of total BERD was intramural expenditure (£136.1m or 95.4%) with £6.5m or 4.6% being extramural expenditure which decreased from £8.8m in the previous year. Of this £6.5m of extramural expenditure in Northern Ireland, some £0.7m was undertaken by the Higher Education sector.

82.9% of funding for R&D in 2005 came from the companies' own resources (£118.2m) while government provided a further 11.7% (or £16.6m) and the remainder came from overseas (2.4% or £3.4m) and other sources (3.1% or £4.4m).

Table 4: Business Expenditure on R&D - 2005

	Total Expenditure by Business (£million)	As % of Total Expenditure
Total Expenditure	142.6	100.0
Intramural Expenditure ⁸	136.1	95.4
of which:		
Current Expenditure	118.6	83.2
Capital Expenditure	17.4	12.2
Extramural Expenditure ⁹	6.5	4.6
Of which:		
Undertaken by Higher Education	0.7	0.5
Source of funding:		
Business	118.2	82.9
Government	16.6	11.7
Overseas	3.4	2.4
Other ¹⁰	4.4	3.1

Total employment on R&D in businesses for 2005 was 2,600 (based on whole time equivalent figures), which was lower than that in 2004 (2,660) and 2003 (2,770).

^{8,9,10} For definitions see Notes to Editors, note 5

BUSINESS EXPENDITURE ON RESEARCH & DEVELOPMENT – SOME HISTORICAL COMPARISONS

Prior to 2001, the Research and Development Survey was conducted every three years (in 1993, 1996 and 1999). Since 2001, DETI has undertaken to survey companies annually. Table 5 below makes comparisons with earlier DETI surveys. To allow comparability of current with previous results, all figures relate to Total Business Expenditure - i.e. civil and defence expenditure by business on R&D (including grants given by government). Higher Education spending and other direct expenditure by Government are excluded.

Key Findings

Between 2004 and 2005 total business expenditure on R&D increased by 13% in real terms, with intramural expenditure increasing by 16% and extramural expenditure falling by 27%. Government funding decreased by 14% over the year, business expenditure from own funds increased by 21% and other sources of funding decreased by 23%.

The ten biggest R&D spenders in 2005 accounted for 43% of total expenditure which is equal to the proportion in 2004. This follows the downward trend from 2001 – 46% in 2003, 60% in 2002, 69% in 2001. Seven companies have appeared in the top ten in the last four DETI surveys (i.e. 2002, 2003, 2004 and 2005). Two further companies appearing in the top ten three times out of the last four surveys.

In cash terms

In 2005, thirty companies spent more than £1 million on R&D, equal to the number in 2004. This is compared with 26 in 2003, 25 companies in 2002, 19 in 2001, 20 in 1999, 16 in 1996 and nine in 1993.

Average expenditure was £54,864 per R&D employee in 2005, 17.4% higher than the figure for 2004 (employees are on a whole time equivalent basis).

In 2005, 2,600 employees (on a whole time equivalent basis) were engaged in R&D work – 5.2% of all employees of companies involved in R&D. Comparable figures for 2004 were 2,660 employees or 5.2% of all employees of R&D companies (2003 : 6.3% and 2002 : 6.4%)

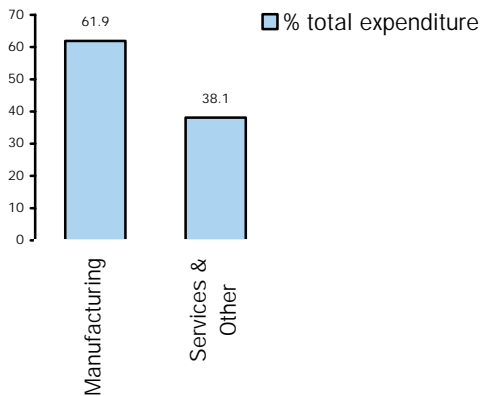
Table 5: 2005 Business Expenditure on R&D compared with 2004, 2003, 2002, and 2001 (figures in £millions).

	Cash Terms					Real Terms (2005 Prices) ¹¹					% Change Real Terms	
	2005	2004	2003	2002	2001	2005	2004	2003	2002	2001	04-05	01-05
Total Expenditure	142.6	124.3	121.3	156.6	155.0	142.6	126.7	127.0	168.8	172.3	12.6	-17.2
Intramural	136.1	115.5	116.5	149.3	149.9	136.1	117.7	122.0	161.0	166.6	15.6	-18.3
Extramural	6.5	8.8	4.8	7.3	5.1	6.5	9.0	5.0	7.9	5.7	-27.0	15.5
Funded by Government	16.6	18.9	15.8	11.3	8.6	16.6	19.3	16.5	12.2	9.6	-13.7	73.9
Funded from own funds	118.2	95.5	99.9	122.4	137.1	118.2	97.3	104.6	132.0	152.4	21.4	-22.5
Other	7.8	9.9	5.6	23.0	9.3	7.8	10.1	5.9	24.8	10.3	-22.5	-24.4

¹¹ GDP deflator used to convert cash terms to real terms: 2001 (90.0), 2002 (92.7), 2003 (95.5), 2004 (98.1), 2005=100

BUSINESS EXPENDITURE ON RESEARCH & DEVELOPMENT – SECTORAL BREAKDOWNS

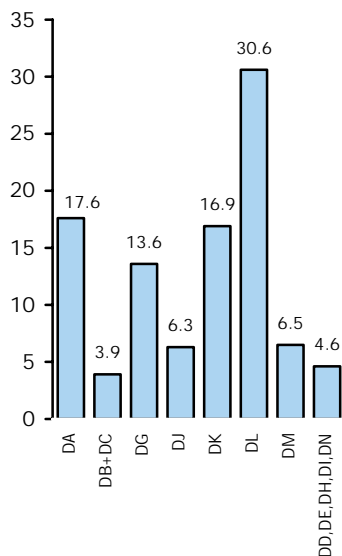
Figure 5: Total R&D Expenditure in 2005



In 2005, the majority of R&D was carried out within the Manufacturing sector (62%) with the remaining 38% carried out in the Services & Other industries category. This continues the upward trend in contribution of the Services & Other industries to total expenditure, increasing from 29% in 2003, and 33% in 2004.

The Electrical and Optical Equipment division (DL) accounted for (31%) of all Manufacturing R&D (see Figure 6) with the food products, beverages and tobacco division (DA) accounting for 18% and manufacture of machinery and equipment division (DK) a further 17%.

