ICSTI Statement

State Expenditure Priorities for 2005

Approved by ICSTI in July 2004. Published in August 2004.

IRISH COUNCIL FOR SCIENCE, TECHNOLOGY AND INNOVATION (ICSTI)

FUNCTIONS

- To advise on science, technology and innovation policy-related issues in response to specific requests from the Government (through the Minister responsible for Science and Technology) or from the Board of Forfás;

- To advise the Minister responsible for Science and Technology, the Office of Science and Technology and the Board of Forfás on the Council's own initiative, on policy for science, technology and on related matters;

- To advise the Minister on the strategy for the preparation and implementation of national programmes in science, technology and innovation;

- To advise the Minister on the strategic direction for State investment in science, technology and innovation;

- To undertake, from time to time, such other functions as the Minister may decide.

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SUMMARY

Enterprises and international investment are becoming increasingly 'knowledge-based'. Competition among countries for international trade and investment is increasingly based on the relative attractiveness for knowledge-based enterprise in terms of the quality of their people, the sources of knowledge, innovation and technology in research systems and the presence of other knowledge-intensive enterprises. There is a clear economic and social development rationale for investment in research and development (R&D). Such investment generates high returns and is a key factor in ensuring that the development potential of the economy remains strong. While public investment in research, technology and innovation in Ireland has increased significantly over recent years, the level of public investment in R&D, at 0.4 per cent of GNP in Ireland (EU average 0.7 per cent), remains low by international standards.

In the context of the long-term development nature of investment in R&D, the Irish Council for Science, Technology and Innovation (ICSTI) recommends that future prioritisation of public investment in R&D should be based on achieving:

- Sustainability of research funding. A new, longer-term multi-annual outlook and budgeting approach should be adopted for public R&D investment that guarantees funding and provides stability to the research system;

- A competitive mix of R&D support for enterprise. The promotion of a dynamic knowledge-intensive enterprise base, with world-class, innovation-driven, small and medium enterprises (SMEs) will require the continued development of a competitive mix of fiscal incentives and grant supports for promoting enterprise R&D, particularly for the SMEs.

The Council recommends the following **priorities for 2005** in line with the above strategic objectives:

Sustainability of Research Funding

1. A rapid and strategic approach should be adopted to the implementation of Ireland's European Research Area R&D Action Plan[1], given the urgency of increasing investment in R&D to 2.5 per cent of GNP by 2010 from 1.4 per cent currently, with one-third of the increase to be performed in the higher education and public research sector. The Council recommends that a new long-term, coherent budgetary strategy for S&T be established as part of the implementation of the Action Plan that will provide constancy to public R&D expenditure and performance over the period to 2010;

2. Funding for research excellence through Science Foundation Ireland (SFI) should be sustained at the increased levels achieved in 2004. SFI, through strategic investments in the people, ideas and partnerships essential to outstanding research in strategic areas, will help build, in Ireland, research of globally recognised excellence and nationally significant economic importance;

3. Funding of the Higher Education Authority's (HEA's) Programme for Research in Third Level Institutions (PRTLI) should be completed and the necessary provision made for a successor programme;

4. The higher education sector is an essential building block of Ireland's knowledge-based economy and society and, in this regard, the recurrent funding for this sector needs to be sustained in real terms.

Competitive Mix of Support for R&D and Innovation in SMEs

5. The introduction of a tax credit for incremental R&D in the Finance Act, 2004 is an important step in developing a

[1] *Building Ireland's Knowledge Economy – The Irish Action Plan for Promoting Investment in R&D to 2010, Report to the Inter-Departmental Committee on Science, Technology and Innovation, July 2004.*

competitive mix of supports for enterprise R&D in Ireland. However, it needs to be recognized that this will not be of immediate benefit to low R&D-intensive SMEs or to high technology start-ups in the early years. Consideration needs to be given to the introduction of an SME-specific instrument, in addition to the expansion of the R&D tax credit.

