ICSTI
IRELAND

Irish Council for Science,
Technology and Innovation

Statement on Public Research and Technology Services for Innovation in Enterprises

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Forfás

Established by the Government and Forfás to advise on Science, Technology and Innovation

CONTENTS

FUNCTIONS OF THE IRISH COUNCIL FOR SCIENCE, TECHNOLOGY AND INNOVATION (ICSTI)

- To advise on science and technology 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 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 and technology and related matters.

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

- 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. In this case the information sought is to be submitted to the Minister.

SUMMARY

This Statement puts forward a set of policy principles and guidelines that relate to the undertaking and delivery of public research, technology and innovation (RTI) services to enterprises. These principles and guidelines should be seen in the context of the proposal to extend the Strategic Management Initiative (SMI), already operating within the civil service and some research institutes, to all bodies (including all research and technology services providers) within the wider public sector. In drawing up these principles, current 'best practice' has been taken into account. This has included looking at the experiences of many state research and technology services providers in Ireland and those outlined in the Overall (or 'Meta') Evaluation of the mainly university-based Programmes in Advanced Technology (PATs) carried out by the Industry Evaluation Unit in 1997. Lessons arising from international patterns and trends, including the approach being adopted towards issues such as the commercialisation and privatisation of existing public services and the respective roles and functions of public and private sector organisations in the future, especially in other small European countries, are also taken into account.

'Services' here means those research and other activities (including technology transfer, testing and technical consulting) that have an existing or clearly targeted 'client' or 'client group', as opposed to those undertaken 'to advance the general body of knowledge'. The Statement mainly relates to the provision of such services to the enterprise sector through state/public organisations. It has implications for the state-financed provision of research and technical services through the Higher Education (HE) colleges to support innovation e.g. Programmes in Advanced Technology and the Technology Centres Programme (the latter being mainly based in the Institutes of Technology). This Statement does not make any overall judgement as to what kind of institutions can best supply public research and technical services to industry. The Statement does take account of the interface between the purely commercial needs of enterprises and wider social/'quality of life' needs.

A series of issues and recommendations are outlined regarding the better identification, management and delivery of public sector research and technology activities and services, with the major focus on services for innovation in enterprises. Innovation in enterprises involves the successful market introduction of new products and processes as well as the improvement of existing products and processes, is often based on organisational change and usually involves the development and application of new technology.

The issues and recommendations regarding the role of public research and technology services in assisting innovation in enterprises fall into the following categories:

- **the type of activities to be undertaken, the clients/users to be addressed and how services should be delivered.** *(Services Provision – 5 issues, Section 3.1);*

The most important recommendation in this regard is that: *Routine services should, where possible, be provided by the private sector. The state should initiate a continuous process that monitors needs, reviews responses and addresses identified problems in a consistent manner and ensures the provision of services where strategically important. These services could be provided from an appropriate mix of private and public sector sources, with private services providers being positively encouraged. However, public research and technical institutes and/or the Higher Education sector should supply a range of more long-term, 'anticipatory' services.*

- **making a measurable difference to the way in which public research and technology organisations are funded and managed.** *(Management – 5 issues, Section 3.2);*

Here the concern is with the need for service providers to plan strategically for the resourcing of their own 'businesses', and with the need for them to have the support of their parent departments in the formulation and implementation of such plans – *both short*

and medium-term planning and reporting must be introduced, or continue to be encouraged, for all RTI organisations and activities. Reporting should be transparent in terms of setting targets, monitoring progress and leading to the requisite actions, where necessary.