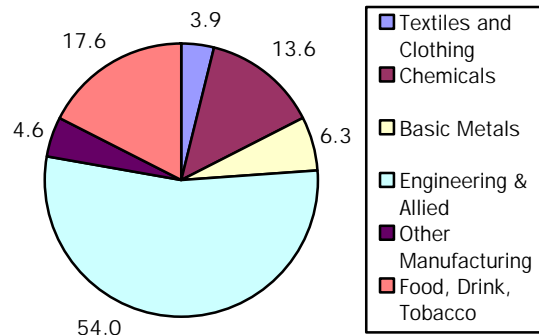
Figure 6: % of Manufacturing R&D Expenditure in 2005 by Division (SIC 2003 basis)¹²



¹² For a description of subsection headings see Notes to Editors note 6.

Figure 7 below, highlights that just over half 54% of R&D spending within the Manufacturing sector was accounted for by companies involved in Engineering & Allied Industries (DK, DL & DM).

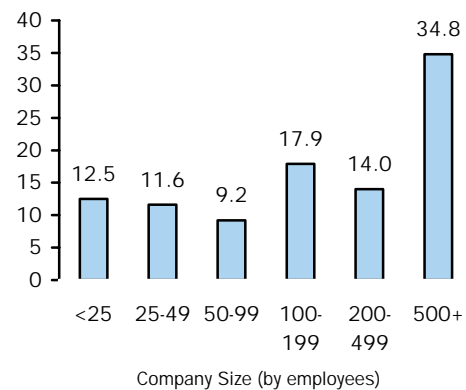
Figure 7: % of Manufacturing Expenditure by SIC 2003 Subsection



Companies with 500 or more employees accounted for over a third (35%) of business R&D expenditure in 2005, although they represented only 5% of R&D performing companies.

Smaller firms (i.e. those with less than 50 employees) represented some 61% of R&D companies and accounted for 24% of total business R&D expenditure while R&D expenditure by medium-sized companies (i.e. those firms with between 50 and 499 employees) accounted for 41% of the total. However, the proportion that large companies make to total R&D expenditure was lower than last year (37%), 2003 (38%) and 2002 (50%).

Figure 8: % of Total R&D Expenditure in 2005 by Company Size



BUSINESS EXPENDITURE ON RESEARCH & DEVELOPMENT – INTRAMURAL EXPENDITURE

Intramural expenditure is perhaps the most important component of total R&D as it shows the amount spent on R&D by firms in NI that was undertaken within Northern Ireland (extramural expenditure by companies in NI may be carried out in other parts of the UK or abroad). Intramural expenditure in Northern Ireland (in cash terms) increased by 17.8% between 2004 and 2005: this is compared to a 4.6% increase in the UK as a whole. Of the 11 other UK regions, seven showed a rise in intramural expenditure and four showed a decrease.

As Table 7 shows, intramural expenditure, i.e. spending carried out within the company, accounted for about 95% (£136.1 million) of total expenditure in Northern Ireland in 2005, higher than the proportion (93%) in 2004. The majority of intramural expenditure was in the Manufacturing sector, while extramural expenditure was approximately evenly split across the Manufacturing and Non-manufacturing sectors.

The two components of intramural expenditure are current expenditure (salaries & wages and other costs) and capital expenditure (land & buildings and plant & machinery).

Table 6: Intramural Expenditure by UK Government Office Region (Cash Terms)

	Expenditure (£million)		%Change (2004-2005)
	2005	2004	
UK	13,410	12,816	4.6
England	12,459	11,981	4.0
North East	158	153	3.3
North West	1,887	1,742	8.3
Yorkshire & the Humber	350	348	0.6
East Midlands	1,019	960	6.1
West Midlands	735	772	-4.8
East of England	3,316	2,703	22.7
London	630	792	-20.5
South East	3,163	3,214	-1.6
South West	1,201	1,297	-7.4
Wales	231	226	2.2
Scotland	584	494	18.2
Northern Ireland	136	116	17.8

Note: Data for UK and GB regions are from the Office for National Statistics. GB regional intramural expenditure figures for 2004 have been revised from ONS and will therefore differ from those appearing in our previous NI R&D publication.

Table 7: Intramural and Extramural Expenditure by Sector

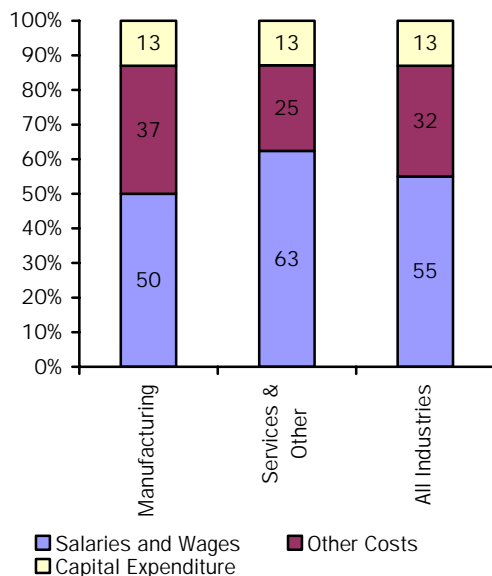
	Intramural		Extramural	
	£m	% of Total Expenditure	£m	% of Total Expenditure
Manufacturing	85.1	59.7	3.2	2.2
Services & Other	50.9	35.7	3.3	2.3
All Industries ¹³	136.1	95.4	6.5	4.6

¹³ All industries include Manufacturing, service sector industries plus a range of other industries. For full details of the other industries covered see Notes to Editors note 6.

Table 8: Breakdown of Intramural Expenditure by Sector (£m)

	Manufacturing		Services & Other		All Industries	
	£m	%	£m	%	£m	%
Current Expenditure						
Salaries & Wages	42.9	50	31.9	63	74.8	55
Other Costs	31.2	37	12.6	25	43.9	32
Capital Expenditure						
Land & Buildings	4.0	5	1.5	3	5.5	4
Plant & Machinery	7.1	8	4.9	10	11.9	9
Intramural Expenditure	85.1	100	50.9	100	136.1	100

Figure 9: Intramural Expenditure by Sector



Current expenditure makes up 87% of intramural expenditure, the same proportion as in 2004. Table 8 and Figure 9 highlight that there were differences between sectors in the categories of intramural R&D spend.

