Forfás

State Expenditure on Science and Technology 2002 and 2003

Volume One

The Total Science and Technology Budget

PROMOTING ENTERPRISE, TRADE AND SCIENCE, TECHNOLOGY AND INNOVATION FOR ECONOMIC AND SOCIAL DEVELOPMENT

Science and Technology Budget

Review of State Expenditure on Science and Technology 2002 and 2003

Incorporating financial expenditures in 2001 and 2002 and allocations for 2003 by Government to Institutions engaged in any activity related to science and technology.

Evaluation and Indicators Unit 2004

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Summary

Every year Forfás publishes the 'Science and Technology Budget', a comprehensive report on State expenditures on science and technology. The 'Science and Technology Budget' provides details of the allocations made by Government to all scientific and technological activities, both those undertaken by the public sector and the private sector. The most important of these activities is Research and Development (R&D). Other activities include Training, Education and Information, Technical Services (including information and advice) and Technology Transfer. In all, 45 government departments and agencies are involved in allocating the total S&T budget.

Total State Funding of S&T

The following table shows the **outturn** for 2001 and 2002 as well as the total **allocation** for 2003.

2001, 2002 Outturn and 2003 Allocation (€m)

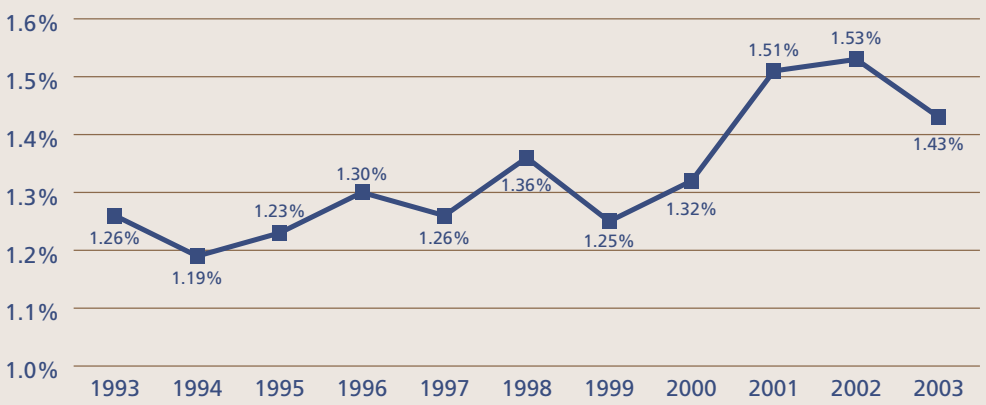
	2001	2002	2003
Exchequer funds	1,409.13	1,555.44	1,549.17
EU Contribution (CSF)	54.48	44.30	43.78
Total public funds	**1,463.61**	**1,599.73**	**1,592.94**
Earned income	229.33	184.66	185.15
Total	**1,692.94**	**1,784.39**	**1,778.09**

- *The 2002 total S&T spending increased by €91.5m in nominal terms (5.4%). This was as a result of an increase in exchequer funding toward S&T, though there was a slight decrease in earned income and the EU contributions to overall spending. Real spending increased by 0.8% in real terms in 2002.*
- *The 2003 Allocation for spending on Science and Technology shows a nominal decrease of €6.3m over the 2002 Outturn.*
- *In real terms S&T spending is expected to decrease by €69m (3.7%) from 2002 to 2003. This is mainly due to a reduction in exchequer funds in 2003 of €61m in real terms.*

S&T Funding as a proportion of economic activity and budgetary spending

The figure below shows the public funding of S&T relative to Gross National Product (GNP).

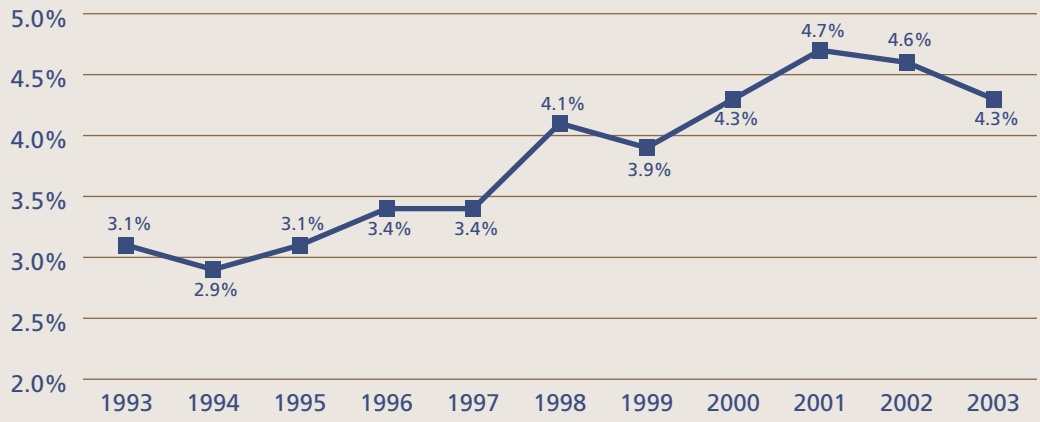
Public Funding of S&T as a Percentage of GNP



Public funding of S&T as a percentage of GNP fluctuated around 1.3% in the period 1993 to 2000. The period 2001 to 2002 saw a move away from this range as a result of a sharp increase in public S&T spending. Relative S&T spending increased to 1.51% of GNP in 2001 and 1.53% in 2002. In 2003 a fall off in allocated S&T spending reduced relative allocated spending to 1.43% of GNP.

The trend of public S&T spending as a percentage of the total government budget is displayed below.

Public funding for S&T as a Percentage of Total Government Budget



Public funding for S&T as a percentage of total government budget spending shows an increase from 3.1% in 1993 to a peak of 4.7% in 2001 (Figure 4). However, allocated public funding of science and technology as a proportion of the total Government budget has decreased to an estimated 4.3% in 2003. This projected fall is a result of a drop in public funding allocated to S&T of 0.4%, measured alongside the expected 7.1% growth in total spending in 2003.

Main Changes in Public Spending

The following table highlights the changes in funding allocations toward S&T broken down by Funding Departments in 2003 over the 2002 outturn. Spending by Department includes S&T spending by the Agencies for which it provides funding.

- *The 2003 allocation for the Department of Education and Science and its agencies will see an expected total decline in funding for S&T of €82.6m over the 2002 outturn.*
- *Allocated S&T spending across the Department of Enterprise, Trade and Employment and associated agencies is estimated to rise by €48.3m from 2002 to 2003.*

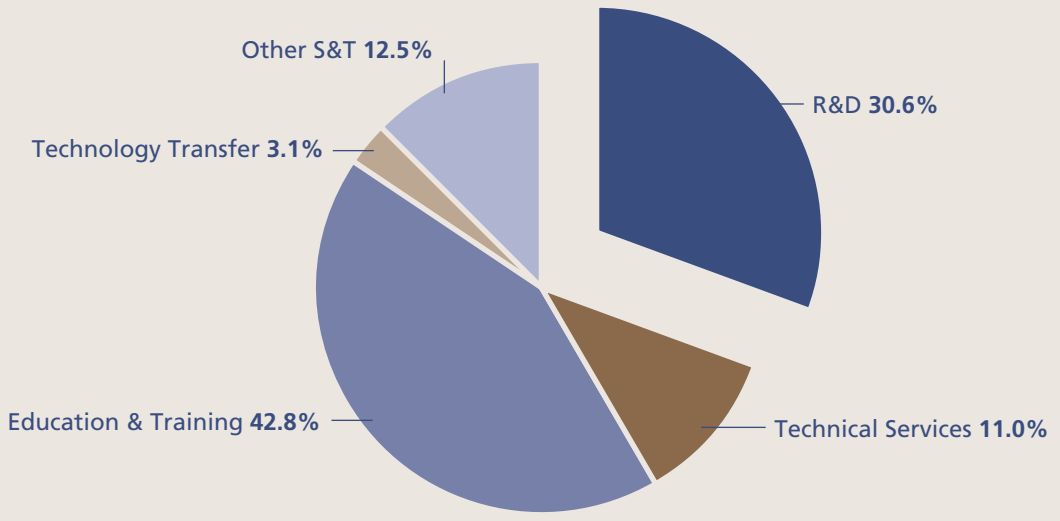
Departments' and Offices' 2002 Outturn, 2003 Allocation and the Change in Public funding.