- **how the strategic roles of different types of public service providers should be formulated and governed in the future.** *(Service Providers – Government Department relationships – 3 issues, Section 3.3);*

In addition to being the 'owners' of public bodies providing research and technology services and thus having the role of setting their 'terms of reference' and targets Government Departments are often direct customers themselves or represent clients that cannot easily articulate their needs e.g. small firms. Thus the recommendation that: *Each Department must articulate its needs in terms of (1) its own 'internal' requirements, particularly from the 'agencies' and 'offices' within the Department itself; (2) its service requirements from other parts of the public sector, including the public research institutes and the HE colleges, and (3) the broad requirements of the industrial and commercial clients that come within its policy remit.*

The activities and services addressed in the Statement include:

- all client-based services provided by state/public organisations; and

- those provided by the HE sector that are part of publicly-funded national programmes such as the Programmes in Advanced Technology (PATs), the Technology Centres Programme and Non-Commissioned Food Research.

A number of important issues that arise in the detailed formulation and execution of specific research assignments and technology transfer projects, such as those relating to intellectual property rights (IPR), are not addressed in this Statement.

BACKGROUND

This Statement aims to set out a policy framework for the provision by public sector bodies of research and technology services for innovation in enterprises. Research and technology services and their providers are facing an increasingly competitive and complex future in the new millennium, not just locally and nationally but in what is rapidly becoming a global marketplace. It is (1) in the context of this emerging market environment, (2) on account of the fact that ICSTI (through its major Technology Foresight exercise) has made recommendations on an extra £100m expenditure annually in state-funded research and (3) because of the proposed extension of the SMI within the public sector that it has been decided to issue this Statement. The recommendations coming from Technology Foresight include the establishment and further development of appropriate and responsive 'research centres', based on both relevance and excellence criteria. This Statement is intended to set out a number of principles and 'best practice' guidelines for the operation of existing and new public sector services within a revamped institutional and funding framework for RTI. Such activities may be performed within state and public research and technology services organisations or within the HE sector under programmes funded from public sources.

Provision of Research & Technology Services

The current arrangements for the public provision and delivery of research and technology activities and services for enterprises can be summarised as follows:

State and Public Bodies

- Research & Development Organisations & Technical Institutes – including Enterprise Ireland – Technical Services. EI has in-house responsibility and capacity for undertaking some applied research and technical services for industry. Teagasc is responsible for agri-food research and also has responsibility for training and extension services to farmers. The Marine Institute promotes, coordinates and undertakes marine R&D while the Health Research Board performs a similar role for the medical and health sector.

- Departmental Offices/Units/Laboratories – the Geological Survey of Ireland and the Ordnance Survey of Ireland, Met Eireann (within the Department of the Public Service) and the State Lab (within the Department of Finance) for example. These provide some services for enterprises but mainly for 'public good' clients, including their parent departments.

- Regulatory Agencies – including the Environmental Protection Agency, which is mainly a regulatory body to promote improved environmental protection, but also responsible for environmental research; the Food Safety Authority regulates the safety of foodstuffs and sponsors and coordinates research relevant to that field.

HE Colleges
(through state funding of specific programmes and initiatives)

- The universities (7); the Dublin Institute of Technology (DIT) and the regionally-located Institutes of Technology (11), are involved in applied research and technical services.

  These HE-based activities are undertaken primarily through the Programmes in Advanced Technologies (PATs), which are 'national programmes' largely made up of university-based research centres, and the Technology Centres, mainly based in the Institutes, as well as through the Non-Commissioned Food Research Programme. The Microelectronics Applications Centre (MAC) operates out of the University of Limerick while the National Microelectronics Research Centre (NMRC) is a large-scale, dedicated NUI Cork-based research facility.

The public bodies fulfil broadly defined development and regulatory functions, including protecting and promoting 'the public good' and embracing knowledge development, education, training and skills as well as research, technology transfer and innovation support services to enterprises.

The 'funded services' activities of the universities and the other HE colleges have grown in strength and influence over an extended period. While in agriculture, food processing, marine and other natural resources areas applied research is concentrated in state/public research institutes, in other areas of applied industrial research Ireland has substantially moved to a HE-centred approach. As stated by the OECD Secretariat[1] 'Government-funded R&D performed by institutions of higher education has increased over the past decade, while that performed in government laboratories has remained relatively stable'. This trend has been reinforced in the Irish case by the establishment of the Programmes in Advanced Technology, (PATs). These networks of centres, based in individual universities across the country, facilitate access to particular advanced technologies. PATs are designed to utilise the knowledge and expertise located within the HE sector, to contribute to the competitiveness of existing industry, particularly Irish-owned firms; to attract new overseas firms to Ireland, and to aid the establishment of technology-driven start-up companies.

