INNOVATION IN IRELAND

POLICY STATEMENT

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DEPARTMENT OF ENTERPRISE, TRADE AND EMPLOYMENT

INNOVATION IN IRELAND

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Introduction and Overview: Ireland and the Global Economy – the Challenge of Innovation

Our objective is to maintain Ireland's attractiveness as a competitive and dynamic country. Ireland should consistently be seen as one of the world's most desirable small economies in which to grow a business, develop a career and live a rewarding life in a stable yet progressive society.

The 21st century presents the country with considerable challenges. Globalisation, demographics and environmental issues confront us with increasing challenges, not just in terms of social and economic policies, but in the ways people live their lives and earn their livelihoods.

We have earned a privileged position in terms of prosperity and well being that has benefited all citizens and has been, at the same time, both unprecedented and extraordinary. This has been attained because for almost 20 years we have adapted to the inevitable forceful changes that small economies cannot avoid. We have done so in a world where economies are becoming increasingly interconnected and interdependent. However, the pace of social and economic change is accelerating, becoming less predictable, just as competition in our global markets becomes more intense.

Economic transformation has fundamentally changed the competitive characteristics of the country. We are no longer a low cost EU economy. Our future has to be based on building advantages based on the reservoir of skills, human capital and flexibility in serving markets. For Ireland in the 21st century, competitiveness will depend on merging these attributes with a flair and commitment to innovation that is unmatched in the markets in which we compete. Technology, innovation and the application of knowledge will be the wellspring that will transfer to the next generation the benefits of wealth and prosperity we have built for today's generation.

For a small outward looking economy, globalisation can provide many more opportunities and benefits than costs – especially for those who choose to meet market changes with a determination to adapt by innovation. Indeed, within the very challenges to continued growth, in terms of demographic and environmental issues, lie enormous possibilities if we approach them with creativity and ingenuity. For Government this means that, besides providing capital investment and a conducive legal framework, we are equipping ourselves with the best education, training and entrepreneurial supports. Success does not depend on Government and policy alone: it requires a joint commitment by enterprise, society and Government to promote innovation in every sphere of business and public service.

What is innovation and why is it important?

There is nothing particularly mysterious about innovation. Put simply, innovation is the creative process of exploiting new ideas. A more complex definition describes innovation as the exploitation of new ideas in pursuit of a competitive advantage including the development of new or enhanced products and services and the introduction of new business models, new organisational structures or new work practices.

The traditional view of innovation as primarily taking place in a lab had been replaced by a broader and holistic concept of innovation. Important firm-level innovation is often incremental and built on the day-to-day expertise of employees and their thorough knowledge of customers. What provides many companies with their edge is the changes employees can bring to service and product innovation. For most companies, innovation is about introducing non-technical adjustments that may cost little yet have a significant customer impact. For example, firms serving international markets from Ireland have been particularly successful in adopting innovative approaches to servicing international supply chains.

While enterprises and individuals are the primary sources of innovation, it is widely recognised that public policy can enhance the framework conditions for effective innovation. In accordance with the revised EU Lisbon Strategy for Growth and Jobs[1], Ireland's National Reform Programme (NRP)[2] recognises that science, technology and innovation are key drivers of competitiveness. Moreover, there is recognition at EU level of the need to intensify the pace of the Lisbon-driven reforms and to make the EU more innovation-friendly. In recognising this innovation challenge, the European Council, in March 2006, endorsed the European Commission proposals[3] for a comprehensive EU approach to innovation policy.

Innovation capacity is not dependant merely on a one-off set of reforms or on a single set of policy instruments. In the leading innovative countries, almost every policy domain is connected to innovation. This includes, not only increasing scientific and technological innovation, but also, boosting supports to education, lifelong learning, skills and supporting knowledge and physical infrastructures. We can stimulate innovation capacity by, for example, developing early-stage entrepreneurial thinking and risk taking, providing a pathway to the commercialisation of Intellectual Property, efficient regulatory practices and policies and the creation of markets and public procurement opportunities for innovative products and processes.

Creating the right framework conditions – Our Goals

Ireland's goal is to become a leader in innovation. We have already committed €8.2 billion under the National Development Plan (NDP) 2007-2013[4] to implement the Strategy for Science, Technology and Innovation (SSTI)[5] in supporting this objective. This investment is situated in a matrix of policy instruments which embraces a broad–based understanding of innovation and how interlinking policy areas can leverage our investment. To maintain our position as one of the world's wealthiest countries and to deepen the sources of our competitiveness, it is essential that we continue to maintain the best possible conditions across all policy spheres for supporting and sustaining innovation.

[1] http://ec.europa.eu/growthandjobs/index_en.htm

[2] The National Reform Programme outlines how each Member State is advancing the Lisbon Agenda on Jobs and Growth. Yearly updates are submitted by Member States to the Commission indicating progress. Ireland's Second Annual NRP Progress Report (October 2007) is now available at http://www.taoiseach.gov.ie/attached_files/RTF%20files/NRP%20progress%20report%202007%20FINAL.rtf

[3] Putting Knowledge Into Practice: A Broad-Based Innovation Strategy for the EU [September 2006- COM (2006) 502] at http://eur-lex.europa.eu/LexUriServ/site/en/com/2006/com2006_0502en01.pdf

[4] http://www.ndp.ie

[5] http://www.entemp.ie/science/technology/sciencestrategy.htm

Creating a set of framework conditions will enable Government, agencies, business, employees, educational institutions and research institutes to combine to raise the level of innovation and creativity throughout the economy. In this way we can continue to maintain Ireland as an attractive and distinctive place in which to invest, trade, learn, live and work.

Collaboration - among employees, between firms and alliances with technology institutes and universities – increases our innovation performance. Mutual economic benefits can be derived from knowledge-sharing and mentoring programmes between successful large companies and SMEs. Increasingly, it will also involve coalitions that cross national boundaries, building on the transnational programmes promoted by the EU and our other international partners. In this context our innovation policy will also connect with the regional innovation policy in Northern Ireland. Our objectives are mutually supportive for the benefit of the island economy.