The proportions spent on current (87%) and capital (13%) expenditure was the same in Manufacturing and Services & Other, although the breakdown within current and capital expenditure was not. A larger proportion of Current Expenditure was spent on salaries and wages in the Services & Other sector (63% of total intramural expenditure) compared to 50% in the Manufacturing Sector. Within Capital Expenditure both sectors had more expenditure in Plant & Machinery than Land & Buildings. Plant & Machinery formed a higher proportion in Services & Other than in Manufacturing, (10% and 8% of total intramural expenditure respectively). Salaries and Wages as a proportion of Intramural Expenditure has decreased in Manufacturing from the proportion in 2004 (57%) but increased in Services & Other (60% in 2004).

Over the year to 2005 the proportion spent on Capital Expenditure in Services & Other decreased considerably from 21% to 13% while an increase occurred in Manufacturing from 9% to 13%.

BUSINESS EXPENDITURE ON RESEARCH & DEVELOPMENT – CURRENT EXPENDITURE

As Figure 10 below shows, there is a distinct difference in the level of salaries & wages per head between companies of different size (based on whole time equivalent figures).

Figure 10: Salaries & Wages per Head by Company Size (rounded to nearest 100)

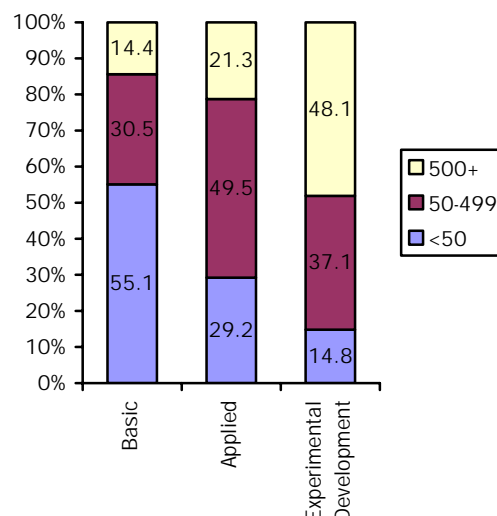


Overall the salaries and wages per R&D WTE was £28,800 an increase of 14% from £25,200 in the previous year. Salaries and wages per head for large companies (500+ employees) are £33,100 per head, while for small and medium sized companies the figure is considerably lower at £27,200 and £27,100 respectively. Average salaries for small and medium sized companies were the same in 2004 (£23,800).

Table 9: Type of Research by Sector as % of All Research (Current Expenditure)

	Manufacturing	Services and Other	All Industries
Basic	3.4	2.9	6.3
Applied	18.0	20.2	38.2
Experimental Development	41.0	14.5	55.5
All Research	62.5	37.5	100.0

Figure 11: Type of Research by Company Size (by employees)



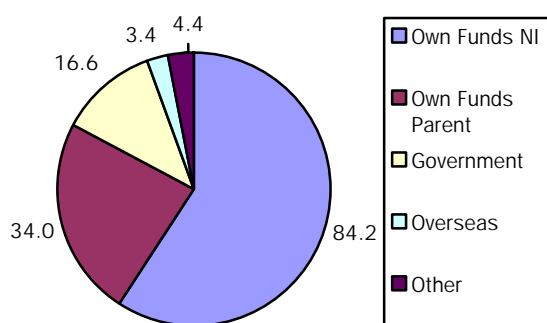
Current expenditure can also be analysed in terms of type of research carried out. Experimental development accounts for 55.5% of current expenditure, similar to that in 2004 (55.4%), with applied research and basic research accounting for 38.2% and 6.3% respectively.

Figure 11 shows that the majority of spending on basic research is carried out by small-sized companies (i.e. those firms with less than 50 employees) (55.1%), almost half of spending on applied is carried out by medium sized companies (50-499 employees) (49.5%) and that large companies (500+ employees) are dominant in terms of spend on experimental development (48.1%). A detailed breakdown of the type of research carried out by both industry and company size is given in Annex 1.

BUSINESS EXPENDITURE ON RESEARCH & DEVELOPMENT – SOURCES OF FUNDS

The funding of R&D (intramural and extramural) comes from a number of sources: the companies' own funds, from Government, overseas funding (e.g. EU) and other businesses.

Figure 12: Sources of R&D Funding (£m)



The majority of funding (83%) came from the companies' own funds, with 12% from government, 2% from overseas and 3% from other sources. The proportion of funding from own funds increased from 77% in 2004 but was similar to that in 2003 (82%). Funding from overseas was similar to that in 2004 while funding from government decreased from 15% in 2004 to 12% in 2005.

Table 10: Percentage of R&D Funding by Source split by Company Size

	<50	50-499	500+	All
Own Funds NI	46.5	71.9	52.5	59.1
Own Funds Parent	30.7	15.7	28.6	23.8
Government	14.5	6.9	15.3	11.7
Overseas	5.3	0.1	3.1	2.4
Other	2.9	5.4	0.4	3.1
Total	100.0	100.0	100.0	100.0

Table 10 shows that the greatest proportion of R&D funding was from Own Funds NI, however considerably larger for 50-499 (72%) compared to <50 (47%) and 500+ (53%).

Small and Large firms received almost double the proportion of funds from parent companies (31% and 29% respectively) than medium sized firms (16%). However the proportion of funding for R&D from own funds, NI and parent, was largest for medium sized firms (88%), compared to 77% for small sized firms and 81% for large firms.

Large firms reported the largest proportion of funds from Government at 15% of expenditure, with a slightly lower proportion for small firms, while medium sized firms received 7% of funds from this source.

BUSINESS EXPENDITURE ON RESEARCH & DEVELOPMENT – OWNERSHIP ANALYSIS

2005 is the first year since analysis of expenditure by ownership began in 2002, that locally owned companies accounted for a higher proportion of expenditure than foreign owned firms. In 2002 foreign firms accounted for 65% of expenditure, 53% in 2003, 55% in 2004, before falling to its current value of 49% in 2005.

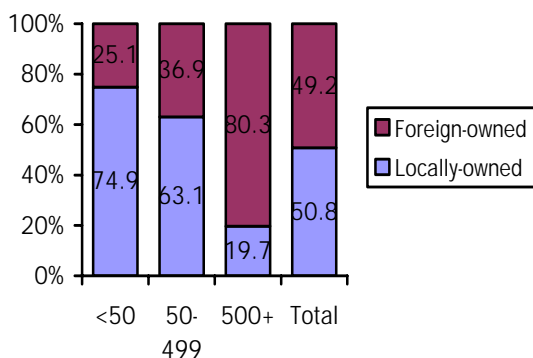
Table 11: Breakdown of R&D expenditure by ownership of company

	£m	%	Number of companies	%
Locally-owned companies	72.5	50.8	277	79.6
Foreign-owned companies	70.1	49.2	71	20.4
Total (All companies)	142.6	100.0	348	100.0

Both expenditure by locally owned companies (£72.5m) has increased by 30% from £55.9m in 2004 and the number of these companies who reported R&D expenditure increased by 16% from 239 to 277.