The position of the HE sector has been helped by an opening up of college policies and attitudes towards the needs of industry, a trend which has partly been forced on them by scarcity of funding. HE research has had to find alternative clients and has been successful in doing so, especially within European Programmes, and to a lesser extent within Ireland. In parallel with these trends research programmes in agriculture, food processing and the marine area have been substantially redirected and strengthened in recent years.

A number of challenges reinforce the timeliness of this Council Statement, including:

- the Strategic Management Initiative which is being implemented in the civil and public service, including a number of public research institutes, has major implications for research and technology services providers in general;

1 Science, Technology and Industry Outlook 1998, OECD Paris 1998, p.55

- the relative dependence of services, particularly research activities, on European Structural Funds which are now under discussion for 2000-2006;

- the growing technological competence of Irish-based enterprises and the requirement for specialist services;

- the increasing number of private service providers with the capabilities to address some of the needs of the enterprise sector.

CURRENT AND FUTURE POLICY CONTEXT

The 1990s have seen a significant reappraisal of Irish science, technology and education policies. New arrangements for policy advice and co-ordination, including Inter-departmental and Cabinet Committees on Science, Technology and Innovation and new funding mechanisms for Higher Education (HE) college-based research activities, have been established.

In the agri-food, marine and health areas in particular, attention has been paid at a strategic level to what research and technology services should be provided and how they should be funded and delivered. This example now needs to be followed in some further areas. The evolution of public sector research and technology services has been reflected in a series of ad hoc responses to particular pressures and a preoccupation with a 'technology-push' approach. The need to address the 'total innovation process' and its impacts on both firms and society is increasingly coming to the fore as the context within which the role of these services should be defined.

This broader context is subject to continuous change, including the emergence of new relationships between researchers, firms and society. The model of self-regulating science, with peers as sole arbiters, involving the free dissemination of knowledge and the independence of experts, for example, may no longer be valid. Social demands and needs are becoming increasingly more important and are being merged with more classical user needs. These demands are evident especially in areas like environment, health, genetics and food safety. They are having a new influence on the elaboration of public policies for RTI and are demanding a multidisciplinary response.

Key public sector roles include:

- supporting the development of public policy, e.g. in health, education, natural resources and the environment, including legal and regulatory aspects;

- a catalytic role in technological and industrial development, mainly seeking to stimulate new actions by others;

- correcting for 'market failure' – the traditional justification for state intervention;

- stimulating and utilising new forms of economic organisation e.g. private-public partnerships (PPPs);

Activities in which public sector organisations are now involved include:

- part-funding and performing research and particularly providing technology transfer and other technology services for enterprise development and competitiveness, where that service is not available elsewhere;

- encouraging spin-offs and the establishment of new technology-based firms;

- supporting SMEs in identifying, evaluating and facilitating solutions as well as directly addressing opportunities (and threats), including those within the new 'social' paradigm outlined above.

This Statement relates to the role of the public sector in performing research and development and in the transfer to and application of technology for innovation in the enterprise sector. Most analysts agree that individual enterprises cannot capture the full benefits of their R&D activities and therefore tend to under-invest in the research element in particular. This can be partly compensated for by state funding of industry-performed R&D but there still remains a gap which has to be filled through the performance of research activities within public sector organisations, including research institutes and HE colleges. These activities are often carried out with a user, a group of users or a potential user or set of users in mind. Such activities are

especially important for SMEs, where the necessary capabilities and private services are often missing. However, having an R&D capability in the enterprise is highly desirable, as has been made clear in the ICSTI Statement on 'Innovation in Enterprises in Ireland' published in 1998.