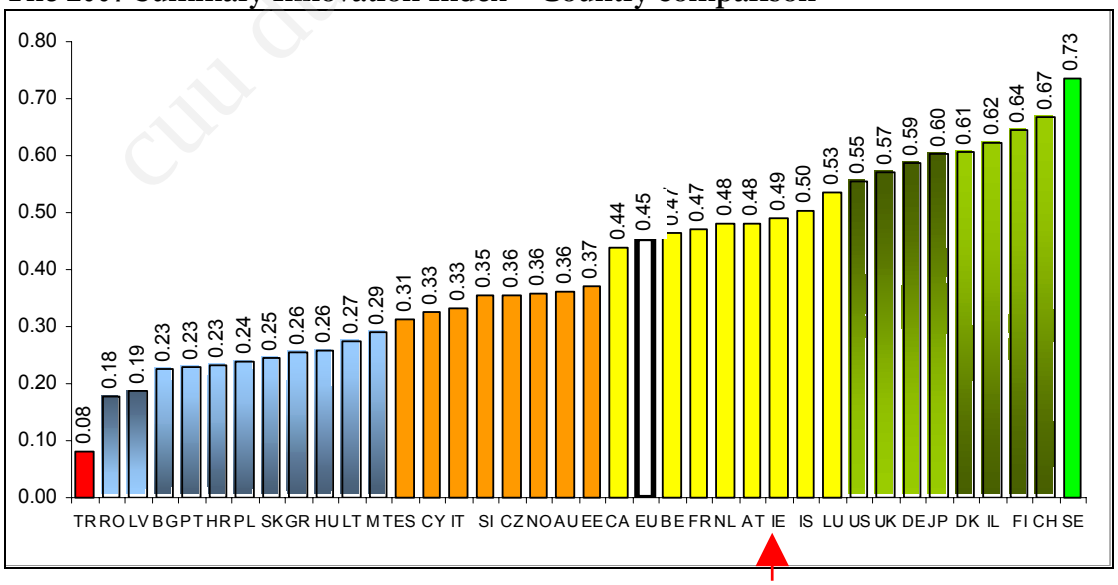
Addressing obstacles to innovation

Innovation is not just about introducing new initiatives. We are also addressing obstacles to innovation in particular areas of Government influence, such as the overall regulatory field, competition policy, public procurement, and our fiscal policies. Businesses also need to place innovation at the heart of their long-term strategies for achieving growth and competitiveness. Examining how firms are organised to deliver new products and services, together with an openness to innovation in the workplace, can yield dividends.

Where do we stand?

The European Innovation Scoreboard[6] (EIS) is an instrument developed at the initiative of the European Commission, under the Lisbon Strategy, to evaluate and compare the innovation performance of the EU Member States. Our performance has been improving steadily in recent years. We are currently ranked 12th (out of 37) in the 2007 Community Innovation Scoreboard, an improvement of three places over 2006, progressing towards our ambition of becoming an innovation leader.

The 2007 Summary Innovation Index – Country comparison



[6] http://www.proinno-europe.eu/admin/uploaded_documents/European_Innovation_Scoreboard_2007.pdf

Ireland's strengths lie in knowledge creation, science and engineering graduates and SME in-house innovation.

Policy Statement on Innovation

In June 2007, the Department of Enterprise, Trade and Employment began a mapping exercise to identify the current supports for innovation in Ireland, to explore specific areas where innovation can be better exploited and to look towards future innovation support arrangements. In this policy statement we have identified 10 key policy areas which underpin our approach to innovation in support of enterprise and the knowledge economy. The 10 areas are summarised below.

Chapter 1 and 2 outline the main threads of our Strategy on Science Technology and Innovation which is central to stimulating excellence in research and in creating a world-class innovation system. Delivering on the challenges outlined in the Government's *National Skills Strategy* and the commitment to lifelong learning are key priorities in tackling potential barriers to innovation and these are discussed in ***Chapter 3.*** The public sector, as a major purchaser of goods and services, is in a pivotal position to promote innovation through public procurement practice. ***Chapter 4*** deals with the role of *Public Procurement*. We will be asking public purchasers to take a fresh look at their purchasing practices and, together with a new Procurement Innovation Group, we will showcase innovative solutions to public procurement needs. It is about better matching-up our own R&D efforts with public sector markets. In ***Chapter 5*** we discuss the role of *Regional Policy* in stimulating innovation and how networks and cluster activity can be driven at regional level.

Intellectual property (IP), the subject of ***Chapter 6***, is a valuable asset in its own right and must be protected and managed to enable technology transfer and commercialisation to flourish. A favourable regulatory and taxation regime exists in Ireland for IP including protection in the services sector and assistance on how to manage IP rights.

In ***Chapter 7*** we look at emerging sectors such as the *Services Sector* which is becoming an ever more important locus for innovative activity within the knowledge economy. New thinking on services innovation is required to adapt to new models of economic activity taking place in the globalised marketplace. Work is progressing in the Forfás-led Services Strategy Group (SSG) to develop a national services strategy and to make high-impact recommendations in that regard. The Chapter also looks at growth opportunities in financial services and in environmental goods and services.

In terms of *Entrepreneurship*, Ireland is already highly rated as a good place to start a business. Our Development Agencies provide essential business and other supports throughout the regions. A retuning of supports towards better exploitation of innovation, including eco-innovation, and creativity in both manufacturing and services is discussed in ***Chapter 8***. The Social Partnership model has encouraged *Workplace Innovation* by supporting and piloting experimental initiatives in the workplace. This is discussed in ***Chapter 9***. The National Workplace Strategy forms the blueprint for stimulating workplace change and innovation through partnership. ***Chapter 10*** discusses how enhancing *Competition* and breaking down existing barriers to competition within the economy is critical to improving cost competitiveness, addressing consumer demands and fuelling innovation. Finally, *Better Regulation* can of itself drive innovation by removing unnecessary compliance costs and releasing economic activity from unnecessary burdens.

1. Building a World-Class Research System

Creating a leading innovative economy and enhancing our global competitiveness and productivity is an integral part of the Social Partnership Agreement, *Towards 2016,* and the agreed Programme for Government. In pursuit of those aims, the **Strategy for Science, Technology and Innovation (SSTI) 2006-2013**, launched in May 2006, provides a total budget allocation of €8.2 billion in combination with other investment initiatives under the National Development Plan (NDP) 2007-13. Globalisation demands that national economies must devote significant resources to ensure high levels of investment in research, development and innovation (RDI), both for economic competitiveness, and to yield innovations in areas such as healthcare and environmental technologies which result in tangible improvements to our quality of life.