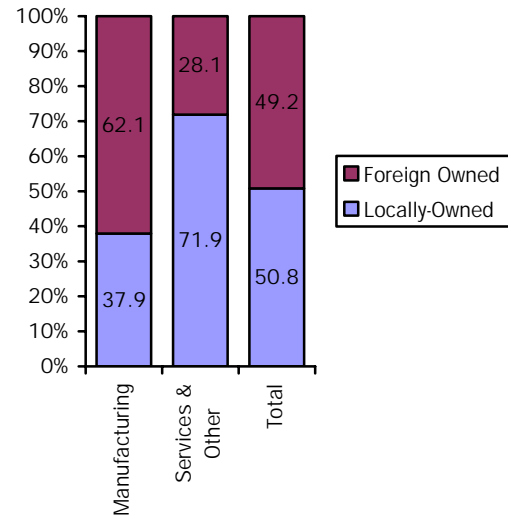
Northern Ireland owned companies in 2005 accounted for almost four-fifths of all R&D performing companies and approximately a half of the total £142.6m expenditure. This can be compared to foreign-owned companies accounting for an approximately equal proportion of the R&D expenditure and only one-fifth of R&D performing companies.

Figure 13: Expenditure by ownership by company size



The majority of R&D spend in small companies (74.9%) and medium-sized companies (63.1%) was by Northern Ireland owned firms. However, the analysis shows that, in large companies (500+ employees) the vast majority of R&D expenditure (80.3%) was by foreign-owned firms.

Figure 14: Expenditure by ownership by sector



Analysis of R&D spend split by ownership and sector shows that 62.1% of R&D spend in the Manufacturing sector was by externally-owned companies.

However, the situation was reversed in the Services & Other sector, where Northern Ireland owned companies accounted for 71.9% of R&D expenditure.

Compared to the previous year foreign-owned companies decreased their proportion of expenditure in both Manufacturing (from 66.2% to 62.1%) and Services & Other (from 32.7% to 28.1%).

BUSINESS EXPENDITURE ON RESEARCH & DEVELOPMENT – EMPLOYMENT ON R&D

In 2005, companies surveyed reported a total of 2,720 employees working on R&D, approximately 5.5% of all employees in companies carrying out R&D less than in 2004 (5.6%). [The whole time equivalent figure¹⁴ for the same period was 2,600 or 5.2%].

Figure 15: Total R&D Employment - Full-time Part-time and Whole Time Equivalent

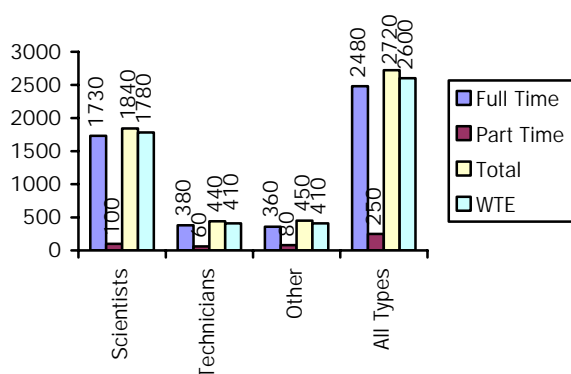


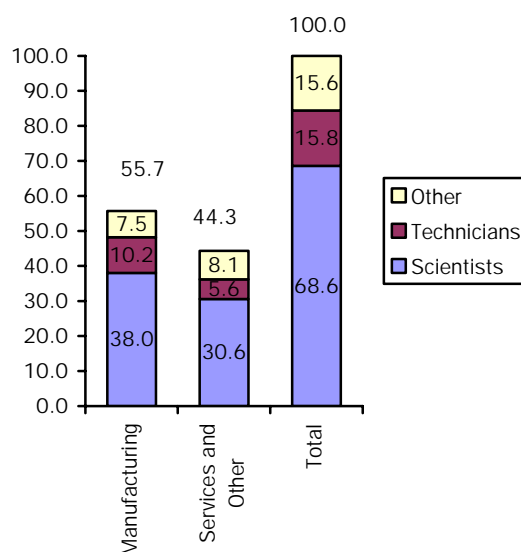
Table 12: Number of R&D Employees by Type

	Full time	Part time	Total
Scientists	1,730	100	1,840
Technicians	380	60	440
Other	360	80	450
All Types	2,480	250	2,720

For the first time in the survey, a question was added on the number and gender split of employees working on R&D activities, regardless of the number of hours worked i.e. headcount. In 2005 there were 3,090 employees involved in R&D activities, 2,400 males and 700 females.

Approximately 91% of all R&D employees were full-time. By type of R&D employee, scientists accounted for 67%, technicians for 16% and other employees (e.g. professional, administrative, clerical and industrial) for 16% of all R&D employees. Comparable whole time equivalent figures show that 1,780 employees were scientists (69%), 410 employees were technicians (16%) and the number of other employees was also 410 (16%).

Figure 16: % of R&D Employment (whole time equivalent) by Sector



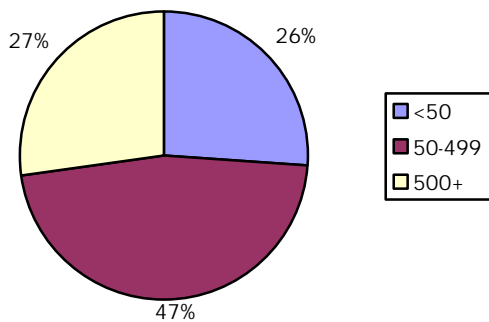
On a whole time equivalent basis there were 1,450 employees in Manufacturing and 1,150 in the Services & Other sectors. Within Manufacturing, scientists accounted for 68% of R&D employees with the level of technicians at 18% and other employees at 14%.

Within the Services & Other sectors, scientists made up 69% of R&D employees, technicians 13% and other employees 18%.