The public science and technology infrastructure must also balance its resources to allow it to address 'public good' and social needs as well as more narrowly-defined industry needs and opportunities. All of this means that the state and its civil and public servants both at the policy level and in the 'implementing' agencies must have a clear strategic perspective on how the research and technology-related activities being undertaken are chosen, funded, managed and organised.

Service Provision

In providing services to clients it is important that public bodies address clearly identified 'user' needs at both the individual enterprise and 'group' levels. This is not just a matter of form but of continuing dialogue both with individual firms and with formal and informal networks of enterprises, including industry representative bodies and associations.

Some of the issues and recommendations that arise from such a dialogue are of a short-term, immediate nature, reflecting clearly defined needs on the part of the user. Longer-term 'needs' tend to be more strategic and speculative in nature, with a higher level of risk and uncertainly in choosing the areas on which to concentrate.

The planning and provision of all research and technology services by public agencies and the HE sector through, for example, the Programmes in Advanced Technology, should be aligned with strategic needs. This will be particularly important in implementing the results of the current Technology Foresight exercise, which highlights the role of new 'centres of excellence' in the wider public sector, including public research bodies and the HE sector.

> **Issue 1 – *What policy approach should public bodies adopt in responding to the routine research and technological needs of enterprises?***

A wide range of research and technology services are provided by public agencies. However, those of a routine nature could be (and in some cases are) provided by private sector operators. These include areas such as testing and the certification of standards. In recent years the HE colleges, through the Technical Centres programme and other initiatives, have also been providing certain technical services. All of this indicates that there is a clear 'need' and even 'demand' in economic terms for such services. This has been confirmed in a number of recent surveys of both indigenous and overseas firms.

In principle, such routine services should be provided by the private sector. This should be positively encouraged and public organisations should not compete in markets where there is a 'commercial' level of demand. In practice, there will be some day-to-day services that must be offered by public organisations and HE institutions. The rationale for this will have to be reviewed on an on-going basis as an aspect of public policy. There will undoubtedly be areas for example in which there are real needs but not the full market demand required to attract private sector operators. Any system to identify and monitor such routine service requirements must include provision for the closing/privatisation of public services in areas that have become redundant or for them becoming fully commercial over time.

Recommendation: ***Routine services should be provided by the private sector. Where such services are being efficiently provided by the private sector, state bodies should withdraw. The state should institute a continuous process that monitors needs, reviews responses and addresses identified problems in a consistent manner and ensures the provision of services where strategically important. These services could be provided from an appropriate mix of private and public sector sources, with private services providers being positively encouraged.***

Issue 2 – ***How should future technological and innovation opportunities be anticipated?***

There are a number of other areas where only the public authorities can act to address longer-term strategic gaps. These include new areas of technology at a pre or early stage of application as well as health, safety and regulatory activities in areas such as biotechnology.

The small scale of and consequently low level of expertise available to indigenous industry in particular means that it is difficult for firms to adapt and adopt innovations. Small countries must maintain a level of research competence in a number of 'niche' scientific and technological fields, in addition to having the capacity to monitor and

assess what is happening more generally in research and technology worldwide. This implies a need to concentrate resources in terms of both activities and institutions. Such choices may be difficult but they are essential if new areas of world competitiveness are to be developed and existing markets maintained. Foresight should be a continuous process, aimed at identifying such priorities.

Recommendation/s: ***The state has an increasingly important role in:***

- ***awareness-raising and the technology diffusion process– involving information provision, demonstration and other activities;***
- ***assisting enterprises in the management of innovation from product concept through design, prototyping, testing, production engineering etc. to commercialisation. The development of a number of existing and, where necessary, new centres incorporating all of these competences (i.e. focusing on an integrated approach to the process of innovation) is urgently required;***
- ***acting as a research and technology broker or intermediary for enterprises in identifying opportunities for spin-offs and negotiating regional, national and, particularly, international research and technology links e.g. through the European Research Framework Programme and EUREKA.***

Issue 3 – ***What specific roles should the state perform in anticipating and promoting the opportunities presented by generic technologies, such as information and communications and biotechnologies?***

The Technology Foresight exercise recently undertaken by ICSTI has identified a number of major enabling technologies on which there needs to be a significant focus in terms of the formulation and implementation of national policy for research, technology and innovation and where the need for appropriate services arises.