The SSTI seeks to ensure:

- Increased participation in the sciences by young people;
- Significant increases in the numbers of people with advanced qualifications in science and engineering;
- Transformational changes in the quality and quantity of research undertaken by enterprise - both directly and in cooperation with third level institutions;
- Enhanced contributions of research to economic and social development across all relevant areas of public policy including agriculture, health, environment and the marine and natural resources;
- Increased outputs of economically relevant knowledge, know how and patents from those institutions;
- Increased participation in international science & technology cooperation and transnational research activity;
- An established international profile for Ireland as a premier location for carrying out world R&D
- Greater coherence/exploitation of synergies in the development of Science, Technology & Innovation (STI) policy on the island of Ireland.

The SSTI put in place an integrated framework and funding for the development of a world-class research and development capacity in the economy, including the development of a substantial 4th level in the higher education sector.

Over the lifetime of the NDP, the Government will invest €6.1 billion in specific STI areas as detailed in the Programme areas below.

- World Class Research STI €3.46 billion[7]
- Enterprise STI €1.29 billion[8]
- Agri-Food Research € 641 million

[7] This includes funding for Science Foundation Ireland (€1.46bn), the Programme for Research in Third-Level Institutions (PRTLI), the Irish Research Council for Humanities and Social Science (IRCHSS) and the Irish Research Council for Science, Engineering and Technology IRCSET)

[8] Including funding for Enterprise Ireland, Awareness and the Tyndall Institute

• Health research	€ 301 million
• Energy Research	€ 149 million
• Marine Research	€ 141 million
• Environment Research	€ 93 million
• Geo-science	€ 33 million

The investment in human capital, physical infrastructure and commercialisation of research outlined above is complemented by investment in initiatives set out in the NDP allocations for Higher Education and the IDA.

The main elements of the SSTI are outlined below.

Quality and Output
The Strategy is based on the core principle that Ireland is significantly growing its world-class research capabilities. This is being achieved by increasing the number of research teams led by internationally competitive Principal Investigators, while upgrading existing infrastructure and developing new facilities. We are developing sustainable career paths for researchers, enhancing post-graduate skills through a graduate schools mechanism, enhancing the mobility of researchers and doubling the number of PhD graduates in science, engineering and technology (SET) by 2013 to nearly one thousand per annum.

Commercialisation
It is not enough just to carry out research; we also have to optimise the capture, protection and commercialisation of ideas and expertise. We are strengthening the Intellectual Property/Commercialisation functions within Higher Education Institutes and we will provide appropriate centralised expertise to those bodies to translate research into applications.

Industrial Research
A healthy research culture has to involve enterprises themselves as participants. Whilst different challenges face enterprises in different sectors, through the development agencies we will bring about a transformational change to enterprise attitudes to R&D. We are growing business expenditure on R&D from €1bn in 2003 to a target of €2.5bn by 2013. This target coincides with the EU's Lisbon goals and will place Ireland in the vanguard of countries addressing knowledge issues. We are also targeting indigenous enterprises, with the aim of increasing the number of firms engaging in meaningful R&D (€100,000 per annum) from 462 in 2003 to 1,050 by 2013.

The IDA and Enterprise Ireland received numerous responses to a joint call for the development of industry-led and research-driven **Competence Centres**, with a number of proposals received from industry. The first Centres for the provision of research facilities are expected to be established in the second-half of 2008. These new Centres will ensure that Ireland provides a highly attractive environment in which to conduct advanced enterprise research. The *Report of the High Level Group on Manufacturing* suggested a National Management Competence Centre as an effective means of pushing technological innovation in this sector.

Public Awareness in Schools
The importance of science in primary and secondary schools cannot be understated along with the need to promote interest in science across all elements of society. The Department of Education and Science has already begun extensive syllabus

redevelopment and continues to tackle curriculum reform, investing in professional awareness, guidance and technical assistance to support science in the educational system. This is supplemented by the work of Discover Science and Engineering[9], the Government's integrated science awareness programme.

Graduate Schools

Given our commitment to double the output of PhDs, graduate schools play a vital part in ensuring the skill sets of those PhDs are most relevant to a modern knowledge based enterprise economy. They are providing quality-led training of early stage researchers in multi-disciplinary environments, with structured, relevant generic and transferable professional skills training enabling the PhDs graduates to develop their careers in diverse sectors of the economy. Industrial placements and modular, transferable postgraduate courses, both practical and theory-based with built-in enterprise expertise should be accommodated.

Sectoral Research

Initiatives in the areas of agriculture and food, health, environment, marine and energy will be undertaken under the Strategy ranging from sustainable agriculture to improving medical treatments. The provision, under the Strategy, of a competitive fund to encourage excellent research in these areas will further develop the world-class name of Irish researchers in these sectors.

Cross-Border and International Cooperation

Transnational research brings real benefits to Ireland by promoting excellence and avoiding unnecessary duplication. Facilitating access for Irish researchers to EU Framework Programme[10] funding is a critical part of this engagement. Cross-border collaboration will also bring real benefits to the whole island of Ireland.

European Research Area

In 2000, the European Commission proposed the creation of a European Research Area (ERA)[11] based around a vision of a "Common Market" for research in Europe. The ERA vision is characterised by stronger coordination of Member State policies and programmes for research, increased mobility of researchers across Europe and increased resources for Community initiatives to address areas where it is appropriate to take action at the European level. The ERA is closely associated with the Lisbon Strategy and the Barcelona target of growing Europe's research investment to 3 per cent of EU GDP.