	2002 Outturn €'000	2003 Allocation €'000	Change €'000
Dept. of Education and Science	952,918	870,331	-82,587
Central Statistics Office	54,891	35,809	-19,082
Dept. of Communications, Marine & Natural Resources	70,890	58,843	-12,047
Dept. of Health and Children	47,305	36,950	-10,355
Dept. of Community, Rural and Gaeltacht Affairs	4,567	4,265	-302
Dept. of Transport	2,332	2,212	-120
Dept. of the Taoiseach	773	665	-108
Dept. of Arts, Sport and Tourism	246	247	1
Central Bank	489	526	37
Dept. of Finance	7,055	7,209	154
Dept. of Agriculture and Food	150,121	150,675	554
State Laboratory	6,148	6,713	565
Dept. of the Environment, Heritage & Local Government	43,407	45,394	1,987
Ordnance Survey Ireland	20,082	23,126	3,044
Dept. of Social and Family Affairs	19,422	28,417	8,995
Dept. of Enterprise, Trade & Employment	192,952	241,262	48,310
Office of Public Works	26,136	80,300	54,164
Grand Total	**1,599,734**	**1,592,944**	**-6,790**

Funding by Activity

The categorisation by activity for 2003 is shown below.

2003 S&T funding (including earned income) by Activity

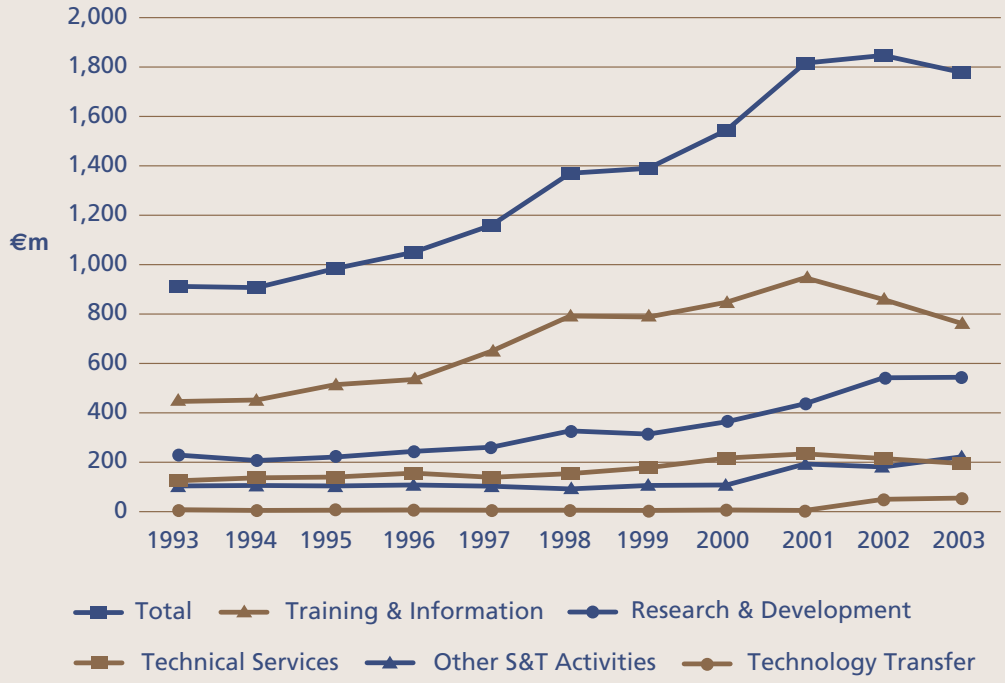


- *In 2003, Education & Training accounts for 42.8%(€761.9m) of total S&T spend. R&D spending is 30.6% (€543.8m) of the total allocation (€1,778.1m). This is well ahead of the 23% recorded share of total S&T spending allocated to R&D in 2001, mostly as a result of increased R&D spending by Science Foundation Ireland.*

The trend of funding of S&T activities is shown below.

- *Funding of Research and Development has seen an increase in real terms of 137% (€314.4m) since 1993.*
- *Between 2002 and 2003 funding from Science Foundation Ireland increased from €35m to €70m.*
- *Technology Transfer increased from €7.9m to €55.2m (2003 prices) in the same period.*
- *Training, Education and Information is the highest funded S&T activity. However, since 1998, it has been slowly losing its percentage share of total activity spending.*

Funding of S&T activities (including earned income) in real terms (2003 prices)



1 Introduction

1.1 Background

Volume One of this publication provides detail on allocated and actual spending by the State to Science and Technology (S&T) activities in the period 2001-2003. It includes the final outturn of spending on S&T activity by the State in 2001 and 2002, alongside proposed spending by the State on S&T in 2003.

As well as examining the overall levels of state spending on S&T, the report measures spending as a proportion of economic activity and of the total government budget. The report also details the S&T activities of individual departments and agencies, changes in spending, and S&T spending by purpose and objective. Volume Two of the publication focuses on state spending on Research and Development.

Investment in S&T

Investment in science and technology, particularly in research and development activities, is one of the key pillars of policy under the National Development Plan, which helps drive the Irish economy in its transition to become a more knowledge-driven economy with high value-added activities. Government departments and agencies have a key role in carrying out and supporting science and technology spending. The largest areas of state expenditure on science and technology identified in this report are:

- *Supporting R&D performed in the government sector*
- *Assisting businesses that carry out S&T activities*
- *Supporting S&T infrastructure*
- *Promoting S&T across the education and training systems*

In an ever-evolving and more competitive global economic environment, the Irish economy is already beginning to reap the benefits of previous S&T investments from private and public sources. This increased investment and innovation has helped foster more research and development which is in turn being successfully exploited in commercial terms by Irish-based firms in markets across the world.

Looking to the future, the drive to become a truly knowledge-driven and competitive economy can only become more difficult as globalisation increases, firm-level collaboration increases across major competitors and as markets become even more open to trade and more price competitive. Investment in science, technology and innovation will assist firms to stay one step ahead of their global competitors by allowing development and delivery of new products, processes and solutions to markets.

Therefore the role of government in investing in key science and technology areas will remain critical over the coming years. The Irish government must therefore continue the positive trends of previous years, by continuing to place investment in S&T high on its priority list of economic spending.

1.2 Government Departments and Agencies

Spending by the State on S&T includes:

- *S&T spending by Government Departments,*
- *S&T spending by associated Government Agencies,*
- *S&T spending by Government Offices.*

Table 1 below is a list of 45 Government Departments, Agencies and Offices which are included in the 2002/2003 Science Budget.

Table 1: *Government Departments/Agencies Funding S&T, 2003*

Departments	Agency	Departments	Agency
Agriculture & Food	Teagasc	Education & Science	HEA DIAS IRCHSS IRCSET
Enterprise, Trade & Employment	Forfás Enterprise Ireland IDA Ireland Science Foundation Ireland Shannon Development FÁS NSAI NMAC	Communications, Marine & Natural Resources	Marine Institute BIM Central & Regional Fisheries Board COFORD Sustainable Energy Ireland Media Laboratory Europe GSI
Environment, Heritage & Local Government	EPA RPII Met Éireann	Health & Children	HRB Postgraduate Medical & Dental Board FSAI
Social & Family Affairs		Arts, Sports & Tourism	Natural History Museum
Transport	NRA	Taoiseach	NESC
Community, Rural & Gaeltacht Affairs	Údarás na Gaeltachta	Finance	ESRI
OFFICES	CSO Central Bank OPW State Laboratory Ordnance Survey		

See appendix 2 for explanation of acronyms.