Foresight has concluded that the state has a major role in information and communications technologies and biotechnologies, as well as other emerging and generic technologies. A competence to evaluate and assess these technologies, in addition to appropriate research, promotional and awareness-type activities, is required. The current Programmes in Advanced Technology (PATs) have represented a significant initiative in this regard.

Good practice requires that Departments and agencies use information and communications technologies (ICTs) to promote and facilitate access to best advantage in delivering their own services to industry and other users.

Recommendation: ***In sectors and technologies that are emerging or are strategically relevant for Ireland the state system needs to be at the forefront in 'development' and particularly 'application'. Well-designed and managed national programmes are required – funded on a scale to have real impacts for product and process innovation.***

Issue 4 – ***How can the research and technological service requirements of enterprises be best articulated?***

Despite the great challenges involved, especially for micro and small firms, it is important that enterprises themselves be in the position – both individually or collectively – to define their needs as clearly as possible and to specify what they require in terms of public research and technology services.

Enterprises can be assisted in this process by industry networks, clusters and associations and by the public sector bodies themselves, particularly through the application of appropriate diagnostic and auditing techniques.

Recommendation: ***'Best practice' diagnostic and auditing techniques and tools should be applied across sector and size in identifying firm needs and the requisite responses from bodies involved in providing public research and technology services.***

Issue 5 – ***How can the allocation of services activities to enterprises and for the 'public good' be balanced?***

In devising overall roles and strategies for the supply of public research and technology services the needs of the general public and of the state itself as an institution, in addition to those of industry and other commercial users, must be taken into account.

In areas such as health, the environment and food safety, there is a requirement for a high level of research and technology-related capability and expertise. Some of this is provided by organisations whose main focus has been on a classical 'technology push' approach to industrial clients but who are increasingly taking into account such public concerns in the new ethical and policy context identified above.

Recommendation: ***Government departments and agencies, where they are not already doing so, should devise appropriate plans and programmes to address the regulatory, public health and safety and the environmental dimensions of enterprise development.***

Organisation And Management

Bodies providing research and technology services face a number of issues and challenges in managing their activities and ensuring a clear and accessible approach to the supply of these services to firms and other users.

Issue 6 – *How can 'best practice' in strategic, business and financial planning be further developed in public research and technology services bodies?*

The Strategic Management Initiative (SMI) in the civil and public service, including some public research institutes, has led to the preparation of 3-Year Strategic Statements, especially at the overall Departmental level. The international experience is that strategic thinking and planning, including a clear Vision and Mission Statement, is also required at the 'implementation' level and particularly in research and technology-related areas where consideration of staffing and financing, for example, often extends over a period of longer than one year. Similarly, the outcomes and impacts of particular actions can often only be seen after some considerable time has elapsed.

Both annual and medium-term planning and budgeting are essential and are already undertaken by many Irish agencies and bodies, including some research and technology services providers. A 3-5 year plan of funding for current costs is now becoming common practice and should be matched by realistic targets for measurable outputs and impacts.

Particular problems arise in the public sector in the case of capital expenditures on buildings and specifically on expensive equipment that is used and amortised over a number of years. Needs are multiannual while funding is often annual.

This issue has recently been addressed in the case of the HE sector in the form of the Education Technology Investment Fund instituted by the Minister for Education and Science. The 1989-93 and 1994-99 Operational Programmes for Industrial Development allocating European Structural Funds have also adopted a multiannual approach to the funding of RTI expenditure. For all research and technology service bodies, including those in the HE sector, there is a need for continuous funding of the capital spending that is necessary for

providing their services. There is particular need to put the maintenance of capital assets (as well as their renewal) on a sound basis, with the requirement that standard accounting practice regarding their depreciation should be put in place.