In April 2007, the Commission published a Green Paper on the ERA in order to review progress and prepare the ground for specific proposals in 2008 to redouble efforts to achieve the ERA vision. This renewed focus on the ERA is taking place in the context of a forthcoming review of the renewed Lisbon Strategy in 2008 and some concerns relating to the lack of progress in moving towards the 3% target. While several Member States (including Ireland) are making significant progress in relation to their own national targets, Europe's overall research intensity has remained static (at 1.85%) since 2000[12]. At

[9] http://www.science.ie/EN/index.cfm/section/sitePages/page/discoverScience
[10] http://cordis.europa.eu/fp7/home_en.html
[11] http://ec.europa.eu/research/era/index_en.html
[12] In Ireland, Gross Expenditure on Research and Development (GERD) as a percentage of GNP increased from 1.32% in 2000 to 1.56% in 2006.

the same time, countries such as China and India are emerging as new global players in innovation and science with the real danger that Europe will trail further behind.

The Green Paper examines the following six key dimensions of the European Research Area, putting forward suggestions for action at the European level in respect of each.

- ***Realising a Single Labour Market for Researchers:*** addressing legal, administrative and other practical barriers to mobility across Europe;
- ***Developing World Class Research Infrastructures***: addressing the need for action at European level in respect of large-scale, specialised research infrastructures;
- ***Strengthening Research Institutions***: addressing the need for reform of higher education and other institutions and the need to build critical mass in Europe in different fields of science;
- ***Effective Knowledge-Sharing***: addressing the need for more coherent rules, regulations and procedures at European level to facilitate greater sharing of data and knowledge;
- ***Optimising Research Programmes and Priorities***: addressing the need for improved co-ordination of national research programmes, sharing of information and pooling of resources;
- ***Opening the European Research Area to the World:*** addressing the need for a more coordinated approach by member states with respect to S&T cooperation outside Europe.

Overall, Ireland is supportive of the Commission's efforts to re-energise debate on the European Research Area and welcomed the Green Paper. There is a high level of complementarity between the ERA vision and Ireland's Strategy for Science, Technology and Innovation. There are strong parallels in terms of the priorities identified at the national and European level (e.g. researcher careers, research infrastructures, industry-academic linkages, international cooperation etc.) In many areas, the activities at European level will contribute towards the achievement of goals set out in Ireland's SSTI. Likewise, in implementing the national strategy, Ireland will be contributing towards the achievement of broader European goals. (See also **Chapter 5** on Networks, Clusters and Gateways)

Recent facts and figures on research spending[13]

- Total R & D spending across all sectors of the economy reached €2.33 billion in 2006, up over 14% on 2005.
- The overall GERD / economic activity intensity ratio rose to 1.56% of GNP compared to 1.48% in 2004. Between 2004 and 2006 gross expenditure on research and development (GERD) increased by over 26% in nominal terms.
- R&D spending in the business sector (BERD) rose by almost 10% from 2004 to 2005 and is estimated to have increased by a further 17.3% in 2006 to reach €1.56bn. BERD intensity as a % of GNP is growing too - from 0.82% in 2004 to 0.90% in 2006. This reflects a robust R&D spending performance by both Irish and foreign owned firms

[13] From Department of Enterprise, Trade and Employment internal sources.

- The total number of researchers rose to 10,067 in 2006, representing an annual average increase of 6.2% since 2004. Full-time equivalent research numbers climbed to 4,670 in 2006.
- R&D spending in the higher education sector (HERD) rose to €600.6 million in 2006, over 20% higher that the €492 million in 2004.
- Higher Education Research and Development (HERD) spending growth averaged 10.5% in nominal terms between 2004 and 2006 (or 7% in real terms).[14]
- Strong increases in R&D spending growth in the HE sector from 2004-2006 resulted in an edging up of the R&D intensity ratio to 0.40% of GNP. This intensity level is now at the OECD average and above the EU27 average.
- Public spending is the main funding driver of the overall rise in R&D spending in the HE. Direct funding of HERD from Irish Exchequer sources increased by 14.4% per annum on average between 2004 and 2006.
- Science Foundation Ireland (SFI) was the largest public financier of research conducted in the HE sector in 2006, contributing €107.6 million.
- The number of PhD-qualified researchers increased to 5,733 in 2006 from the 5,024 recorded in 2004.

Attracting researchers

Sufficient numbers of suitably educated, high quality people are essential to the achievement of the objectives of the Strategy for Science, Technology and Innovation. Building up the required number of researchers will not be achieved by through our education system alone. Researchers will need to be attracted to Ireland in greater numbers than before. In 2006, 15.5 percent of Ireland's science and technology employees aged between 25 and 64 were born outside Ireland, compared with an EU27 average of 9.7 percent.[15] Much has already been achieved to remove the regulatory barriers for incoming researchers. However, more can be done to actively attract researchers to join companies and research institutions within Ireland. A number of steps are being taken under the SSTI to provide the required number of researchers, such as the funding programmes of Science Foundation Ireland and the PRTLI, the Advisory Science Council study on researcher career paths and the operation of the Researchers' Mobility Portal and Centre.[16]

The Advisory Science Council study is expected to assist in identifying any further measures that may be required. In parallel the review of the European Research Area addresses the issue of researcher mobility in Europe and may also lead to initiatives in this field.

The EC Directive on Mobility of Researchers from Third Countries,[17] adopted under Ireland's EU Presidency in 2004, provides for a specific procedure for admitting third-country nationals for the purposes of scientific research. The Directive, transposed[18] by

[14] Source: Forfás – *Higher Education R&D Survey 2006 (HERD): First Findings.* August 2007 http://www.forfas.ie/publications/forfas070829/forfas-herd-survey-first-findings-2006.pdf

[15] EUROSTAT HRST Database, cited from Tomas Meri, *Statistics in Focus: Science and Technology*, No 75/2007, Luxembourg: EUROSTAT, 2007

[16] The Irish Researchers Mobility Hub and Portal (http://www.researchcareersireland.com), established in October 2004 and maintained by the Irish Universities Association, provides researchers with an up-to-date central information access point.

[17] Council Directive 2005/71/EC, OJ L 289, 3.11.2005

[18] For details of implementation of the scheme in Ireland, see: http://www.entemp.ie/science/technology/accreditation.htm

Ireland in October 2007, enables accredited research organisations to enter into hosting agreements with third country researchers for the purposes of enabling them to be admitted into the State to carry out research. Ireland has put in place the measures required to implement the Directive by the due date. As part of these arrangements, spouses and dependants of a researcher coming within the scope of the Directive will be able to apply for work permits under the same conditions as apply to work permits for spouses and dependants[19] of employment permit holders. A researcher coming within the scope of the Directive and his or her spouse and dependents will be eligible to apply for permanent residency in the State under the same conditions as apply to holders of Green Cards, i.e. 2 years after admission under a Hosting Agreement.