6. The re-orientation of the enterprise support budget to grant support for building R&D capabilities and technological absorptive capacity of SMEs needs to be accelerated. Enhanced support needs to be provided for building enterprise-oriented and near-to-market research competencies in higher education and public research sectors based on the needs of enterprise and for promoting higher education-industry collaborative R&D, led by the industrial partner.

7. In line with the recommendations of the Enterprise Strategy Group for a new approach to promoting the research and technology development needs of the enterprise base, the Council emphasizes the following:

   - Specific support measures are required to inform and increase the understanding of SMEs of innovation needs and opportunities and to address their in-company, R&D requirements;
   - Commercialization resources and expertise in the higher education and public research sectors should be strengthened;
   - Initiatives should be promoted to foster the development of networks, clusters and linkages among firms and academia to raise the technological absorptive capacity of enterprise in Ireland;
   - Continued expansion of the output of trained researchers in science, engineering and technology disciplines should be prioritized to meet the needs of an increasingly knowledge-intensive enterprise base through sustained funding for the Research Councils.

1.0 INTRODUCTION

Ireland is seeking to achieve a strategic shift towards a knowledge-based society and economy. This is being driven by global change and is being shaped by both international and domestic policy. The structure of Ireland's industrial base is changing. While Ireland continues to bid successfully for foreign direct investment, competition from other locations is intensifying. Attracting multi-national research and development (R&D) operations to Ireland, on the basis of the skilled labour force, is crucial to maintaining Ireland's competitive advantage. Indigenous industry constitutes a vital element of Irish industrial evolution, providing more than half of all industrial jobs in Ireland. The ability of Irish companies to research, commercialise, produce and sell higher value-added products and services to worldwide markets will be central to future economic success.

Ireland has placed R&D at the heart of its economic development strategy. In recent years, the Irish Government has substantially increased investment in technology, innovation and scientific research, achieving a five-fold increase in investment in the National Development Plan (2000-2006) to €2.48 billion, compared with €0.5 billion over the period 1994-1999.

> "Ireland is entering a new economic era. The transition to an innovation economy is complex, but well within reach for Ireland. Ireland's success in the past bodes well for the country's ability to meet the challenges. The country has identified many of the key steps that need to be taken; now it is a matter of persistence and implementation. Competitiveness is a marathon, not a sprint!"
>
> *Professor Michael Porter, Harvard Business School, Dublin, 2004*

The Government's decision, in June 2004, to establish a Cabinet Committee on Science and Technology (S&T), supported by an Inter-Departmental Committee and the appointment of Ireland's first Chief Science Adviser, demonstrate the commitment of the Government to ensure effective oversight and review of the investment underway, and to provide strategic direction and coherence to national investment.

The request of the Tánaiste and Minister for Enterprise, Trade and Employment to the Inter-Departmental Committee on S&T in 2003 to prepare an Irish Action Plan setting Ireland's R&D development requirements to 2010 in the European Research Area, indicates a welcome longer-term approach to research policy formulation. The Report to the Committee, *Building Ireland's Knowledge Economy – The Irish Action Plan for Promoting Investment in R&D to 2010* (July 2004), sets an ambitious, but achievable, target for Ireland to increase gross expenditure on R&D from 1.4 per cent of GNP to 2.5 per cent of GNP by 2010, in line with the levels of performance in other knowledge-based economies. Critically, two-thirds of the increase must come from the enterprise sector over the period, with the remainder to be performed in the higher education and public research sectors.

It is imperative that the momentum achieved over recent years within the Irish research and innovation system be maintained and increased and that Ireland takes immediate steps towards achieving the 2.5 per cent target by 2010.

2.0 SUSTAINABILITY OF RESEARCH FUNDING

2.1 Development of a Long-Term S&T Strategy

The need for long term planning to guarantee funding for S&T and provide certainty to the research and enterprise sectors is well recognized. Ireland has made good progress in establishing an international reputation for the high quality of its science and research base. The success of IDA Ireland and Science Foundation Ireland (SFI) during 2004, in attracting a number of important R&D activities from leading global firms, is the first sign of the recent increases in investment bearing fruit. Any uncertainty about Ireland's long-term commitment to its current development as a knowledge-based economy through investment in S&T would have a detrimental impact on efforts to embed the existing enterprise base and to attract R&D investment from around the world.