1.3 Definitions of S&T Activities

The total public expenditure on Science and Technology occurs under five broad headings. These are classified below with a detailed definition of each.

i) Research and Development:

- ***Research:*** *Original, experimental or theoretical investigations under-taken to acquire new knowledge, with or without a particular application or use in view.*
- ***Development:*** *Systematic work drawing on existing knowledge gained from research and/or practical experience, that is directed to producing new products, processes, systems, services, varieties and breeds and to improving substantially already existing ones. Data collection conducted solely or primarily as part of the research and development (R&D) process included under "research" or "development" as appropriate.*

ii) Technical Services: Specialised support services of a scientific or technical nature generally provided by centralised laboratories or facilities, and can be of a routine or non-routine nature. Essentially they comprise the technical back-up analytical, diagnostic and data collection/processing services.

iii) Training, Education and Information:

- ***Training and Education:*** *Education and training of third level or equivalent students in science and technology disciplines.*
- ***Information:*** *Provision of information via formalised scientific and technical information and documentation (STID) services includes all expenditure (manpower and materials) involved in acquiring, controlling or transmitting information to users with the involvement of staff whose primary function is in formalised STID services, e.g. provision of S&T information, advice, liaison, specialist advice, information analysis, libraries, publications and documentation services, translations, technical seminars and conferences. Provision of information via non-formalised STID services includes expenditures on providing know how and expertise by members of staff who, while not specifically engaged in formalised STID services, provide specialist advice, liaison, consultancy or other general information services.*

iv) Technology Transfer: Activities which are directed solely or primarily towards the transfer and adoption of new technology, generally in enterprises. The horizontal transfer of technology, primarily from abroad, but also from colleges to enterprises is included here.

v) Other S&T Activities: Activities which cannot be conveniently grouped under the above headings can be included here e.g. grants to international organisations, policy planning units etc.

Other Definitions:

- ***Third Level Education:*** *All Universities and Institutes of Technology.*
- ***Public Funds:*** *Exchequer monies and funds from the EU Community Support Framework.*
- ***Extramural Expenditure:*** *Monies spent on S&T activities carried out on behalf of the reporting institution by a third party.*

2 Government Funding of Science and Technology

2.1 Total Funding and Trends

State funding for S&T activities comes from three sources;

i) The Exchequer,

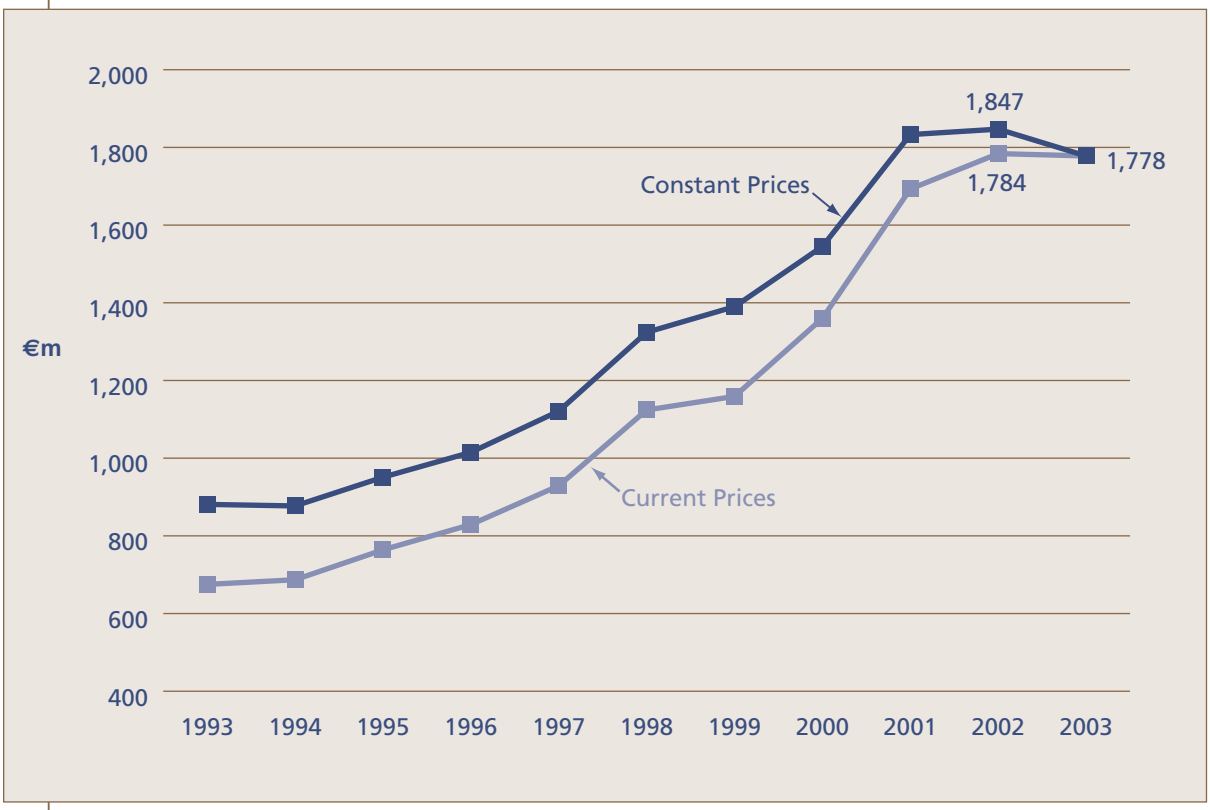
ii) The Community Support Framework (CSF) of the EU, which consists of three separate funds:

- *The European Regional Development Fund (ERDF)*
- *The European Social Fund (ESF)*
- *The European Agriculture, Guidance and Guarantee Fund (EAGGF)*

iii) Earned Income by the Agencies/Departments implementing science and technology programmes.

Total State funding of S&T activities over the past decade is presented in Figure 1 below in real and nominal terms.

Figure 1: *Funding for Science and Technology in the State Sector (Real and Nominal Terms)*



- *In 2003, State spending allocated to S&T was €1,778m.*
- *Measured in current prices, allocated State S&T spending fell by €6m in 2003 from the previous year's outturn. This represented an estimated decrease of 0.3% in nominal terms (See table 2).*

Table 2 identifies the sources of funding for 1993, 1998, 2001, 2002 and 2003 in nominal terms.

Table 2: *Government funding of Science and Technology by source of funds in current prices*

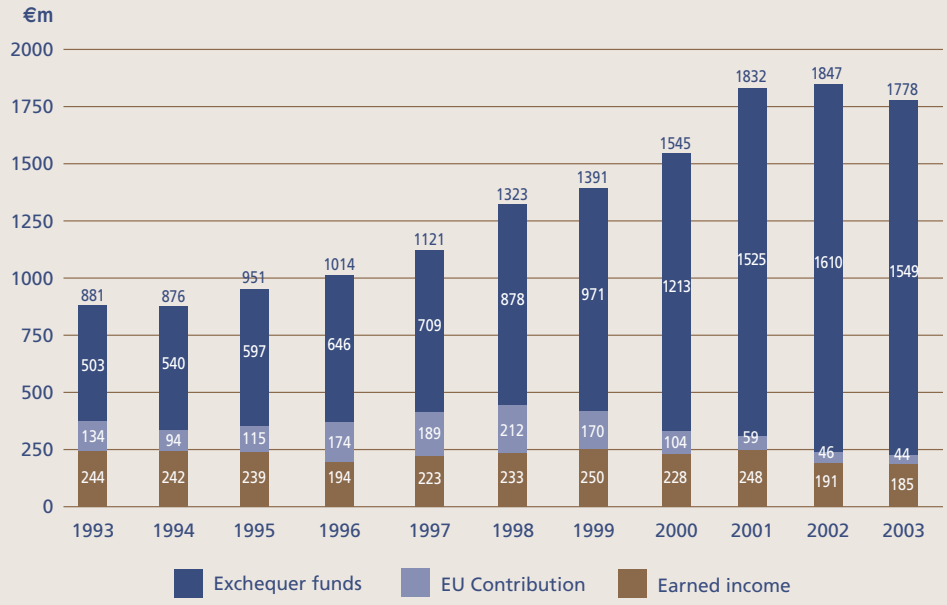
	93 Outturn		98 Outturn		01 Outturn		02 Outturn		03 Allocation	
	€m	%	€m	%	€m	%	€m	%	€m	%
Exchequer funds	385	57%	746	66%	1,409	83%	1,555	87%	1,549	87%
EU Contribution (CSF)	102	15%	180	16%	54	3%	44	2%	44	2%
Total Public funds	**488**	**72%**	**926**	**82%**	**1,464**	**86%**	**1,600**	**90%**	**1,593**	**90%**
Earned income	187	28%	198	18%	229	14%	185	10%	185	10%
Total	**675**	**100%**	**1,124**	**100%**	**1,693**	**100%**	**1,784**	**100%**	**1,778**	**100%**

Exchequer funding has seen a steady increase in its percentage share of total funding of S&T from 57% in 1993 to 87% in 2003. The EU portion has lessened considerably from 16% of the total in 1998 to 2% in 2003. The CSF funds peaked in 1998 at €180m but this figure has continuously decreased to just €44m in 2003, reflecting Ireland's declining eligibility for these funding mechanisms.