[19] See http://www.entemp.ie/publications/labour/2007/guidespousals.pdf

2. Transfer of Knowledge from Research Organisations to the Market Place

The quality of our public research infrastructure and its links to industry may be one of the most important national assets in our innovation system. A key goal of our innovation strategy is to strengthen these links. In particular, through our agency programmes, we are addressing the low research absorption capacity of enterprises while meeting the increased demand for applied research capability that enterprises can readily access. CSETs, Technology Transfer Offices (TTOs) and Innovation Vouchers are three important initiatives in developing these vital Higher Education-Enterprise relationships. These relationships are being supported in the context of the €3.3 billion investment in support our indigenous and FDI enterprise base over the lifetime of the current National Development Plan (2007-2013).

A 2007 Forfás Report[20] outlined the significant roles of the fourteen Institutes of Technology (IoTs) in Irish enterprise. Primarily focused on education and training, they also are growing their R&D capabilities and spin-off activities. In 2006, new+ legislation[21] brought the IoTs under the aegis of the Higher Education Authority (HEA). It is expected that this will encourage greater inter-institutional collaboration and grow their modest share of HERD (6% of the total in 2004). The Forfás Report recognised the specific institutional context of each IoT, but recognised the potential for more engagement with both the enterprise development agencies and enterprises themselves.

Principal Investigator Programme Grant
Principal Investigators (PIs) are the lead academic researchers and project leaders for specific research projects. The Principal Investigator Programme Grant[22] scheme, administered by Science Foundation Ireland, supports fields of science and engineering that underpin biotechnology and information and communications technology. SFI Principal Investigator grants for the PI, associated research staff, equipment and expenses may range from €50,000 to €1,000,000 direct costs per year and for up to 5 years.

Strategic Research Clusters (SRCs)
In November 2007, Science Foundation Ireland awarded funding for the Strategic Research Clusters (SRC)[23] initiative. These clusters will help link outstanding research scientists and engineers in partnerships across academia and industry on a smaller scale than CSETS. SFI is providing over €70 million in funding for 12 SRCs based on third-level campuses. The initiative aims to bring together academic and industry partners in clusters that will bring value to the ICT or Biotechnology industry roadmaps. Awards range from €.5-€1.5 million per annum for 3-5 years for each cluster.

Centres for Science, Engineering and Technology (CSETs)
The Centres for Science, Engineering and Technology (CSETs)[24] are a central element of Science Foundation Ireland's investment programme,. linking scientists and engineers across academia and industry. CSET grants can be up to €25 million over five years. The objective of this programme is to have Centres that can significantly advance knowledge,

[20] Forfás: *The Role of the Institutes of Technology in Enterprise Development*, June 2007
[21] The Institutes of Technology Act, 2006, in effect since February 2007.
[22] http://www.sfi.ie/content/content.asp?section_id=510
[23] http://www.sfi.ie/content/content.asp?section_id=571&language_id=1
[24] http://www.sfi.ie/content/content.asp?section_id=419&language_id=1

exploit opportunities for discovery and innovation in ways that smaller research projects cannot, and link academic and industry researchers in promising ways, that generate products of considerable value in the marketplace, and contribute to the public's appreciation of science and technology.

SFI currently supports CSETs in the ICT sector Biotechnology sectors) involving research partnerships between Irish Universities and multi-national companies such as Hewlett Packard, Bell Labs, Lucent Technologies, Intel and Medtronic.

Technology Transfer Offices (TTOs)[25]
TTOs are central to knowledge flows between Higher Education and Enterprise sector. The Department of Enterprise, Trade and Employment has made €30 million available in competitive funding for TTOs for 2006-2011. This funding is ensuring better economic returns from R&D investment, through the development of improved systems, procedures and expertise in Technology Transfer Offices. Closely supported by enterprise agencies, TTOs play a vital coordinating role in:

- Commercialisation Policy
- Intellectual Property Management
- Negotiating with Enterprises
- Identifying new commercial opportunities

In addition the TTOs in third level institutions, Centres for Science, Engineering and Technology (CSETs) and the Tyndall Institute, Cork, have their own Business Development Managers to exploit commercial opportunities.

Research and Development Fund[26]: This is a revised simplified €500m grant scheme available to enterprises to support their research & development. The scheme runs from 2008-2013, and enables easier access to funds for enterprises. It offers up to 45% funding for R&D activities (or 50% if the activity is collaborative).

Innovation Vouchers[27]**:** The vouchers, launched in March 2007, are worth €5,000 each and offer businesses with limited experience of R&D to collaborate with any one of twenty-two Higher Education 'knowledge providers' to obtain an innovation solution to an enterprise need. 428 vouchers were issued in 2007. Five further calls are planned in 2008, with up to €10 million available for the Innovation Vouchers scheme as a whole. These vouchers offer SMEs the opportunity to forge new relationships with higher education institutions and ultimately to develop new products and services.

[25] http://www.enterprise-ireland.com/ResearchInnovate/Research+Commercialisation/Strengthening+Technology+Transfer+Offices.htm
[26] http://www.enterprise-ireland.com/ResearchInnovate/R+and+D+in+your+Enterprise/RandD+Fund+copy.htm
[27] http://www.enterprise-ireland.com/innovationvouchers

Other initiatives include:

- **Competence Centres**[28]: These will be collaborative, enterprise-led entities staffed by highly-qualified researchers associated with research institutions empowered to undertake market-focused strategic R&D for the benefit of industry.

- **Research and Development Stimulation Grants**: These grants, available from 2008, enable the development of innovation capability and absorptive capacity of small companies. These one-off grants of up to €50,000 available for R&D planning, consultancy/mentor support, R&D training, market research, etc. This Programme incorporates the Knowledge Acquisition Grants Scheme

- **Enterprise Innovation Networks**: Launched in March 2008, this programme will provide funds (up to €200,000 per annum for 3 years) to industry representative organisations to enable them to promote thematic research and innovation among their membership.