Other countries are developing such long-term planning approaches for science and research. The UK Government is formulating a long-term strategy for supporting S&T as part of a national commitment to become one of the most competitive locations in the world for science, R&D and innovation, in consultation with the scientific community, universities and research institutes, charities, and business. Similarly, the Australian Government has committed to extending its 2001 programme for science, technology and innovation, "Backing Australia's Ability," which set out an initial spending programme of $3 billion Australian dollars until 2005, with $5.3 billion for the years between 2006 and 2011. Such budget provision is emphasizing the important role that science, technology and innovation can play in lifting future prosperity and it is giving stability to the research system.

In Ireland, the research community has developed three to five year research strategies on the basis of the current National Development Plan (2000-2006). They must be given the opportunity to make plans after 2006. ***In this context, Ireland needs to adopt a new and longer-term planning and budgetary approach to S&T so as to provide stability to the research system and to improve Ireland's competitiveness as a location for world-class science.***

2.2 Ireland's Commitment to the European Research Area

To date, Ireland, investing the equivalent of 1.4 per cent of GNP on R&D, has maintained but not increased its ranking as an R&D player among European Member States. This is despite the significant amount of funding allocated through the National Development Plan and the high priority given by the Government to R&D.

In its response to the European Lisbon Strategy, Ireland has recognized that a substantial increase in investment in R&D is an essential foundation towards developing as a knowledge-based economy within the European Research Area (see Box for targets in the recently published *Action Plan for Promoting Investment in R&D in Ireland to 2010*). It is envisaged that such national expenditure commitments will result in increased productivity growth, provision of a source of opportunity in new growth areas and development of a basis for creating knowledge-driven, competitive advantage across all sectors of the economy.

Targets for R&D in Ireland in the European Research Area

- Gross expenditure on R&D should increase to 2.5% of Gross National Product (GNP) by 2010;
- Business investment in R&D should increase from €917 million in 2001, or 0.9% GNP, to €2.5 billion in 2010, or 1.7% GNP;
- The number of indigenous enterprises performing significant R&D (in excess of €2 million) should increase from 26 currently to 100 by 2010;
- The number of foreign affiliates performing significant levels of R&D (in excess of €2 million) should increase from 47 in 2001 to 150 by 2010;
- R&D performance in the higher education and public sectors should increase from €422 million in 2002 or 0.4% GNP to €1.1 billion in 2010 or 0.8% GNP;
- The number of researchers should reach 9.3 per 1,000 of total employment by 2010, from 5.1 per 1,000 currently.

Source: Building Ireland's Knowledge Economy – The Irish Action Plan for Promoting Investment in R&D to 2010, Report to the Inter-Departmental Committee on Science, Technology and Innovation, July 2004

The Action Plan will entail commitment to research across all sectors including health, environment, energy, agriculture, marine, construction etc. Sector-specific issues require further consideration. Key areas, identified as having major potential for development in Ireland, need to be sustained and proactively pursued. The Council notes that recent cut-backs in some sectors may give rise to significant departures from the measures set out in the National Development Plan (2000-2006). Such sectoral departures require careful and urgent review in the context of the overall Plan so as to ensure its integrity.

ICSTI recommends that Government respond quickly to the targets set for Ireland given the urgency related to their achievement within a five-year timeframe i.e. by 2010. The Council recommends that Government should use the European Research Area initiative as the springboard towards the establishment of the new long-term budgeting strategy for S&T.