Recommendation: ***Both short and medium-term planning and reporting must be introduced/continue to be encouraged for all RTI organisations and activities. Reporting should be transparent in terms of setting targets, monitoring progress and leading to the requisite actions, where necessary.***

Issue 7 – ***How best can the financial risk involved in maintaining existing and providing new public research and technology services be managed?***

In order to more intensively utilise existing skills and equipment and to provide new and innovative services there is a need to look to public-private partnerships as an integral element of modern technology policy which looks to market-pull co-operative ventures rather than technology-push from government. In addition to reducing risk and allowing for cost-sharing, such partnerships, both within Ireland and in the other European Union countries, can help firms to access skills, monitor new developments and allow them to undertake exploratory research outside their core business.

Recommendation: ***The potential for 'public-private partnership' funding in all appropriate areas should be further explored by public research and technology services providers and their clients.***

Issue 8 – ***How can Human Resources requirements, e.g. for the development of expertise, new competences and a balanced age profile of staff, be tackled urgently and in a strategic manner.***

Recent years have seen a series of embargoes or restrictions on recruitment in the public service. These have led to age structure problems in a number of programmes that have exacerbated

difficulties with shortages of expertise in new areas like information technology. It has also led to a lack of replacement staff for existing functions.

The current situation is unsatisfactory for clients, for the organisations themselves and those working in them. Greater mobility has long been an aspiration and, given current skill shortages, is now critically required across agencies, colleges and industry using a range of approaches. This can only be successful where organisations ensure that they have a sound core of technologists capable of underpinning innovation in the medium-long term.

Recommendation: ***These problems should be addressed by:***

- ***policies for flexibility in recruitment, including, where appropriate, special measures in selected priority disciplines, around a sound core of experienced technologists;***
- ***comprehensive in-service training programmes for IT and other skills;***
- ***a greater degree of mobility within and between public bodies and also with the private sector.***

Issue 9 – ***How can the challenge of strengthening relations within the wider research and technology services sector be addressed?***

With the exception, for example, of the administration of research funds; the brokering of partnerships between HE colleges, research institutes and other public and private organisations under the European Research Framework Programme (which may require further effort in order to be fully effective) and research fellowships funded by Teagasc, working relationships between state and HE bodies are small in number.

Strategic alliances between the public research and technology bodies and the HE colleges should be established. This could be a reflection at working level of the joint council established by IBEC and the Conference of Heads of Irish Universities (CHIU). There is evidence that relatively informal beginnings usually lead on to more formal relationships and networks.

Recommendation: ***All RTI bodies should devise and implement strategic alliances for cooperation, both in Ireland and within the EU.***

Issue 10 – ***How can similar challenges in strengthening relations with other bodies – particularly at international level – be addressed?***

Many aspects of the Irish infrastructure for research, technology and innovation can find their analogues in other countries. In addition to learning from their example it is timely to enhance the process of generating working links with counterparts in other, especially small, countries e.g. New Zealand. The options include:

- formal cooperation through the EU and other international bodies and

- involvement in relatively informal networks such as the 6 Countries Programme on Innovation, an informal group of international researchers, analysts and advisers in the area of innovation policy or TAFTIE (The Association for Technology Implementation in Europe) and the EURAGRI network (Directors of Agriculture and Food Research) dealing with issues that arise in the implementation of RTI programmes and services.

Recommendation: ***All organisations involved in providing public research and technology services (that are not already doing so) should build up their international networks. This will allow them to benchmark their activities and to compare 'best practices' with counterparts.***

Service Providers – Government Department Relationships

These 'governance' issues relate to the relationships between bodies providing research and technical services and Government Departments, including their own parent Department. Departments are both the owners of and/or key customers for different service providers.