- **Innovation Relay Centres**[29]**:** A European initiative offering businesses the opportunity to connect with solution providers in 33 countries.

Investing in Research & Innovation

Much of the enterprise agencies' work in the innovation area is undertaken under the aegis of the SSTI structure, **Technology Ireland (TI)**. This is the central forum for the enterprise development agencies and brings coherence and high performance across the STI system.

Enterprise Ireland's remit is terms of Research, Development and Innovation (RDI) can be outlined under three broad headings:

i. ***Driving in-company R&D***

A multi-faceted approach is being taken where companies regardless of size, sector and stage of development, will clearly see what R&D can do for them and appropriate supports are provided where they can take the next steps. Significant funding is provided for R&D projects and investment in new R&D facilities to drive sustained R&D activity among existing R&D performers. Activities designed to drive in-company R&D activity includes the R&D Advocate programme, R&D Awareness, innovation management, Innovation Partnership initiative etc.

ii. Driving collaboration

There is an imperative to deepen collaborative activities with regard to research. Synergies between the academic and enterprise communities are being realised through companies, small and large, forging active relationships with suitable research partners. Enterprise Ireland, in cooperation with the Higher Education Institutions and partner agencies is ensuring that the major investments in the research infrastructure made in recent years are accessible to enterprise needs. This will play a vital role in Ireland's future success. The key focus is on connecting the

[28] http://www.enterprise-ireland.com/CompetenceCentres
[29] http://www.irc-ireland.ie

enterprise base with the research infrastructure in every possible way and at every level.

iii. Realising the commercial potential of Ireland's research community

In parallel with the direct connection to enterprise, publicly funded research is also being leveraged through Enterprise Ireland's support of the commercialisation process, ensuring it delivers optimal returns to the Irish economy. Technology, developed as part of academic research, is being identified, protected and transferred to companies through an active managed process involving Technology Transfer Offices working in close collaboration with academic researchers. This is happening through a central support office and a network of key enterprise agencies staff on-campus. We are working with researchers to develop their projects through a comprehensive and responsive financial and advisory support system. This process is resulting in the licensing of technology to existing firms or through new technology-intensive start-ups.

Enterprise Ireland coordinates Seventh EU Framework Programme (FP7)[30] activities and has a specially appointed National Director in place to ensure a coherent approach is adopted across all areas of FP7. In this way, Irish participation in the programme as a whole will be optimised. One of the key objectives is to ensure that FP7 funding is highly relevant for researchers in industry and elsewhere and that it can be used to complement the existing R&D and innovation strategies of SMEs (as well as multinational companies and other bodies). FP6, its immediate predecessor, resulted in an injected of over €200 million in additional funding for the Irish research system. With our enhanced abilities to absorb research funding and the greater budget of FP7 we expect to significantly improve on this figure during the lifetime of FP7 (2007-2013).

The **Tyndall National Institute**[31]**,** based in Cork**,** was established in 2004 at the initiative of the Department of Enterprise, Trade and Employment and University College Cork**.** The objective was to create a research institute which would become a focal point of Information and Communications Technology (ICT) in Ireland, to support industry and academia nationally and to increase the number of qualified graduate students for the 'knowledge economy**'**. Current specializations at the Centre include photonics, electronics, materials and nanotechnologies and their applications for life sciences, communications, power electronics and other industries. Tyndall's National Access Programme[32] facilitates access to its research facilities, thereby encouraging partnership with other research bodies. The Institute currently has a staff of 330, with plans to recruit 170 further staff by 2011 following the commitment of €50 in SFI funding.

[30] See http://www.enterprise-ireland.com/FP7
[31] http://www.tyndall.ie
[32] http://www.tyndall.ie/nap

FUSION[33] is an ongoing, all-island network run by Inter*Trade*Ireland between industry and academia. The network enables knowledge and technology transfer across the island, supporting business innovation and increased capability. FUSION develops and facilitates three-way partnerships and projects between: **Enterprises** - private sector businesses (with technology based development needs); **Higher Education Institutions** - universities, colleges, institutes of technology or research centres; and **Graduates** - high-calibre degree/diploma holders. Partnerships are driven by enterprise need. Within each three-way partnership, partners work collectively to develop and implement solutions to technology needs within companies. Each company is partnered with a university or college with the necessary specialist expertise.

[33] http://www.intertradeireland.com/index.cfm/area/information/page/FUSION

3. Lifelong Learning and the National Skills Strategy

Ireland's innovative capacity is inherently linked to the skills and education of our people. The increasing challenges of globalisation and the knowledge economy demand that we embrace a culture of lifelong learning and "employability for life" for the individual and in the firm to improve and sustain employability and competitiveness. In addition to the economic imperative, there are also sound social reasons for continuing to drive lifelong learning and for providing avenues to more ***and better*** jobs.

The current Social Partnership Agreement Towards 2016[34], acknowledges the need for a concerted effort by both employees and employers to increase levels of workplace learning and upskilling. In order to maintain competitiveness across all sectors and enhance workers' employability, barriers to work-related learning and training are being removed. This is particularly true in the case of workers in lower-skilled jobs and those with narrow skill-sets in vulnerable areas of the economy. Those already in employment are being given opportunities for continuous education and up-skilling, requiring the development of innovative funding mechanisms in accordance with commitments given in Towards 2016. The National Development Plan 2007-2013 commits €2.8 billion to upskilling Ireland's workforce over its lifetime.

Lifelong Learning

The National Development Plan 2007-2013, Towards 2016, the National Action Plan for Social Inclusion 2007-2016[35] and the Programme for Government[36] all reflect the Government's commitment to Lifelong learning, with a focus on enhancing access to training, the development of new skills, the acquisition of recognised qualifications and progression to higher-level qualifications. Further Education and FÁS programmes for early school leavers and second chance education will progress these policies.

The Government has appointed Mr. Sean Haughey TD as Minister of State for Lifelong Learning with responsibility for overseeing and ensuring a coordinated approach to lifelong learning in both the Departments of Education and Science and Enterprise, Trade and Employment.