In particular, provision should be made for:

- ***A significant increase in the number of researchers currently in employment in Ireland. The flow of high quality people into science, engineering and technology is important in this context and ICSTI reiterates the need to continue to progress initiatives to achieve the objectives in the Department of Education's Report of the Task Force on the Physical Sciences;***

- ***A doubling of R&D performance in the higher education and public research sectors, and a doubling of business investment in R&D. This requires a commitment to research in all sectors, including health, environment, energy, agriculture, marine, construction etc.***

2.3 Sustaining Investment in Building Research Infrastructure and Excellence

ICSTI notes that Ireland's investment in oriented basic research at the highest level, through SFI, is changing the culture and positioning of the country very positively for the competitive years ahead. ICSTI continues to support this investment and reiterates the absolute necessity for continued, focused funding of R&D as an essential component of Ireland's development as an internationally competitive, knowledge-based economy.

Through the establishment of SFI, Ireland has initiated the largest investment in scientific research and engineering in its history. Ireland, thereby, joined the growing number of countries which have recognised that major investments in these activities are required to keep modern economies competitive.

SFI supports creative and talented people, bold and sophisticated ideas, and strong and effective partnerships. By investing strategically in these areas, SFI promises to significantly enhance

Irish science, engineering and economic growth, and bring Ireland distinction for its sustained research excellence. SFI's initial focus is on fields that underpin biotechnology and information and communications technologies. These fields, and interdisciplinary links amongst them. promise more than any others to drive scientific and economic advancement in the decades ahead. In this context, Ireland's affiliation with leading industries in related fields gives it special competitive advantages.

ICSTI notes that the Higher Education Authority's (HEA's) Programme for Research in Third Level Institutions (PRTLI) has facilitated support across a broad spectrum of research fields and has helped create research infrastructure that facilitated the establishment of critical mass for research groups capable of competing at the highest level. However, the level of capital provision through PRTLI for 2004, and the proposed phasing over five years, will not match the demand for immediate provision of

under-pinning capacity and facilities given Ireland's targets as part of the European Research Area. In particular, investment in PRTLI must be sustained and enhanced in order to create capacity for the Irish higher education sector to enable it to perform, as envisaged, in the Irish Action Plan. In order to achieve the target of 9.3 researchers per 1,000 total employment, the higher education sector will need to enhance its output of researchers, which can only be done on the basis of an expanded and well resourced higher education infrastructure.

The evaluation of the PRTLI, completed in July 2004, concluded that it had done much to address historical deficits in infrastructure and capacity and recommended that the PRTLI be maintained so as to ensure the establishment of a quality, internationally competitive research system in Ireland. The responsiveness of the Programme to a changing research environment is seen as crucial for development in the future. ICSTI will review this responsiveness, in the context of sustainability, during the coming year.

The Council welcomes Government's decision, in June 2004, to establish a Cabinet Committee on S&T, supported by an Inter-Departmental Committee and the appointment of Ireland's first Chief Science Adviser. The ICSTI Commission *Report on a National Framework for Science, Technology and Innovation* highlighted the importance of effective oversight and review of the S&T investment underway and the need to provide strategic direction and coherence to national investment. ICSTI reiterates the need for close collaboration between the research funding bodies and, in this context, the importance of establishing and maintaining compatibility between the SFI and HEA investments.

ICSTI recommends that funding for research infrastructure development, under the Higher Education Authority, be sustained and that a commitment to funding for a successor programme to the PRTLI be provided.

2.4 Sustaining the Development of the Higher Education Sector

OECD indicators clearly illustrate Ireland's positioning in terms of higher education. For example, Ireland ranks ninth in terms of expenditure on tertiary educational institutions per student. Graduation benchmarks illustrate that while Ireland is second (after Japan) at diploma and certificate level, it ranks eleventh at degree level and fourteenth in terms of advanced research degrees. The Government has set as a target performance at, or above, the OECD top quartile while the HEA (endorsed by the Enterprise Strategy Group) has set performance at, or above, the top decile as its goal.

The 2004 recurrent grant allocated to the universities totals €631 million. The 2003 out-turn was €629 million, thus representing virtually no increase in grant in 2004 over 2003. Inescapable pay costs (e.g. sustaining progress, benchmarking) and non-pay costs (e.g. inflation) indicated that an additional estimated €50 million would have been required in 2004 over 2003.