Overall, public funds for science and technology have trebled since 1993. However, if we look at the trends in funding for the past decade in current prices, we see that the steady increase in funds from 1994 to 2002 has slowed down and in 2003 there was a nominal decline of €7m.

State spending of S&T activities in the period 1993-2003 in real terms (2003 prices) is detailed in Figure 2, with total spending split into each of the three sources of funding.

Figure 2: *Sources of Funding for Science and Technology in the State Sector in Real Terms (2003 prices, €m)*



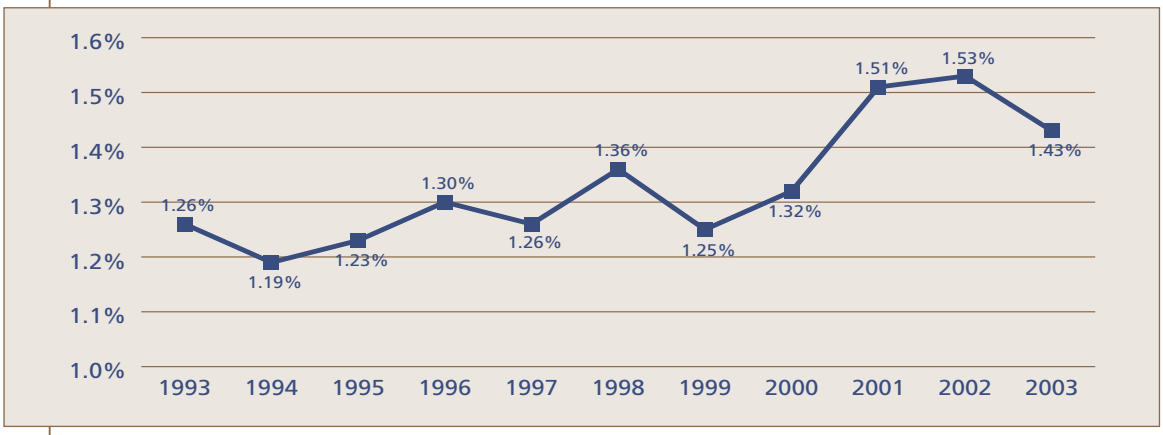
Analysis of data gathered from the 2002 and 2003 surveys of State spending on S&T reveals that:

- ***State spending allocated to S&T in real terms (factoring in inflation) dropped by an estimated €69m from 2002 to 2003. This represented a real decrease in S&T spending of 3.7%.***
- *Exchequer funds steadily increased up to 2002; however, in real terms in 2003, allocated spending has declined by €61m (3.8%) over the 2002 figure.*

2.2 Funding as a Percentage of GNP

State S&T spending can also be measured relative to the overall size of the economy (as measured by Gross National Product).

Figure 3: *Public funding of S&T as a Percentage of Gross National Product 1993-2003*



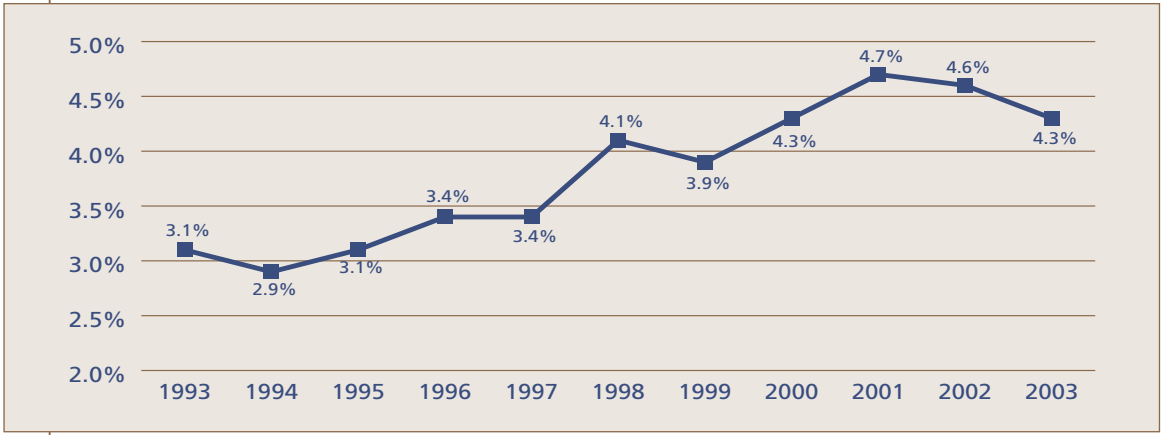
- *The relative size of S&T spending as a proportion of economic activity was able to increase in the period 1999 to 2001 from 1.25% of GNP to 1.51% of GNP. Public S&T spending growth of 22% and 26% in 2000 and 2001, outweighed economic growth (Nominal GNP) of 15.4% and 10.2%.*
- *As the economy slowed in 2002 to post gains of 7.6%, S&T spending growth also decelerated to 9.2%, allowing for a further, albeit more modest increase in relative S&T spending to 1.53% of GNP.*
- *However in 2003 as economic gains steadied around 7%, S&T spending growth from allocated public funds fell by 0.4%, pushing down the relative size of S&T spending across the economy to an estimated 1.43% of GNP.*
- *Given consensus forecasts of nominal GNP gains of 6% in the period 2004-2010, S&T spending growth from public funds will have to at least match these increases if relative spending is to stay around 1.5% of GNP.*

2.3 Funding as a Percentage of Government Budget

Another method of comparing the relativity of State S&T spending is to measure it against the overall Government spending in its budgets (including net current and capital spending).

Public funding for S&T as a percentage of total government budgets shows an increase from 3.1% in 1993 to reach 4.7% in 2001 (Figure 4). In 2003 allocated spending on S&T as a percentage of total government budget fell to an estimated 4.3%.

Figure 4: *Public Funding for S&T as a Percentage of Total Government Budget 1993-2003*



- *In the period 1999 to 2001 public funding of S&T increased by 53% in nominal terms, outweighing the 26.8% rise in spending across the entire Government budget. This pushed up relative spending on S&T from 3.9% of spending in the Budget to a peak of 4.7% in 2001.*
- *In 2002, public funding of S&T rose by 9.3%, falling slightly behind the 10.9% increase in overall Government spending. As a result, budgetary spending on S&T fell to 4.6% of total spending.*
- *In 2003, allocated public funding of S&T in nominal terms fell by 0.4%, compared to the 2002 outturn, and was far outpaced by the 7.1% growth in allocated budgetary spending. Relative allocated spending from public funds on S&T declined to an estimated 4.3% of total Government budgetary spending as a result.*

2.4 Funding by Type of Cost

This section breaks down government spending allocations to S&T into current and capital terms. It can be seen that the rate of growth in current expenditure decelerated in 2003, following several years of strong current spending gains. On the capital side, spending allocations by public bodies fell in 2003 for the second consecutive year.

Table 3: *Government funding of Science and Technology by type of costs (current prices)*

	1993		1998		2001		2002		2003 A	
	€m	%	€m	%	€m	%	€m	%	€m	%
Public* current monies	439	65%	713	63%	1,216	72%	1,421	80%	1,452	82%
Public capital monies	49	7%	212	19%	247	15%	178	10%	141	8%
Total public funds	**488**	**72%**	**926**	**82%**	**1,464**	**86%**	**1,600**	**90%**	**1,593**	**90%**
Earned income	187	28%	198	18%	229	14%	185	10%	185	10%
Total	**675**	**100%**	**1,124**	**100%**	**1,693**	**100%**	**1,784**	**100%**	**1,778**	**100%**

*Public monies are exchequer + CSF funds

- ***Allocated current spending on S&T by public bodies increased by 2.2% in 2003,*** *though the rate of expansion was well behind the 16.9% increase posted across 2002.*
- *Allocated capital spending on S&T by public bodies fell by 21.1% in nominal terms in 2003, and followed the 27.8% decrease in 2002.* ***Capital spending on S&T activities by public bodies has fallen an estimated 43.3% in the period 2001 to 2003.***

The changes in current and capital funding by individual departments, agencies and other offices are discussed further in Chapter 3.