¹⁴ For an explanation of how Whole Time Equivalent employment is calculated see Notes to Editors note 5

BUSINESS EXPENDITURE ON RESEARCH & DEVELOPMENT – EMPLOYMENT ON R&D

Figure 17: R&D Employment by Company Size

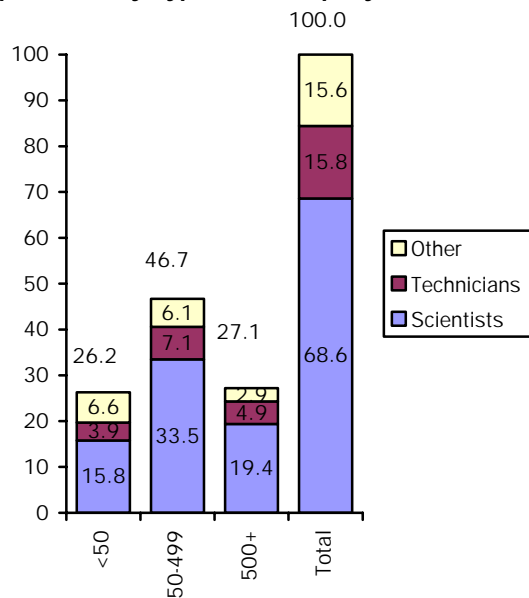


Using whole time equivalent employment figures, Figure 17 shows how total R&D employment is split across companies of different sizes. The greater proportion of R&D employees is in the medium sized companies (47%), followed by large companies (27%) and small companies (26%). These show an increase in the proportion of R&D employment in medium sized companies compared to 39% in 2004, and a decrease in proportion of R&D in large and small companies from 32% and 29% respectively.

There is a difference in the type of employee to be found in companies of different sizes. 71.4% of R&D employees in large firms are scientists, similar to 71.7% in medium firms, but higher than that, 60.1%, in small-sized firms. Large companies employ fewer persons in the 'other' category (10.7%) than either small or medium-sized companies (25.1% and 13.1% respectively).

Figure 18 also shows the spread of R&D employees across different size bands, with 26% of all R&D employees working in firms with less than 50 employees, 47% in medium-sized firms and 27% of all R&D workers employed by large companies.

Figure 18: % of R&D Employment (whole time equivalent) by Type and Company Size



Businesses were asked if they received any R&D tax credits and if their R&D work was part of a joint project in 2005, following the introduction of the question in the 2004 survey.

31 R&D performing companies reported that they received tax credits amounting to £5.6 million in total. This represents a decrease in the number of R&D performing companies receiving tax credits and the amount received when compared with last year. In 2004 38 companies reported receiving tax credits which amounted to £6.0m (excluding 5 companies who did not quantify the amount they received).

46 companies reported that their R&D work was part of a joint project with a source outside their company. 19 companies had a joint project with Higher Education Establishments, 25 with other Businesses and 2 companies carried out joint projects with both Businesses and Higher Education establishments. This shows an increase in the number of companies engaging in joint projects from last year (37 in total). Both the number of joint projects with Higher Education establishments and Businesses increased, from 17 and 19 respectively.

R&D Information from other sources

4

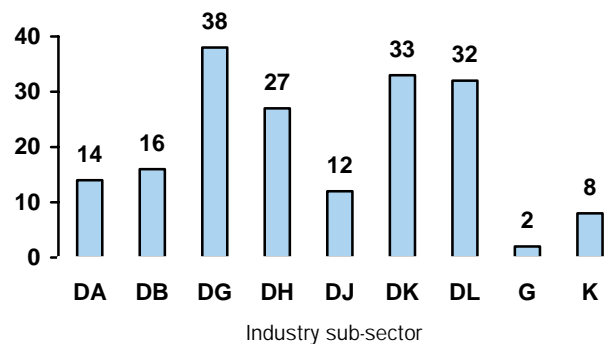
Northern Ireland Annual Business Inquiry (NIABI)

Information on the extent to which research and development is carried out by companies in Northern Ireland is available from the Northern Ireland Annual Business Inquiry (NIABI) carried out annually by DETI.

The latest 2004 NIABI reported that out of about 3,500 companies in the survey, 7% (226) had someone in the business engaged in research and development work during the year. The Manufacturing sector was the sector with the highest proportion of companies who carried out R&D work (16%), while the proportion for the Service industries was 3%.

Figure 19 shows, the percentage of companies who carried out R&D work in 2004, for those sectors and sub-sectors of the Manufacturing industries where there were more than ten companies who did so. These were concentrated in the Manufacturing sector, where nearly two fifths (38%) of companies in the manufacture of chemicals, chemical products and man-made fibres did so. The only other two non-manufacturing sectors with more than ten companies who carried out R&D work were Wholesale & Retail Trade (G), and Real Estate, Renting and Business activities (K) (which includes companies in the Computer and related activities (SIC 72) and Research and Development (SIC 73) industries).

Figure 19: Percentage of companies who carried out R&D work by industry



- DA Manufacture of Food Products, Beverages and Tobacco
- DB Manufacture of Textiles and Textile Products
- DG Manufacture of Chemicals, Chemical Products and Man-made Fibres
- DH Manufacture of Rubber and Plastic Products
- DJ Manufacture of Basic Metals and Fabricated Metal Products
- DK Manufacture of Machinery and Equipment
- DL Manufacture of Electrical and Optical Equipment
- G Wholesale & Retail Trades
- K Real Estate, Renting and Business activities.

Business Expenditure on Research & Development in the Republic of Ireland

5

The Business Sector Research and Development Survey has been conducted biennially by Forfas and its predecessors for over two decades. The latest survey was published in May 2005 and refers to the year 2003.

R&D activity in aggregate terms in the business sector continued to grow between 2001 and 2003. Total spend amounted to €1,076m in 2003, up from €901m in 2001. The average annual growth rate in the two year period was 9.2% (in nominal terms), compared to a rate of 7.0% in the 1999-2001 period. In real terms, allowing for inflation, the average annual growth rate was 5.2% for 2001-2003. These growth rates reflect a re-acceleration in the rate of growth of R&D activity, following a slow down in the period 1999-2001. Despite the 9.2% growth in BERD the number of companies performing R&D in RoI fell by an annual 5.5% between 2001 and 2003.

A small number of sectors dominated business R&D activity, Software and Computer sector (35%), Electrical and Electronics sector (20%), Pharmaceuticals (18%) and Instruments (11%). An important trend over the past decade has been the systematic and substantial increase in R&D expenditure in Software and Computer related services (up from 15% in 1993 to 35% in 2003) contrasting with the decline in the share accounted for by the Food, Drink and Tobacco sector (down from 12% in 1993 to 4% in 2003.)

Foreign owned enterprises accounted for 72% of activity in 2003, rising from 65% in 2001, with foreign owned companies accounting for 95% of R&D expenditure in the Pharmaceutical sector.

The total number of R&D personnel (FTE) showed a slight rise of 2% from 2001 to 2003, from 9,126 in 2001 to 9,281 in 2003. Of these, just over six thousand (6,012) were researchers.