> **Issue 11 –** ***How should Government Departments, as owners/shareholders, regulate the legal status of services bodies, communicate the desired strategic directions and monitor achievements without undue interference in the day-to-day management of public bodies?***

These relationships are more explicitly recognised and managed in the case of 'statutory' bodies, including research and development/ technical institutes such as Teagasc and the Marine Institute and regulatory agencies such as EPA, where roles and functions are specified in legislation. However, 'technical agencies' and other units that are actually located within Government Departments should have greater clarity regarding their roles and potential synergies. 'Agencies' can have a variety of origins and legal structures and some can lack clear overall and specific terms of reference with regard to important aspects of their activities. This may include the charging of fees for the services provided.

Government Departments now need to more formally recognise the responsibilities attaching to the ownership of these internal service providers in particular.

> **Recommendation:** ***As the owners of public research and technology organisations in general and internal technical agencies in particular, the Government Departments involved should:***
>
> - ***give clear direction and specific mandates regarding their roles, including industrial, commercial and public service functions across different Departments;***

- ***ensure an unambiguous definition of their legal and administrative status as well as their technical, ethical, business and other related responsibilities with regard to their interfaces with other Departments and their customers/ clients in industry and elsewhere;***

- ***require the bodies for which they are responsible to provide them with both strategic and annual plans;***

- ***set the terms and criteria on which outputs and impacts will be monitored and results will be assessed;***

- ***clearly distinguish between the kinds of strategic concerns noted and the responsibilities of management and boards to run their organisations without undue and inappropriate interference in operational matters.***

Issue 12 – ***When acting as 'key customers' for research and technical services, how can Government Departments clearly articulate their own requirements and the prospective needs of the 'client groups' coming under their aegis?***

In addition to being the owners of service providers, Government Departments and the client groups they represent, particularly micro firms and SMEs, should have their interests and particularly their future needs reflected in the type and cost of the services provided.

Customer-service provider relationships are better developed in the case of the statutory bodies specified above where parent departments tend to have clearly identified their specific service requirements.

Departments must clearly define, where they have not already done so, their own needs for technological support services both from bodies under their aegis and outside, as well as monitoring and anticipating the needs of those for which they have a policy responsibility, e.g. those of SMEs.

Recommendation: ***Each Department must articulate its needs in terms of (1) its own 'internal' requirements, particularly from the 'agencies' and 'offices' within the Department itself; (2) its service requirements from other parts of the public sector, including the public research institutes and the HE colleges, and (3) the broad requirements of the industrial and commercial clients that come within its policy remit.***

Issue 13 – ***How can public agencies and the HE colleges be assisted to act strategically where there is a need to clearly define and agree an integrated set of national horizontal and longer-term priorities?***

There is now the clear opportunity to make informed choices on priorities through the Technology Foresight exercise and other analytical and consultative policy formulation processes and structures. However, analysis and advice must explicitly incorporate the increasingly important social and managerial dimensions of policy.

In selecting priorities and taking action on them there should be a clear separation of responsibility for policy-making and its implementation.

Recommendation: ***Departments should fully utilise the new machinery, e.g. the Interdepartmental Committee, for the formulation and implementation of policies based on clear and agreed national priorities.***

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2 *Currently two vacancies.*

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ICSTI STATEMENTS TO DATE

State Expenditure Priorities for 1998	September 1997
£250 million Scientific and Technological Education (Investment) Fund	January 1998
Science in Primary Schools	May 1998
A Partnership Approach to Research Funding	May 1998
Mechanisms for Prioritisation of State Expenditures on Science and Technology	June 1998
Innovation in Enterprises in Ireland	July 1998
State Expenditure Priorities for 1999	November 1998
Investing in Research, Technology and Innovation (RTI) in the Period 2000 to 2006	January 1999
Technology Foresight Ireland[3]	April 1999
Science in Second Level Schools	October 1999

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; Materials & Manufacturing Processes; Health & Life Sciences; Natural Resources (Agri-Food, Marine, Forestry); Energy; Transport & Logistics; Construction & Infrastructure.

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