3 Breakdown by Departments and Agencies

3.1 Allocations by source of funds

Over half of allocated total S&T Exchequer Funding (€1,778m) in 2003 is due to the Department of Education and Science (€496m) and the Higher Education Authority (€527m). Total allocated spending by the Department of Enterprise, Trade and Employment and associated agencies accounted for 13.7% of proposed S&T spending in 2003. This has increased sharply as a result of increased allocated spending on S&T activities from Science Foundation Ireland (up €35m to €70m in 2003). These changes are discussed in more detail in Section 3.2.

Some agency programmes are reliant on non-exchequer sources for their income in the form of CSF funds and earned income while others are funded entirely from exchequer sources. The agencies that receive most CSF support are the Department of Education and Science, Enterprise Ireland, the Higher Education Authority, IDA Ireland and Shannon Development. The National Microelectronics Application Centre relies on earned income to fund their S&T expenditure. Teagasc and Media Lab Europe also earn a significant amount of income from their activities.

Table 4 presents Department/Agency allocations to S&T analysed by source of funds.

Table 4: *2003 Science and Technology Allocations by Departments/Agencies by source of funds*

	2001 Outturn	2002 Outturn	2003 Allocation			
	Total 2001 €'000	Total 2002 €'000	(1) Exchequer funds €'000	(2) CSF funds €'000	(3) Earned income €'000	=(1)+(2)+(3) Total 2003 €'000
Department of Education and Science	540,763	555,267	479,083	17,120		496,203
Higher Education Authority	507,197	557,581	350,649	3,150	172,941	526,740
Dublin Institute for Advanced Studies	2,175	2,415	2,369	81	102	2,552
IRCHSS		6,846	8,000			8,000
IRCSET		3,822	9,879			9,879
Department of Enterprise, Trade & Employment	9,669	10,111	11,878			11,878
Enterprise Ireland	73,730	62,722	52,418	15,721		68,139
FÁS	68,917	71,776	72,409			72,409
NSAI	16,651	2,614	3,009			3,009
Shannon Development	4,167	3,134	2,625	2,000		4,625
IDA Ireland	4,299	5,219	6,020	3,000		9,020
Science Foundation Ireland	4,279	35,000	70,000			70,000
Forfás (inc. INAB)	4,871	2,376	2,182			2,182
National Microelectronics Applications Centre	1,072	1,177	0		1,500	1,500
Department of Agriculture and Food	45,171	52,199	48,946			48,946
Teagasc	90,793	103,569	101,729		5,367	107,096

Table continued next page

	2001 Outturn	2002 Outturn	2003 Allocation			
	Total 2001 €'000	Total 2002 €'000	(1) Exchequer funds €'000	(2) CSF funds €'000	(3) Earned income €'000	=(1)+(2)+(3) Total 2003 €'000
Department of Health and Children	8,569	17,819	4,961			4,961
Health Research Board	15,280	23,331	24,967			24,967
Postgraduate Medical & Dental Board	4,771	5,499	6,302			6,302
Food Safety Authority		656	720			720
Central Statistics Office	39,209	54,891	35,809			35,809
Department of Communications, Marine and Natural Resources	21,127	12,352	8,564			8,564
Marine Institute	30,375	32,375	24,699			24,699
Bord Iascaigh Mhara	7,414	5,595	1,681	1,395		3,076
Central & Regional Fisheries Board	1,878	2,582	2,410			2,410
COFORD	1,019	1,362	1,382			1,382
Sustainable Energy Ireland	4,504	9,284	11,991	1,309		13,300
Media Lab Europe	70,804	10,423	5,412		3,123	8,535
Department of Transport	2,810					
N.R.A	1,911	2,391	2,212		50	2,262
Department of Environment, Heritage and Local Government	6,155	4,673	5,567			5,567
Environmental Protection Agency	15,758	18,050	18,723			18,723
R.P.I.I.	5,348	2,842	2,848		310	3,158
Met Éireann	26,690	18,075	18,256			18,256
Department of Social and Family Affairs	20,126	19,422	28,417			28,417
Ordnance Survey Office	14,048	20,082	23,126			23,126
Office of Public Works	2,513	26,136	80,300			80,300
Department of Finance						
Economic and Social Research Institute	7,545	8,498	7,209		1,752	8,961
Department of Arts, Sport and Tourism	238	246	247			247
State Laboratory	5,439	6,148	6,713			6,713
Central Bank	533	489	526			526
Department of the Taoiseach						
National Economic and Social Council	727	773	665		2	667
Department of Community, Rural and Gaeltacht Affairs	2,091	2,401	2,275			2,275
Údarás na Gaeltachta	2,299	2,166	1,990			1,990
Total	**1,692,935**	**1,784,389**	**1,549,168**	**43,776**	**185,147**	**1,778,091**

* Where there are transfers from one S&T agency/department to another the funds are accounted for in the performing agency.

Note: Earned income assigned to the Higher Education Authority refers to funds which the colleges under its aegis receive by way of fees for education courses and income generated from contract research activity. These funds are not allocated by the HEA to colleges.

3.2 Changes in Public Funding

Table 5 highlights the changes in funding allocations broken down by Funding Departments in 2003 over the 2002 outturn. Spending by Department includes S&T spending by that Department and the Agencies for which it provides funding.

Table 5: *Departments' and Offices' 2002 Outturn, 2003 Allocation and the Change in public funding*

	2002 Outturn €'000	2003 Allocation €'000	Change €'000
Dept. of Education and Science	952,918	870,331	-82,587
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Dept. of the Taoiseach	773	665	-108
Dept. of Arts, Sport and Tourism	246	247	1
Central Bank	489	526	37
Dept. of Finance	7,055	7,209	154
Dept. of Agriculture and Food	150,121	150,675	554
State Laboratory	6,148	6,713	565
Dept. of the Environment, Heritage & Local Government	43,407	45,394	1,987
Ordnance Survey Ireland	20,082	23,126	3,044
Dept. of Social and Family Affairs	19,422	28,417	8,995
Dept. of Enterprise, Trade & Employment	192,952	241,262	48,310
Office of Public Works	26,136	80,300	54,164
Grand Total	**1,599,734**	**1,592,944**	**-6,790**

Major spending changes occurred in the following areas:

1. The 2003 allocation for the Department of Education and Science and its agencies will see a total decline in funding of €83m over the 2002 outturn.

- *This can be accounted for by the expected **fall-off** in allocated funding of the following programmes in 2003:*
  - The Institutes of Technology Grant (€26.5m)
  - Science &Technology Education Investment Capital Fund (€23.5m)
  - Programme for Research in Third Level Institutions (€18m) - (Current Spending)
  - The schools IT 2000 programme (€17.3m)
  - Expenditure on Educational buildings for R&D (€9.5m) and the equipment provided (€6.2m)
  - The Skills Initiative Programme (€7.3m)
- *However, allocated funding **increased** in the following areas:*
  - General Support via the Higher Education Authority (€5.8m)
  - IRCSET (€6.1m)
  - Programme for Research in Third Level Institutions (€4.7m) - (Capital Spending)

2. The Department of Enterprise, Trade and Employment and its agencies allocations are up by an estimated €48m from 2002 to 2003. The main increases here are:
   - Science Foundation Ireland (up €35m to €70m)
   - Grants to industry for Research, Technology, Development and Innovation (€5.2m)
3. The Office of Public Works is expected to see a considerable increase (€54m) in allocated funding of:
   - State Laboratory (€24.7m)
   - Department of Agriculture and Food Laboratory (€22.2m)
   - Transfer of the Marine Institute to Galway (€6.2m)
4. The Central Statistics Office allocation expects a decrease of €19m in 2003
   - This is due to extra funding in 2002 for the Census
5. The Department of Communications, Marine and Natural Resources and its agencies are down from €71m in 2002 to €59m in 2003. This difference is due to reduced funding for following programmes:
   - Construction of the Celtic Explorer RV (€7.3m)
   - Geological Survey of Ireland (€3m)
   - Media Lab Europe Pooled Research Funding (€2m)
   - Fisheries Development Programmes (€2.1m)

   An increase in departmental spending on S&T is expected for:
   - Sustainable Energy Ireland (€4m)
6. The Department of Health and Children and its agencies (down €10.4m) due to:
   - A decrease in Advisory and Information Services and General Support (€14.8m)
   - There is an increase in funds for: Health Promotion, Research Awards and Research and Development for Health (€3.7m)
7. The Department of Social and Family Affairs is expected to spend €9m extra. This is due mainly to:
   - Consultancy Services (up €8.2m)

3.3 Public Current & Capital Funding of S&T

Table 6 looks at the breakdown between current and capital spending by the various departments and agencies.