As a result, institutions have had to reduce their expenditure in both pay and non-pay areas. These cutbacks are in addition to those implemented by the institutions in 2003 and the cumulative effect is impacting on the level of services provided by the universities. The real decreases in the recurrent budgets of the higher education sector in 2004, if continued in 2005, will have a serious impact on the provision of services to students. Such a situation would be untenable given the importance of the education strategy in Ireland's research agenda e.g. to train scientists and engineers in Ireland's bid to achieve its European Research Area target of 9.3 researchers per 1,000 of total employment by 2010.

There is a need for an immediate re-assessment of Government funding of the universities to ensure that the required basis is provided for achieving the national objective of making Ireland an internationally competitive, knowledge society.

3.0 SUPPORT FOR R&D AND INNOVATION IN SMALL-MEDIUM ENTERPRISES (SMES)

3.1 R&D Tax Credits

The introduction of the tax credit for incremental R&D expenditure is an important move towards ensuring that Ireland would not be at a competitive disadvantage as a location for foreign direct investment and to stimulate higher R&D spending by enterprises in Ireland. The incremental nature of the tax credit and the rate of 20 per cent of qualifying expenditure, which is at the lower end of the range for such incentives internationally, is a first step to provide an effective incentive to industry to increase R&D so as not to place an unreasonable burden on the Exchequer. This system can disadvantage those who have made significant investments in R&D already and can also serve to distort business planning for R&D because of the cyclical nature of the calculation of incremental spend. The Enterprise Strategy Group has recently recommended an assessment of the effectiveness of the R&D tax credit and modifications to the scheme if necessary.
In this context, ICSTI recommends that the tax credit should be evaluated and extended to a volume-based approach as needed.

3.2 SME-Specific Fiscal Incentives

In reality, the introduction of the R&D tax credit is of use primarily to large firms. In Ireland, grant aid continues to play a major role in supporting R&D activity in SMEs. Recently, several European countries have also introduced SME-specific fiscal incentives which are particularly suited for these types of firms, given that they have relatively low administrative costs compared to direct financial incentives.

In the UK, relief for current spending on qualifying R&D was increased from 100 per cent to 150 per cent for SMEs in April 2000. In addition, SMEs that are not in profit can take the relief up front and reduce the cash cost of their R&D by 24 per cent[2]. In the Netherlands, the general fiscal measure is also more generous for start-ups, providing them with up to 50 per cent additional credits than is available to other enterprises.

[2] *The UK is also planning to establish a funding mechanism to improve capital funding for SMEs with initial equity funding of between £250,000 (€357,000) and £2 million (€2.9 million). Initially £44 million (€63.8 million) has been allocated to cover the cash-flow cost of the leverage for an initial period of 10 years.*

"As Ireland tries to establish itself as a knowledge based economy it is vital that research and development is supported at all levels and, in particular, within SMEs. The growth of SMEs through research is essential for Ireland to maintain its competitive edge on a global scale. An essential element to producing a competitive research environment is the incentive of R&D tax credits. Ireland needs to continually re-examine its policy in this area to ensure that investment in R&D within Ireland remains both attractive and competitive".

Diarmuid O'Brien, Business Development Manager, Deerac Fluidics

The Council recommends the continued development of a competitive mix of fiscal incentives for Ireland and proposes that, based on international best practice, a SME-specific instrument, competitive with those available in the UK for start-up companies, should be considered in parallel to expansion of the existing R&D tax credit.

3.3 Public-Private Partnerships for Research and Innovation

Throughout Europe, there is growing recognition of the need for improved linkages between third level institutions and industry, and SMEs in particular. Over the last two years, along with a stronger focus upon the contribution to commercial outputs, existing partnership programmes were expanded, for example, in Australia and the UK. Some OECD countries also introduced new schemes. For example, Denmark has launched a Technology Network scheme to support business enterprises and knowledge institutions, at regional, national and international level, to set up joint knowledge networks.