An allocation from the National Training Fund, worth €10 million is being made available in 2008 to alleviate fees in Higher Education Authority (HEA) supported public institutions for part-time courses at third level for those at work who have not previously pursued a third level qualification, as provided for in Towards 2016.

The National Framework of Qualifications

Our educated and skilled workforce is one of the engines of Ireland's economic growth. . There is a realisation that skills and qualifications will require constant updating as the labour market evolves. The National Framework of Qualifications[37] (NFQ) provides a single unified framework with the potential to cover all awards in the State, across schools, further and higher education and training within a ten level framework from basic education to post doctoral level. It provides for recognition of learning in formal, non-formal, workplace and community settings, and is designed to ensure access,

[34] http://www.taoiseach.gov.ie/index.asp?locID=181&docID=2755
[35] http://www.socialinclusion.ie/nationalactionplan2007.html
[36] http://www.taoiseach.gov.ie/index.asp?locID=512&docID=3493
[37] http://www.nfq.ie

transfer and progression for learners. Over time as similar developments take hold in other Member States; the European Qualifications Framework (EQF) will enable the levels of qualifications within various countries to be aligned within a meta framework.

National Skills Strategy to 2020

In March 2007, the then Ministers for Enterprise, Trade and Employment Mr. Micheál Martin TD and Education and Science Ms Mary Hanafin TD jointly launched the Expert Group on Future Skills Needs (EGFSN) Report "*Tomorrows Skills Towards a National Skills Strategy*"[38].

This Report details how, as the economy becomes increasingly orientated towards services and high-tech manufacturing, with a corresponding decline in the importance of traditional sectors, the requirement for higher levels of skills throughout the workforce will increase significantly. The EGFSN articulates a vision of Ireland in 2020 in which a well-educated and highly skilled population contributes to a competitive, innovation-driven, knowledge-based economy. This approach is reiterated by the *Report of the High Level Group on Manufacturing.*[39]

The National Skills Strategy sets out clear long term objectives as to what Ireland's education and training systems need to deliver if Ireland is to develop competitive advantage in terms of world class skills, education and training.

In order to make this vision a reality, the Expert Group has identified a set of objectives, which include

- achieving a significantly improved educational profile for the labour force,
- upskilling 500,000 people in employment by at least one NFQ level by 2020,
- increasing the participation rate in upper secondary education to 90 percent and
- improving the progression rate to third level from 55 to 70 percent.

Meeting these objectives represents a significant challenge and will require an integrated all-of-government approach led by the Departments of Enterprise, Trade and Employment and Education and Science.

In February 2008, the Minister for Lifelong Learning, Seán Haughey, announced he would be chairing a new Inter- Departmental Committee to oversee implementation of the National Skills Strategy. The Committee consists of senior officials from the Departments of Education and Science and Enterprise, Trade and Employment. They expect to produce an implementation plan by Summer 2008. Implementation of the National Skills Strategy, an important complementary strand to the Strategy for Science, Innovation and Technology (SSTI), is a commitment contained in the National Development Plan 2007-2013. Its core principle is human capital development at the very highest skills levels.

Implementing measures

A range of implementation mechanisms proposed to enable the objectives set out in the National Skills Strategy to be realised are currently being investigated for their suitability in an Irish context by the Department of Enterprise, Trade and Employment (DETE)

[38] http://www.skillsstrategy.ie
[39] http://www.forfas.ie/publications/forfas080402/forfas080402_manufacturing_report.pdf

and the EGFSN. These include the provision of individual learning accounts jointly funded by the state, employers and employees, improving arrangements for employee training leave, taxation mechanisms, and brokerage systems to help companies source appropriate training.

The DETE is also improving career guidance supports for those in employment; recognising prior learning; developing methods of accreditation outside the formal learning environment and increased targeting of the low skilled through analysis of sectoral and occupational groupings.

Skills investment under the FÁS **One Step Up**[40] banner was launched in 2005. Under this programme, financial supports are provided which reduce the costs of training for employees. One Step Up has two principle elements. The Competency Development programmes provide portable and transferable skills aimed at increasing the competencies of people employed in low skilled occupations. Secondly, Skills for Work focuses on providing training opportunities to help employees deal with the basic skills demands of the workplace. Priority areas of training have been identified by FÁS following consultation with regional and sectoral stakeholders. A Strategic Alliance, with a budget of nearly €10 million, has been forged between FÁS and several training providers, including Chambers Ireland and the Irish Management Institute (IMI), for the provision of management development training to SMEs. In September 2007, the FÁS Board approved contracts with six organisations to provide training to low skilled workers to a value of €8.8 million. This funding will provide for the delivery of 21,870 training days for 3,470 employees.

Skillnets[41] is an enterprise-led support body dedicated to the promotion and facilitation of learning as a key element in sustaining Ireland's national competitiveness. Skillnets supports networks of enterprises to engage in training under the Learning Networks Programme. These Learning Networks are led and managed by the enterprises themselves. Since 1999, Skillnets has facilitated over 10,000 Irish enterprises, in over 150 networks, to improve the range, scope and quality of training and has helped over 50,000 employees to improve and meet their skills needs.

Increased Level of Investment
Since 2004, there has been a significant increase in the level of the State's investment in funding for upskilling those in employment. The State invested €8 million in upskilling those in employment in 2004 and is investing approximately €77 million in this area in 2008. Within this budget, FÁS' **One Step Up** programme received approximately €39 million with **Skillnets** receiving approximately €24 million. In 2006 the FÁS One Step Up Programme and Skillnets trained approximately 46,500 employed people.

Learning for Business Managers
In May 2007, the Minister for Enterprise, Trade and Employment established the **Management Development Council**, as recommended by the Small Business Forum, on the basis that innovative firms require innovative leaders. The Council is benchmarking Ireland's current management development provisions, determining whether or not this meets the requirements of SMEs, identifying any gaps and

[40] http://www.fas.ie/en/Employer/One+Step+Up/default.htm
[41] http://www.skillnets.com/

developing action plans to address these gaps. It is also developing a coordinated approach to building appreciation in the SME sector for the value and need of leadership and management skills. Once Management Development needs are accessed, the Council will agree an Action Plan in late 2008.