Table 6: *2001, 2002 Outturns and 2003 Science and Technology Allocations by Departments, Agencies and Offices (*) by type of costs*

	2001 Outturn		2002 Outturn		2003 Allocation	
	Current €'000	Capital €'000	Current €'000	Capital €'000	Current €'000	Capital €'000
Department of Education and Science	444,719	96,044	491,584	63,683	469,849	26,354
Higher Education Authority	300,244	57,068	327,784	56,892	340,773	13,026
Dublin Institute for Advanced Studies	1,996		2,077	230	2,450	
IRCHSS			6,846		8,000	
IRCSET			3,822		9,879	
Department of Enterprise, Trade & Employment	9,669		10,111		11,878	
Enterprise Ireland	67,061		62,722		68,139	
FÁS	68,917		71,776		72,409	
N.S.A.I	5,437		2,614		3,009	
Shannon Development	4,167		3,134		4,625	
IDA Ireland	4,299		5,219		9,020	
Science Foundation Ireland			35,000		70,000	
Forfás (inc. NAB)	4,871		2,376		2,182	
National Microelectronics Applications Centre	27		3		0	
Department of Agriculture and Food	36,616	1,073	48,293	3,906	45,525	3,421
Teagasc	64,228	3,460	90,947	6,975	97,383	4,346
Department of Health and Children	8,489	80	15,177	2,642	2,618	2,343
Health Research Board	13,262	440	23,331		24,967	
Postgraduate Medical & Dental Board	4,771		5,499		6,302	
Food Safety Authority			656		720	
Central Statistics Office	35,530	2,801	54,164	727	34,913	896
Department of Communications, Marine and Natural Resources	20,778		12,352		8,564	
Marine Institute	15,806	12,378	18,432	13,818	18,640	6,059
Bord Iascaigh Mhara	5,944	1,428	4,925	670	2,830	246
Central & Regional Fisheries Board	1,862		2,582		2,410	
COFORD	1,019		1,362		1,382	
Sustainable Energy Ireland	4,367	23	8,189	1,095	10,950	2,350
Media Lab Europe	1,757	65,724	7,022	443	5,124	288
Department of Transport	2,810					
N.R.A	1,775		2,332		2,212	

Table continued next page

	2001 Outturn		2002 Outturn		2003 Allocation	
	Current €'000	Capital €'000	Current €'000	Capital €'000	Current €'000	Capital €'000
Department of Environment, Heritage and Local Government	5,745	410	4,673		5,567	
Environmental Protection Agency	9,023		18,050		18,723	
R.P.I.I.	4,406	167	2,464	145	2,675	173
Met Éireann	18,302	617	17,144	931	17,376	880
Department of Social and Family Affairs	20,042		19,422		28,417	
Ordnance Survey Office	14,048		20,082		23,126	
Office of Public Works		2,513	0	26,136		80,300
Department of Finance						
Economic and Social Research Institute	6,064		6,911	144	7,097	112
Department of Arts, Sport and Tourism	238		246		247	
State Laboratory	5,439		6,148		6,713	
Central Bank	533		489		526	
Department of the Taoiseach						
National Economic and Social Council	726		773		665	
Department of Community, Rural and Gaeltacht Affairs	2,091		2,401		2,275	
Údarás na Gaeltachta	2,299		2,166		1,990	
Total	**1,219,378**	**244,228**	**1,421,298**	**178,436**	**1,452,150**	**140,794**

* Where there are transfers from one S&T agency/department to another the funds are accounted for in the performing agency.

** Public funds are exchequer & CSF funds

Capital Funding for the Department of Education and Science and its associated Agencies fell by €81.4m in 2003. The S&T Education Investment Capital Fund declined by €23.5m, the Programme for Research in Third Level Institutions fell by €18m, Schools Capital IT dropped by €11.6m and funds for Buildings fell by €9.5m.

4 Funding by Activity

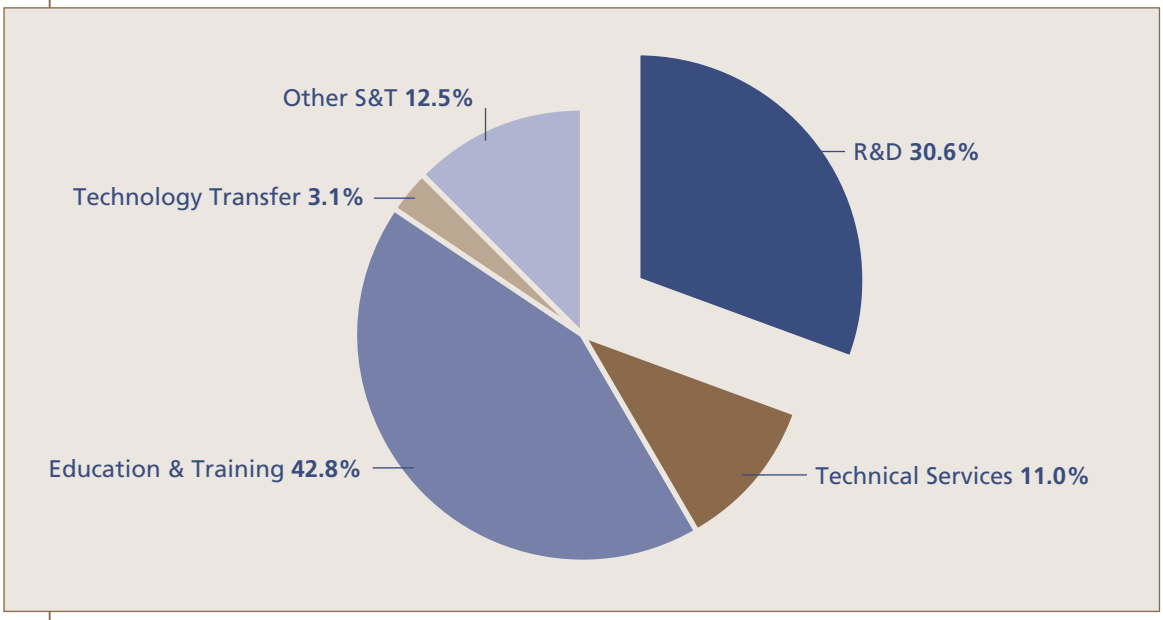
4.1 Funding by Activity

Total funding and breakdown by department/agency has been detailed in the previous chapters. The categorisation by activity for 2003 and 2002 is completed in Figure 5 below.

In 2003, Education and Training accounts for 42.8% (€761.9m) and Research and Development represents almost a third (€543.8m) of the total allocation (€1,778.1m).

Volume Two of this Publication details further the particulars of R&D as it is such an important element of total S&T spend.

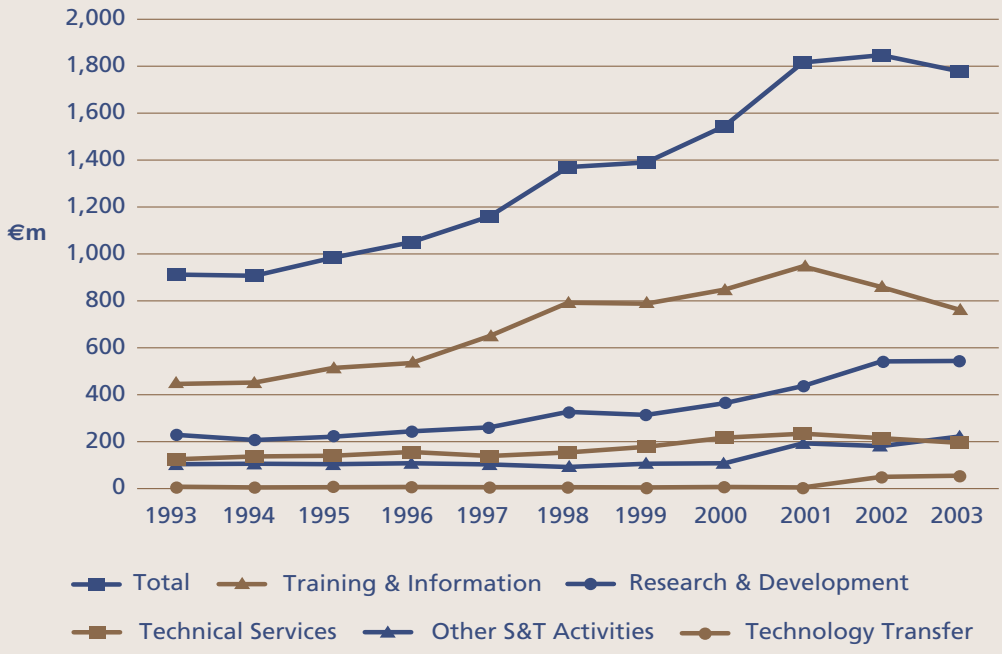
Figure 5: *2003 planned distribution of S&T funding by S&T activity (including earned income)*