These networks are to promote long-term collaborative partnerships between different stakeholders such as business enterprises, universities, government research institutions, approved technology service institutes, centres for tertiary education and others.

In Ireland, the Business Expansion (BES)/Seed Capital Scheme (SCS) has provided a valuable source of public-private funding for technology start-up companies in recent years. ICSTI welcomes the extension of these schemes, and the increased company limit from €750,000 to €1 million, as announced in the Budget for 2004.

ICSTI welcomes the recent establishment by the Irish Research Council for Science, Engineering and Technology (IRCSET) of a pilot scheme of cooperative awards with selected industrial sectors. The pilot scheme, which is modelled on the experience of the Engineering and Physical Sciences Research Council (EPSRC) in the UK, offers great promise by leveraging State funds in the training of researchers and by obtaining strong stakeholder interest in the structure of postgraduate education.

ICSTI endorses the recommendation of the Enterprise Strategy Group that public funding for applied research and in-firm R&D should be progressively increased to match that invested by the Department of Enterprise, Trade and Employment in basic research.

The commercialization of research is core to achieving a return on investment in research. In order to promote the commercialization of research, ICSTI has developed a National Code of Practice for Managing Intellectual Property (IP) from Publicly Funded Research (Jan. 2004). This Code seeks to address the issues on IP management that arise as we move to become an internationally competitive knowledge-intensive economy and enterprise base.

"Given the current investment in R&D, the universities are likely to play an increasingly important role in the generation and development of research-intensive ventures. However, it must be recognised that the availability of resources to support innovation and technology transfer is essential to ensure the success of this process".

Dr. Pat Frain, Director, NovaUCD, June 2004

In response to a request by the Tanaiste, ICSTI has commenced the development of guidelines for the management and commercialization of co-funded IP as a step towards making Ireland the most attractive location for collaborative research in terms of its IP and commercialization policies. There is a strong need for funding for commercialization and patenting, in addition to resources for Technology Transfer Offices, which is central to achieving this.

The Council welcomes the recommendation of the Enterprise Strategy Group to establish a competitive innovation fund for higher education institutions, to encourage the exploitation of research and knowledge and deliver innovative services to enterprise. The Enterprise Strategy Group propose that a proportion of the fund should be ring-fenced to support the Institutes of Technology in fulfilling this role. The Institutes of Technology possess strong potential to support industry in Ireland. Their offering, in terms of teaching and research, is very relevant to the SME base whose research needs are better met by closer-to-market projects and who will find it challenging to access the results of basic research. In keeping with the National Spatial Strategy, the Institutes' regional spread also feeds into Enterprise Ireland's goal to develop regional innovation hubs. ICSTI endorses Enterprise Ireland's proposals for the evolution of the Institutes of Technology into key partners for industry requiring strong financial support in order to increase their scale and capability.

The Council, recognizing the need for continuation and growth of initiatives aimed at improving linkages between higher education and industry (and SMEs in particular), recommends

- ***Further provision to inform and educate SMEs on innovation needs/opportunities and R&D;***
- ***Extended funding for higher education-industry cooperative R&D (applied research), which would be led by the industrial partner;***

- ***Expansion of the available talent across the science, engineering and technology disciplines trained for advanced research degrees. Appropriate funding needs to be provided by the Department of Education and Science to IRCSET to support a doubling in high quality PhD output in the period to 2010, over 2001 levels;***
- ***Strengthening of the commercialization function within the higher education sector, creating a supportive culture for researchers to work closely with industry and to see their ideas brought to the market.***

3.4 Technological Absorptive Capacity of Indigenous Industry

A vibrant SME sector is of paramount importance to the Irish economy. While every effort must be made to stimulate the domestic high-tech sector and, in particular, high-tech start-ups and spin-outs, an imperative of industrial policy must be to upgrade the technological capability of mainstream industry which comprises, overwhelmingly, of small to medium sized SMEs in low to medium-tech sectors.