Business Expenditure on Research & Development – Notes to Editors

6

1. The survey of Northern Ireland Civil and Defence Expenditure on Research and Development during 2005 was undertaken by Statistics Research Branch of the Department of Enterprise, Trade and Investment (DETI). The sample and survey results only cover 'business enterprises' as defined in the 'Frascati' manual. This excludes government organisations, higher education establishments and charities.

R&D surveys pose special problems for survey design – R&D takes place in only a small proportion of businesses but a comprehensive list of these businesses does not exist. A simple random sample of the business population would not be suitable for an R&D survey because many of the sample businesses would not undertake R&D and many significant R&D performers would be missed in such a sample.

The solution is to implement a stratified sample design. The stratification variable was the known level of R&D performance of the businesses. This information was gained from previous surveys (mainly the 2004 survey carried out by DETI) and extra information from various sources such as ONS, Invest NI and a filter question on the Annual Business Inquiry and for the first time a filter question on the Community Innovation Survey. For the purposes of the 2005 survey, businesses were stratified into 4 groups:

- (i) Businesses responding to the 2004 DETI survey who returned or had estimated a total R&D expenditure value greater than zero;
- (ii) Businesses reporting positively to the R&D filter question in the Annual Business Inquiry and Community Innovation Survey; other identified potential R&D performers (principally, those companies who had received assistance from Invest NI during 2004 or 2005); and companies newly identified to ONS as R&D spenders;

- (iii) Companies who have been identified as 'not R&D performers' when selected for past surveys;
- (iv) The remainder of Northern Ireland businesses.

The businesses making up strata (i) and (ii) formed a register of R&D performers and the sample for the 2005 survey was derived from this register. Indeed, each of these businesses was issued a questionnaire – in effect, therefore, a 'census' of R&D performers was carried out. Strata (iii) and (iv) were not included as they were assumed to have zero R&D expenditure.

For 2005, 857 forms were sent out to businesses believed to be performing R&D. Completed forms were returned by 744 businesses representing a response rate of 87 per cent. Estimates were made for the R&D activity of non-responding businesses. As the response rate this year was lower than the previous year (93%), these estimated results form a larger proportion of expenditure (about 6%) and this should be borne in mind when considering the results. The results are provisional and may be revised should additional information become available.

2. This is the eighth business R&D survey carried out by DETI - it was carried out triennially between 1993 and 1999, but is now collected on an annual basis (from 2001 onwards). Prior to 2001, the Office for National Statistics (ONS) published regional intramural R&D estimates – including figures for Northern Ireland - from an annual UK-wide survey. The ONS Survey, as it relates to Northern Ireland, was based on a relatively small sample of companies and was not detailed enough for DETI requirements. DETI therefore conducted its own benchmark survey every three years. In those years when both a UK-wide and a separate DETI survey were conducted, two estimates of intramural business R&D expenditure for Northern Ireland were therefore available. However, from 2001 onwards data from the DETI

survey is passed to ONS colleagues and intramural R&D figures for Northern Ireland from both sources therefore are equal.

3. The definition of R&D adopted for the purposes of the NI inquiry is the same as that used by ONS for the equivalent GB survey:

"The guiding line to distinguish between research and technological development activity (R&TD) from non-research activity is the presence or absence of an appreciable element of novelty or innovation. If the activity departs from routine and breaks new ground it should be included; if it follows an established pattern it should be excluded".

The NI questionnaire follows the same structure and includes the same questions as the GB questionnaire, although there were some modifications to tailor the questions asked for use in NI. [The sources of funding question for the NI survey, for example, specifically identified Invest NI as one of the government sources.]

A new question was included in both the NI and GB questionnaires for 2005 to comply with a new EU directive, asking firms for a headcount and gender breakdown of all employees involved in R&D activities, regardless of the number of hours worked.

4. The survey covers expenditure in the year ending December 2005, although companies were given the option of supplying data for the business year ending on any date between 4 April 2005 to 2 April 2006.

It is worth noting that a number of NI companies are part of national and international companies. Many concentrate their R&D at particular sites, not necessarily in NI, although all of their plants, including those in NI, will share in the benefits of research. Variations may occur in NI R&D data from year to year due to the influence of one or two large-scale projects.

5. Definition of Terms

a) Type of R&D Expenditure

Total Expenditure on R&D - This covers civil expenditure by businesses, defence expenditure by businesses and other expenditure by Government. Due to disclosure rules, it is not possible to obtain a split between civil and defence R&D expenditure, for the 2005 survey.

Other Expenditure by Government - The ONS also collect annual data on Government-funded Science, Engineering and Technology for the UK as a whole and publish this in the 'Forward Look' document. By utilising Forward Look data in conjunction with the results from the DETI survey, it has been possible to compile a more complete picture of total expenditure on R&D in NI. Forward Look figures will include financial assistance to both higher education and to businesses by Government as well as expenditure on R&D conducted within Government Departments. The figures shown in Table 2, expenditure by businesses and higher education and other expenditure by Government, should compliment each other; i.e. there should be no double counting.

Intramural R&D - This is R&D carried out within the company.

Extramural R&D - This is R&D funded by plant(s) in Northern Ireland but undertaken by other firms or organisations in the UK and abroad.

Capital Expenditure - Includes companies' expenditure on land, buildings, plant and machinery (including vehicles). Capital expenditure on R&D is particularly subject to distortions and is likely to fluctuate significantly from year to year as a small number of projects could cause this percentage to increase or decrease sharply. For example, some R&D projects may have a duration of several years but involve heavy capital outlay in the formative years of the research. The erratic nature of R&D capital expenditure may partly explain differences in capital expenditure among companies of different sizes. Only by looking at underlying trends over several years will it be possible to see if some sectors or companies of differing sizes are more likely to require more expenditure of a capital nature.

b) Type of Research

Basic Research - work undertaken primarily for the advancement of scientific knowledge without a specific practical application in view.

Applied Research - Research undertaken with a general or a particular application in view.

Experimental Development - covers the use of the results of basic and applied research directed to the introduction of new materials, processes, products, devices and systems, or the improvement of existing ones. This includes the prototype or pilot plant stage, design and drawing

required during R&TD and innovation work done on contracts with outside organisations, Government departments and public bodies.

c) Sources of Funding

Business - Funds from individual plants within NI or from parent or other companies within the group.

Government - Funds from Invest NI (including IFI) and other government sources.

Overseas - This includes EU Funds as well as other funds from outside the UK. EU funds are those from the European Commission's Structural or Framework Funds.