- *Funding of Research and Development has seen an increase in real terms of 137% (€314.4m) since 1993.*
- *The share of R&D activity spending increased to 30.6% of total spending in 2003, slightly ahead of the 29.3% share recorded in 2002, and well ahead of the 23% share posted in 2001. Increased funding from Science Foundation Ireland was the main reason for this rapid rise in the share of total S&T spending devoted to Research and Development activities.*
- *Technology Transfer spending increased from €7.9m to €55.2m (2003 prices) in the same period.*
- *Training, Education and Information is the highest funded S&T activity. However, since 1998, it has been slowly losing its percentage share of total activity spending.*

Figure 6 illustrates the trend in activity funding over time.

Figure 6: *Funding of S&T activities (including earned income) 2003 prices, €m*



4.2 S&T Activities by Source of Funds

Table 7 identifies S&T activities in receipt of Government funds. Indirect government funds for research in the third level sector are derived from the HEA's grant-in-aid to academic departments in the universities. In 2003 it is an estimated €53.7m.

CSF funds allocated to support research & development amount to €25m, which accounts for 57% of CSF funds allocated for science & technology. Income from other sources for research is indicated. Receipts from EU contracts and business account for 31.5% of the direct funds for research in third level colleges.

Table 7: *Indicative Distribution of Government Funds for Science and Technology, 2003, €m*

Sources of Funds:	R&D Services €m	Technical Information €m	Training & Transfer €m	Technology S&T €m	Other €m	Total €m
Exchequer						
Direct	343.1	193.5	691.3	54.6	213.0	1,495.5
Indirect	53.7	0.0	0.0	0.0	0.0	53.7
CSF funds	25.0	0.1	15.0	0.5	3.1	43.8
EU contracts	25.1	0.5	0.1	0.0	0.0	25.7
Business	53.1	0.5	0.1	0.0	0.0	53.8
Other earned income	43.8	0.2	55.5	0.0	6.3	105.7
Total	**543.8**	**194.7**	**761.9**	**55.2**	**222.5**	**1,778.1**

(1) Science and Technology Departments only.

(2) AMT Ireland is classified under S&T information and technical services.

5 Public Funding by Objective

5.1 Public Funding Trends by Objective

Table 8 examines how the different objectives are funded since 1993.

In 2003, public allocations on science and technology amounted to €1,592.9m. In real terms this is an increase of €1,105.4m over the 1993 figure. Over the past decade, the areas of Energy, Economic and Social, Health, Agriculture and Education and Manpower have had the most significant increases in funding. Education and Manpower had an increase of over €714.6m in funding due to increased exchequer funding over the same period.

Table 8: *Public Expenditure on Science & Technology by objective current prices*

		1993 Outturn €'000	1998 Outturn €'000	2001 Outturn €'000	2002 Outturn €'000	2003 Allocation €'000
Education and Manpower	Exchequer Funding	232,109	554,470	902,153	999,522	948,040
	CSF Funding	34,981	92,648	21,161	30,131	33,627
	Total	**267,091**	**647,118**	**923,314**	**1,029,653**	**981,667**
General Public Services	Exchequer Funding	43,049	42,624	179,152	127,055	165,983
	CSF Funding	0	112	0	0	0
	Total	**43,049**	**42,736**	**179,152**	**127,055**	**165,983**
Industry	Exchequer Funding	38,911	41,251	124,672	124,076	139,941
	CSF Funding	63,585	66,255	32,918	11,248	7,445
	Total	**102,496**	**107,506**	**157,590**	**135,324**	**147,386**
Agriculture	Exchequer Funding	40,826	52,044	90,960	150,121	150,675
	CSF Funding	29	11,768	0	0	0
	Total	**40,855**	**63,812**	**90,960**	**150,121**	**150,675**
Economical and Social	Exchequer Funding	6,309	9,501	27,603	27,250	36,817
	CSF Funding	0	0	0	0	0
	Total	**6,309**	**9,501**	**27,603**	**27,250**	**36,817**
Marine & Forestry	Exchequer Funding	7,046	13,525	38,035	39,555	30,166
	CSF Funding	2,193	5,073	399	2,234	1,395
	Total	**9,239**	**18,598**	**38,434**	**41,789**	**31,561**
Health	Exchequer Funding	6,712	11,524	22,841	42,177	30,996
	CSF Funding	0	0	0	0	0
	Total	**6,712**	**11,524**	**22,841**	**42,177**	**30,996**
Environment	Exchequer Funding	7,382	14,591	16,549	24,551	25,974
	CSF Funding	1,653	2,480	0	0	0
	Total	**9,035**	**17,070**	**16,549**	**24,551**	**25,974**
Energy	Exchequer Funding	1,676	3,974	5,389	18,798	18,364
	CSF Funding	18	1,708	0	684	1,309
	Total	**1,694**	**5,682**	**5,389**	**19,482**	**19,673**
Transport	Exchequer Funding	1,054	2,190	1,775	2,332	2,212
	CSF Funding	0	0	0	0	0
	Total	**1,054**	**2,190**	**1,775**	**2,332**	**2,212**
Total	Exchequer Funding	385,075	745,696	1,409,128	1,555,437	1,549,168
	CSF Funding	102,459	180,043	54,478	44,297	43,776
	Total	**487,534**	**925,738**	**1,463,606**	**1,599,734**	**1,592,944**

Appendix 1: Methodology

Methodological Note

The information given in this document relates to 45 institutions in receipt of monies from the exchequer for the performance or support of scientific, technological and related activities in every field and is based on the information supplied by these institutions.

In order to ensure consistency of analysis the database has been adjusted back to 1992 to take account of changes that agencies/departments have recorded.

In general, institutions and information relating to them are listed separately. In a few cases an institution is listed with its parent department or organisation but identified separately. Where practicable the programmes of the various institutions have been separated and categorised in accordance with international practice into relevant scientific and technological activities i.e.: Research and development (R&D), Technical Services, Training, Education and Information, Technology transfer and Other S&T Activities.

However, in many instances, especially in institutions with few staff, institutions operate several programmes jointly, sharing resources in an administratively appropriate unit. In these circumstances the programmes, as described here, do not represent truly independent programmes. Consequently, the data should be interpreted with caution if expansions or contractions are being considered.

Expenditure data for specific programmes refer to the 2001 and 2002 outturn costs of programmes and to the expected costs in 2003. The outturn costs are mainly funded by matching grant-in-aid or voted monies. Where programmes are funded in other ways these monies are noted separately. In these instances the expenditure (cost) data shown includes both exchequer and other income contributions.

Expenditures are based on unaudited figures, except in a few cases where they are identical with a Vote by the Oireachtas. For convenience, general overheads, where shown, are distributed in proportion to programmes' expenditures. Programmes are attributed to the institution most directly involved, that is to those actually operating them, but not necessarily funding them. An example of the latter is the Department of Enterprise, Trade and Employment, which funds, but does not operate or manage many programmes. Only their own administrative costs are attributed to the funding institutions in such cases.

Numbers of staff involved on individual S&T programmes are shown only where a reasonable subdivision is possible. Where institutions are involved in funding a large number of external R&D (or similar) personnel, data on these external personnel are not given.

In some cases it is possible to give an indication of output, e.g. numbers of grants awarded, samples analysed etc. per annum. The information given relates to 2003 unless otherwise stated.

Apportionment problems arise in the third level sector (mainly the monies distributed by the Higher Education Authority and the Department of Education to institutes of technology). In the case of the HEA, total funds are first apportioned between S&T faculties and non-S&T faculties in the colleges. (Expenditure on non-S&T faculties is not included in this document).