The Feira European Council (June 2000) endorsed an EU Charter for Small Business as a way of making progress towards the Lisbon objective. The Charter states that "small businesses must be considered as a main driver of innovation, employment, as well as social and local integration in Europe". It is difficult to see how Ireland might achieve its substantial increase in investment in R&D, without the SME sector's greater involvement in research, development and, particularly, innovation. This can only happen if we strengthen the technological capability of firms.

In this regard, there is a strong rationale for promoting networks, clusters and linkages as channels of knowledge interaction and acquisition for the firm. SMEs are so dependent on external sources of knowledge that these channels are essential for them. Networks and clusters accelerate the learning process and, most important of all, they facilitate the diffusion of knowledge. In this

context, the Enterprise Strategy Group has recently recommended an allocation of €20 million per annum, for five years, from existing budgets to support the creation of enterprise-led networks to foster collaboration in defined areas of activity.

The Council recommends that initiatives to foster the development of networks, clusters and linkages among firms and academia to raise the technological absorptive capacity of enterprise in Ireland be supported with specific funding and strongly promoted.

4.0 CONCLUSION

In this Statement, ICSTI has deliberately focused on selected areas where there is real and immediate need for change. ICSTI has recommended an immediate response by Government to the targets set for Ireland in building an internationally competitive knowledge-based economy, given the urgency related to their achievement within a five-year timeframe. The Government must adopt a new and longer-term outlook, based on international best practice, in budgeting for S&T to attract and retain world class researchers, to promote science and engineering as careers to our young and to underpin business investment in high value-added product development.

ICSTI recommends retaining and further developing Ireland's competitive mix of fiscal incentives. In this context, the Council has proposed that, based on international best practice, a SME-specific instrument, competitive with those available in the UK for start-up companies, should be considered in parallel to expansion of the existing R&D tax credit.

ICSTI believes that proactive adoption of such recommendations will confirm Government commitment to the development of an internationally competitive knowledge-based economy and will contribute significantly to Ireland's development as a knowledge-based society.

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ICSTI STATEMENTS (1997 - 2004)*

Title of Statement	Date of Publication
State Expenditure Priorities for 2005	August 2004
Sustainable Development in Ireland: The Role of Science & Technology	May 2004
Nanotechnology	Jan. 2004
National Code of Practice for the Management of Intellectual Property from Publicly Funded Research	Jan. 2004
EU Debate on the Role of Fundamental Research	Nov. 2003
A Comparison of Starting Salaries for Science Graduates and Engineers	Aug. 2003
State Funding Priorities for 2004	July 2003
Utilising Intellectual Property for Competitive Advantage	Feb. 2003
Embedding the PharmaChem Industry in Ireland	Feb. 2003

Design and Development	Sept. 2002
Measuring and Evaluating Research	Aug. 2002
Report on Biotechnology	Feb. 2002
Commercialisation of Publicly Funded Research	Feb. 2001
Benchmarking School Science, Technology and Mathematics Education in Ireland Against International Good Practice	Feb. 2000
Science in Second Level Schools	Nov. 1999
Public Sector Research and Technology Services for Innovation in Enterprises	Sept. 1999
Technology Foresight Ireland[3]	April 1999
Investing in Research, Technology and Innovation (RTI) in the Period 2000 to 2006	Mar. 1999
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Science in Primary Schools	May 1998
A Partnership Approach to Research Funding – The Need for a National Science and Engineering Board	May 1998
£250 million Scientific and Technological Education (Investment) Fund	Jan. 1998
State Expenditure Priorities for 1998	Sept. 1997

*A CD of ICSTI Statements published between 1997 and 2001 is available from the ICSTI Secretariat.

[3] *A suite of nine reports comprising an ICSTI overview and eight individual reports from expert panels established in the following areas: Chemicals & Pharmaceuticals; Information & Communications Technologies; Health & Manufacturing Processes; Health & Life Sciences; Natural Resources (Agri-Food, Marine, Forestry); Energy; Transport & Logistics; Construction & Infrastructure.*

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