Other Funds - Funds from private individuals, private non-profit making bodies, higher education establishments and any other sources.

d) Employment on R&D

Staff Types - Average employment on R&D splits into the following categories; scientists and engineers, technicians, laboratory assistants and draughtsmen etc., and other (including Professional, Administrative, Clerical and Industrial Employees).

Whole Time Equivalent Employment - This is calculated by dividing the number of part-time employees by 2 and adding to the number of full-time employees.

6. Results are shown mainly by industrial sector and company size (based on the number of employees). The sectoral analyses are based on the Standard Industrial Classification (or SIC 2003 classification) of industries.

Manufacturing is defined to cover Section D, which includes the following subsections:

DA	Food products, Beverages & Tobacco
DB	Textiles & Textile Products
DC	Leather & Leather Products
DD	Wood & Wood Products
DE	Pulp, Paper & Paper Products; Publishing and Printing
DG	Chemicals, Chemical Products & Man-Made Fibres
DH	Rubber & Plastic Products
DI	Other Non-metallic Mineral Products
DJ	Basic Metals & Fabricated Metal Products
DK	Machinery & Equipment Not Elsewhere Classified

DL	Electrical & Optical Equipment
DM	Transport Equipment
DN	Other Manufacturing Not Elsewhere Classified

Where aggregation of subsections within Manufacturing is required this would normally be as follows (for example, see Figure 7):

DA	Food, Drink & Tobacco
DB+DC	Textiles, Leather, Footwear & Clothing
DG	Chemicals & Chemical Products
DJ	Basic Metals & Fabricated Metal Products
DK, DL	Engineering & Allied Industries + DM
DD, DE,	Other Manufacturing
DH, DI, DN	

The Service Sector covers Sections G through to O, namely:

G	Wholesale & Retail Trades
H	Hotels & Restaurants
I	Transport, Storage & Communication
J	Financial Intermediation
K	Real Estate, Renting & Business Activities
L	Public Administration and Defence
M	Education
N	Health & Social Work
O	Other Community, Social & Personal Service Activities

The Other Industries category covers:

A	Agriculture, Hunting and Forestry
B	Fishing
C	Mining & Quarrying
E	Electricity, Gas & Water
F	Construction

7. Figures contained within all tables in this Bulletin may not add due to rounding. Percentages calculated on these rounded figures may differ from those that are detailed in the text.

8. The annual NIABI conducted by the Department of Enterprise Trade and Investment (DETI) provides estimates for the year of the value of mainly business based economic activity across some two thirds of the Northern Ireland economy. The survey covers most of the Production, Construction, Distribution and Service industries but excludes central government public sector activities for the most part. In particular, since 2002 it has contained a question on whether there is anyone in the business engaged in research and development work on a regular basis during the year.

Northern Ireland Higher Education Expenditure on Research & Development during 2005

7

Table 13 details the headline results from the 2003, 2004 and 2005 Higher Education Expenditure on Research & Development (HERD) surveys.

Table 13 Higher Education Expenditure on R&D

	£million	£million	£million
	2005	2004	2003
HERD Expenditure ¹⁵	146.8	136.9	129.1
of which:			
Current Expenditure	125.4	115.0	108.4
Capital Expenditure	21.5	21.9	20.7
<u>Source of funding of R&D:</u>			
Government Block Grant	73.6	70.2	72.4
OST Research Councils ¹⁶	7.9	6.8	6.7
UK-based charities	5.6	5.9	6.6
UK Cent Gov/Local Auth/Health ¹⁷	36.8	33.3	24.5
UK Ind/Comm/Pub Corp ¹⁸	3.2	3.0	3.2
EU Government	7.1	6.2	3.8
EU Other	2.8	1.9	1.0
Other Overseas	3.8	1.1	1.5
Other Sources	6.0	8.6	9.3
	Number	Number	Number
HERD Employment ¹⁹	1,770	1,850	1,850
of which:			
Academic staff	930	810	790
TLAD's ²⁰	700	700	640
Other ²¹	150	340	410

¹⁵ Expenditure for 2005 includes £0.7 million of expenditure funded by Northern Ireland businesses (£0.9m in 2004 and £1.2m in 2003). Therefore, net HERD in 2005 was £146.2m (this is as detailed in Table 2). All university expenditure on R&D is intramural expenditure - i.e. R&D work carried out within the university. Figures given are in £millions and constituent parts may not add due to rounding.

¹⁶ Office of Science and Technology Research Councils

¹⁷ Funding from UK Central Government, Local Authorities and Health Trusts/Hospitals

¹⁸ Funding from UK industry/commerce/public corporations

¹⁹ This is the number of full-time equivalents. Figures are rounded to the nearest 10 and constituent parts may not add due to rounding

²⁰ Technicians, Laboratory Assistants and Draughtsmen etc.

²¹ Includes Administrative, Clerical and Industrial Employees.

Total HERD expenditure increased by 7% from £136.9 in 2004 to £146.8m in 2005, similar to the increase of 6% from 2003 to 2004. Although total intramural expenditure increased overall, this was made up of a 9% increase in current expenditure and a 2% decrease in capital expenditure. This is in contrast to the previous period where both current and capital expenditure increased by 6%.

Employment totals decreased between 2004 and 2005, from 1,850 full-time equivalent persons in 2004 to 1,770 in 2005. The change in R&D employment consisted of an increase in the number of academic staff (from 810 to 930) and a decrease in other staff employed in R&D (from 340 to 150), whilst the number of TLAD staff remained constant.

Block grants remained the largest source of funds but their relative contribution continued to decrease, to 50% of all funding in 2005, from 51% in 2004 and from 56% in 2003. Funding from UK Central Government/Local Authorities and Health Trusts/Hospitals increased by 11% from £33.3m in 2004 to £36.8m in 2005, accounting for 25% of HERD funding in 2005, compared to 24% of HERD funding in 2004 and 19% in 2003. EU Government funding increased by 14% between 2004 and 2005, from £6.2m to £7.1m.

See Notes to Editors overleaf.

Higher Education Expenditure on Research & Development – Notes to Editors

8

Table 13 details Higher Education Expenditure on R&D (HERD). The table gives combined results from the two main Northern Ireland universities - i.e. Queens University Belfast (QUB) and the University of Ulster (UU). The data collected refers to the academic year 2004/2005 ending 31/7/05. The universities have made data available for this period on the basis of Transparency Review data collected within each respective institution.

Transparency Review

The Transparency Review is a Government initiative, introduced with the Comprehensive Spending Review (CSR) in 1998. The CSR awarded £1.5bn of additional funding for Higher Education, but the Treasury made this conditional on the sector becoming more open about the way public funds are spent in universities and colleges.