The extent and cost of the R&D work undertaken in colleges, and funded out of the HEA's general block grant, is determined indirectly from surveys of academic staff in colleges. These surveys are carried out by Forfás on a multi-annual basis and the corresponding cost data are, of necessity, based on historical estimates. The HEA funding of academic departments was isolated from administration and support services within colleges. Co-efficients of research time derived from Forfás surveys are now applied to funding of academic departments only, not including the administration and support services as had been included in the past. In the case of ITs, costs are apportioned between S&T departments and second level activities; the latter are not included.

Appendix 2: Index of Acronyms

BIM	Bord Iascaigh Mhara - The Irish Sea Fisheries Board
C&RFB	Central and Regional Fisheries Boards
COFORD	National Council for Forest Research and Development
CSF	Community Support Framework
CSO	Central Statistics Office
DIAS	Dublin Institute for Advanced Studies
EAGGF	European Agriculture Guidance and Guarantee Fund
EPA	Environmental Protection Agency
ERDF	European Regional Development Fund
ESF	European Social Fund
ESRI	Economic and Social Research Institute
EU	European Union
FÁS	Foras Áiseanna Saothair - National Training and Employment Authority
Forfás	Policy and Advisory Board for Enterprise, Trade, Science, Technology and Innovation
FSAI	Food Safety Authority Ireland
GSI	Geological Survey of Ireland
HEA	Higher Education Authority
HRB	Health Research Board
IDA	Industrial Development Agency Ireland
IRCHSS	Irish Research Council for the Humanities and Social Sciences
IRCSET	Irish Research Council for Science, Engineering and Technology
MLE	Media Laboratory Europe
NMAC	National Microelectronics Applications Centre
NESC	National Economic and Social Council
NMRC	National Microelectronics Research Centre
NRA	National Roads Authority
NSAI	National Standards Authority of Ireland
OPW	Office of Public Works
OSI	Ordnance Survey Ireland
OST	Office of Science and Technology - Department of Enterprise, Trade and Employment
PGM&DB	Postgraduate Medical and Dental Board
RPII	Radiological Protection Institute of Ireland
SEI	Sustainable Energy Ireland
SFI	Science Foundation Ireland

Appendix 3: Transfer Payments

Table 8: *Planned Transfer payments between S&T organisation for S&T activities, 2003, €'000*

From:	SEI	OPW	Dept. of Environment, Heritage & Local Government	EPA	Dept. of Education & Science	HEA	Dept. of Communications Marine & Natural Resources	BIM	Dept. of Agriculture & Food	Dept. of Enterprise, Trade & Employment	Enterprise Ireland	Dept. of Social & Family Affairs	Dept. of Health & Children	HRB	FÁS	Marine Institute	NRA	Forfás	Grand Total
To:																			
C&RFB		63	77	15												6			**161**
DIAS						224				60									**284**
ESRI			17	77	169			72	55	54		288	1,420	117	88		55	202	**2,614**
Enterprise Ireland										36,334									**36,334**
HEA			5,133						3,387	16,000						564			**25,084**
Met Éireann	254																90		**344**
NSAI										2,559									**2,559**
Shannon Development										545	4,080								**4,625**
Teagasc			750				900		5,169		200								**7,019**
Údarás na Gaeltachta											790								**790**
IRCHSS					8,000														**8,000**
IDA Ireland										9,020									**9,020**
Grand Total	**254**	**63**	**5,977**	**92**	**8,169**	**224**	**900**	**72**	**8,611**	**64,572**	**5,070**	**288**	**1,420**	**117**	**88**	**570**	**145**	**202**	**96,834**

Reports Published by Forfás 2004

Report	Date
Broadband Telecommunications Benchmarking Study	January 2004
Research and Development in Ireland, 2001 – at a glance	January 2004
Competitiveness through Innovation National Competitiveness Council (NCC)	February 2004
International Trade & Investment Report, 2003	March 2004
Wireless Communications: An Area of Opportunity for Ireland	April 2004
National Code of Practice for Managing Itellectual Property from Publicly Funded Research Irish Council for Science, Technology & Innovation (ICSTI)	April 2004
Forfás Annual Report	April 2004
Innovation Networks	June 2004
Enterprise Strategy Group Report **Ahead of the Curve**	July 2004
Export Licensing of Military and Dual-Use Goods in Ireland	July 2004
Statement on Nanotechnology Irish Council for Science, Technology & Innovation (ICSTI)	July 2004
Building Ireland's Knowledge Economy – **The Irish Action Plan for Increasing Research and Development to 2010**	September 2004
A Model to Predict the Supply and Demand for Researchers	September 2004
Statement on Prices and Costs National Competitiveness Council (NCC)	September 2004
State Expenditure Priorities for 2005 Irish Council for Science, Technology & Innovation (ICSTI)	September 2004
Sustainable Development in Ireland Irish Council for Science, Technology & Innovation (ICSTI)	October 2004
Annual Competitiveness Report 2004 & **The Competitiveness Challenge Report** National Competitiveness Council (NCC)	October 2004

Functions of Forfás

Forfás is the national policy and advisory board for enterprise, trade, science, technology and innovation. It is the body in which the State's legal powers for industrial promotion and technological development have been vested. It is also the body through which powers are delegated to Enterprise Ireland for the promotion of indigenous industry and to IDA Ireland for the promotion of inward investment.Science Foundation Ireland was established as a third agency of Forfás in July 2003. The broad functions of Forfás are to:

- advise the Minister on matters relating to the development of industry in the State
- advise on the development and co-ordination of policy for Enterprise Ireland, IDA Ireland, Science Foundation Ireland and such other bodies (established or under statute) as the Minister may by order designate
- encourage the development of industry, science and technology, innovation, marketing and human resources in the State
- encourage the establishment and development in the State of industrial undertakings from outside the State, and
- advise and co-ordinate Enterprise Ireland, IDA Ireland and Science Foundation Ireland in relation to their functions.

Is é Forfás an bord náisiúnta um polasaí agus comhairle le haghaidh fiontraíochta, trádála, eolaíochta, teicneolaíochta agus nuála. Is é an comhlacht é a bhfuil comhactaí dlíthiúla an stáit maidir le cur-chun cinn tionscail agus forbairtteicneolaíochta dílsithe ann. Is é an comhlacht é freisin trína dciomnaítear cumhachtaí ar Fhiontraíocht Éireann le tionscail dúchais a chur chus cinn agus ar ghníomhaireacht Forbartha Tionscail na hÉireann (GFT Éireann) le hinfheistíocht isteach sa tir a chur chun tosaigh. Bunaíodh Fondúireacht Eolaíochta Éireann mar an treas eagraíocht de chuid i Forfás mí iúil 2003.
Is iad feighmeanna Fhorfáis:

- comhairle a chur ar an Aire ó thaobh cúrsaí a bhaineann le forbairt tionscail sa Stát
- comhairle maidir le forbairt agus comhordú polasaithe a chur ar fáil d'Fhiontraíocht Éireann, d'GFT Éireann, Fondúireacht Eolaíochta Éireann agus d'aon fhoras eile dá leithéid (a bunaíodh go reachtúil) a d'fhéadfadh an tAire a ainmniú trí ordú
- forbairt na tionsclaíochta, na teicneolaíochta, na margaíochta agus acmhainní daonna a spreagadh sa Stát
- bunú agus forbairt gnóthas tionsclaíoch ón iasacht a spreagadh sa Stát, agus
- Fiontraíocht Éireann, GFT Éireann agus Fondúireacht Eolaíochta Éireann a chomhairliú agus a chomhordú ó thaobh a gcuid feidhmeanna.

Board Members

Eoin O'Driscoll
Chairman

Martin Cronin
Chief Executive, Forfás

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Trade & Employment

Dr. William C. Harris
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Rody Molloy
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William Murphy
Partner, Tynan Dillon and Company

Feargal O'Rourke
Partner, Taxation, PricewaterhouseCoopers

Frank Ryan
Chief Executive, Enterprise Ireland

Dr Don Thornhill
Chairman, Higher Education Authority

Toni Wall
Managing Director, Wall-2-Wall Ltd

Jane Williams
Managing Director, The Sia Group Ltd

Appendix 4: Departments' and Agencies' Programs (Attached CD-ROM)

Also available at www.forfas.ie

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