A Steering Group was set up to implement the policy and their advice was referred to Government in the Transparency Review Report. This was endorsed in June 1999 and is now required policy for the sector. All institutions had to report transparently on the costs of their Teaching, Research, and other activities for 1999/2000 in July 2001 and each year thereafter. As a consequence, accurate and comparable R&D data for each university can now be obtained and this is presented in Table 13.

More detailed information on Transparency Review procedures in each of the local universities can be found at <http://www.qub.ac.uk/costing/> for QUB and at <http://www.ulst.ac.uk/finance/time/> for UU.

Total R&D Expenditure - Following consultation with the universities, it was agreed that all university expenditure on R&D is 'intramural' expenditure - i.e. R&D work carried out within the university.

Current Expenditure – Includes expenditure on salaries and wages and other costs (fuel, rent etc.).

Capital Expenditure - Includes expenditure on land, buildings, machinery and equipment. It should be noted that capital expenditure on R&D within universities is likely to fluctuate significantly from year to year. For example, an R&D project may have duration of several years but involve heavy capital outlay in the formative years of the research.

Source of funding – this is split into nine separate categories as shown in table 13. For the purposes of this survey, the Government Block Grant was used as a 'balancing figure' with values for the other eight categories completed using data from the Transparency Review.

Employment on R&D – it is possible, using the results from the Transparency Review, to determine how much time members of staff spend on R&D. This has been converted to numbers of full-time equivalents in each of the three categories shown. Figures shown have been rounded to the nearest 10.

Annexes

9

ANNEX 1

Breakdown of Intramural Expenditure (Civil & Defence) 2005 £000's (rounded to nearest £100,000)

	Current Expenditure						Capital Expenditure			Total Intramural Expenditure	
	Salaries & Wages	Other Costs	Current Expenditure	Basic Research	Applied Research	Experimental Development	Lands & Building	Plant & Machinery	Capital Expenditure		
Manufacturing											
<50	4,800	2,900	7,700	1,300	1,900	4,500	100	1,300	1,400	9,100	
50-499	15,300	9,400	24,700	1,600	10,200	12,800	200	3,200	3,300	28,000	
500+	22,800	18,900	41,700	1,100	9,300	31,400	3,700	2,600	6,300	48,100	
Total	42,900	31,200	74,100	4,100	21,300	48,700	4,000	7,100	11,000	85,100	
Services											
<50	13,500	5,500	19,000	2,800	11,100	5,200	1,000	2,100	3,100	22,100	
50+	17,900	6,800	24,700	600	12,200	11,800	600	2,400	3,000	27,700	
Total	31,400	12,300	43,700	3,400	23,300	17,000	1,500	4,500	6,100	49,800	
All Industries											
<50	18,500	8,600	27,100	4,100	13,200	9,700	1,100	3,400	4,500	31,600	
50-499	32,900	16,200	49,100	2,300	22,400	24,400	700	5,800	6,500	55,700	
500+	23,400	19,000	42,400	1,100	9,600	31,700	3,700	2,700	6,400	48,800	
Total	74,800	43,900	118,600	7,500	45,300	65,800	5,500	11,900	17,400	136,100	

ANNEX 2

Breakdown of Extramural Expenditure (Civil & Defence) 2005 £000's (rounded to nearest £100,000)

	Extramural Expenditure			
	Expenditure within NI	Expenditure within GB	Expenditure outside UK	Total Extramural Expenditure
Manufacturing				
<50	200	200	200	600
50-499	800	700	300	1,800
500+	200	500	200	800
Total	1,200	1,400	600	3,200
Services				
<50	1,200	300	500	2,000
50+	700	100	400	1,200
Total	1,900	400	800	3,200
All Industries				
<50	1,500	600	600	2,700
50-499	1,600	800	700	3,000
500+	200	500	200	800
Total	3,200	1,900	1,500	6,500

ANNEX 3

Breakdown of the Sources of R&D Funding 2005 £000's (rounded to nearest £100,000)

	Own Funds		Government		Overseas			Other		Total
	NI	Parent	INI	Other	EU Structural	EU Framework	Other funds outside UK	Private Industry	Other funds inside UK	
Manufacturing										
<50	5,200	3,100	1,000	100	0	0	0	300	0	9,700
50-499	25,900	1,200	2,600	0	0	0	0	0	0	29,800
500+	25,800	13,800	1,600	5,900	0	100	1,500	200	0	48,900
Total	56,900	18,100	5,200	6,000	0	100	1,500	500	100	88,300
Services										
<50	10,700	7,100	2,600	1,200	100	100	1,600	500	100	24,200
50+	15,900	8,200	1,500	0	100	0	0	3,100	0	28,800
Total	26,600	15,400	4,200	1,200	200	100	1,600	3,600	100	53,000
All Industries										
<50	16,000	10,500	3,700	1,300	100	100	1,600	800	200	34,300
50-499	42,200	9,200	4,000	0	100	0	0	3,100	0	58,700
500+	26,100	14,200	1,700	5,900	0	100	1,500	200	0	49,700
Total	84,200	34,000	9,400	7,200	200	200	3,100	4,100	200	142,600

ANNEX 4

Breakdown of Employment on R&D 2005 (rounded to nearest 10)

	Scientists				Technicians				Other				All Types			
	Full-time	Part-time	Total	WTE	Full-time	Part-time	Total	WTE	Full-time	Part-time	Total	WTE	Full-time	Part-time	Total	WTE
Manufacturing																
<50	90	30	110	100	30	10	40	40	50	10	60	50	170	50	220	190
50+	870	40	910	890	210	30	240	230	120	40	170	140	1,200	120	1,310	1,260
Total	950	70	1,020	990	240	40	290	260	170	50	220	200	1,370	160	1,530	1,450
Services																
<50	290	30	320	310	60	10	60	60	100	20	120	110	450	50	500	480
50+	470	10	480	480	80	10	90	80	80	10	90	90	630	30	660	650
Total	760	40	800	780	130	20	150	140	190	30	220	200	1,090	80	1,160	1,120
All Industries																
<50	380	50	440	410	90	20	110	100	160	30	190	170	630	100	730	680
50-499	860	30	880	870	170	30	200	180	150	30	170	160	1,170	80	1,250	1,210
500+	490	30	520	500	120	20	130	130	60	30	90	80	670	70	740	710
Total	1,730	100	1,840	1,780	380	60	440	410	360	80	450	410	2,480	250	2,720	2,600