The Leadership 4 Growth[42] programme, launched in 2006, is designed to help the CEOs of Technology and Life Science enterprises. Developed by EI, in association with the Irish Software Association, the course is delivered at Stanford Graduate School of Business, California, where approximately 25 Irish CEOs receive intensive training over three modules of 5-days.

Upskilling Coordination Group

The State has significantly increased investment in training measures for the employed and given high priority to in-employment skills development as outlined in Towards 2016 and the National Development Plan. In this context, the Department of Enterprise, Trade and Employment established an Upskilling Co-ordination Group in 2007. This group brings together representatives of FÁS, Skillnets, Enterprise Ireland, Forfás and the County Enterprise Boards with the purpose of maximising the impact of the State's increasing investments in this area. The Group is also responsible for ensuring that training programmes delivered by those in receipt of Departmental funding are fully co-ordinated both in terms of strategy and implementation.

Enhancing the lifelong learning environment

There is a commitment in Towards 2016 to establish a fund which will alleviate the fees in public institutions for part-time courses at third level for those at work who have not previously pursued a third-level qualification. Financing these initiatives has been previously examined by the OECD, which has determined that funding mechanisms in other countries are worthy of further examination. This is being discussed in the context of the EGFSN report.

The National Office for Equity of Access to Higher Education (NOEAHE) was established within the Higher Education Authority (HEA) in 2003 to enhance access to Higher Education for disadvantaged groups.

Continued priorities in the implementation of the framework for Lifelong Learning include:

- Addressing skill needs and widening access to lifelong learning in the context of an integrated approach to education and training;
- Tackling disadvantage in terms of literacy and numeracy, early school leaving and providing second chance education and training for those with low skills;
- Addressing access barriers through a strengthening of financial supports, guidance, counselling and childcare services and increased flexibility of provision

[42] http://www.enterprise-ireland.com/Grow/LeadershipPeople/Leadership+4+Growth.htm

National Framework of Qualifications

The National Framework of Qualifications (NFQ) was launched in 2003. It is a system of ten levels that incorporates awards made for all kinds of learning, wherever it is undertaken. School, further education and higher education are all included. Each level is defined by specified outcomes (standards of knowledge, skill and competence). In November 2006, Ireland became the first European country to verify the compatibility of its national framework with the Framework for Qualifications of the European Higher Education Area (the Bologna Framework). The National Qualifications Authority of Ireland (NQAI) is actively promoting policies and procedures, in conjunction with awarding bodies and providers of education and training, to enable Access, Transfer and Progression by learners. It has developed policies and a flexible system to facilitate the recognition of prior learning. This can be for the purposes of entry to a programme leading to an award; credit towards an award or exemption from some programme requirements; or eligibility for a full award.

Structural Funds leverage

Structural funding, and in particular, the European Social Fund, has always presented opportunities to pilot innovative approaches to upskilling, training and new employment areas. The experimental approach adopted, for example, under the ESF funded EQUAL Community Initiative[43], provides a testing ground for new ways of integrating marginalised groups into the workplace and of upskilling those already in employment. The Willing Able Mentoring (WAM)[44] project, for example, has been instrumental in fostering attitudinal change amongst employers in terms of providing employment opportunities for graduates with disabilities. It is important that we continue to develop mainstreaming strategies for capturing good practices as developed by such pilot projects.

[43] www.equal-ci.ie
[44] http://www.aheadweb.org/home/pages/category/wam

4. Innovation through Public Procurement

Ireland's public procurement regime is based on the EU Treaty principles of equal treatment of economic operators, transparency and competitive tendering. These are essential in creating an EU public procurement market. The value of public procurement in 2006was estimated at €1,500 billion or 16 per cent of EU GDP . In Ireland, the annual public procurement market for goods, services and works is valued at approximately €15 billion.

Public contracts are most often awarded on the "most economically advantageous tender" (MEAT) criterion, rather than the lowest price. This opens the way for bidders to propose innovative ways of meeting the buyers' requirements, which offer better value through enhanced performance or reduced lifetime costs. An example of this would be the use of design/build contracts for construction projects.

The possibilities in promoting innovation through public procurement are very attractive, given that the public sector is such a major purchaser of a wide variety of goods and services. Selling to the public sector is an opportunity for firms, especially SMEs to demonstrate their capabilities, establish their credibility in international markets and prove the viability of new products or services. Consequently, innovation in public procurement can be a stimulant to long term export success by showcasing emerging and innovative products/services and providing authoritative and essential reference contacts for Irish companies.

National Public Procurement Policy Framework

The National Public Procurement Policy Framework,[45] launched by the National Public Procurement Policy Unit (NPPPU) in the Department of Finance in 2005, has sought to encourage a move from a focus on compliance with procurement rules to viewing public procurement as a more strategic function. A fundamental practical requirement of this Framework is that all non-commercial central and local authorities develop a Corporate Procurement Plan. These individual plans are underpinned by an analysis of procurement expenditure and supplier analysis, requiring individual contracting authorities to set targets and measures for improving the procurement process in their organisations including achieving whole of government policies such as the use of innovation in their public procurement activities.

The NPPPU has also been supporting the development of change in the public sector procurement process through capacity building and training and education initiatives. Procurement managers and dedicated personnel dealing with procurement and purchasing have been appointed in some public bodies.

This approach is broadly supported by the European Commission as indicated by its comment that, *'Public purchasers need to become "intelligent customers", who plan what to buy, how to buy it and who will buy it.'*[46]

[45] http://www.etenders.gov.ie/guides/Guides_show.aspx?id=743

[46] European Commission Communication, *Putting knowledge into practice: A broad-based innovation strategy for the EU*

SME Initiative

While companies of any size can be innovative, it is generally recognised that much innovation comes from the Small and Medium Enterprise (SME) sector. Accordingly, moves to assist SMEs in participating in public procurement will help promote innovation.

The size, agility and adaptability of SMEs can allow them to provide new and more cost effective solutions. SMEs and new start-ups can be effective agents of change. Firms with new ideas contribute to dynamic efficiency in the market and efficiencies in the public sector benefits the taxpayer and citizen. Contact with innovative suppliers can help stimulate innovation within the public sector. The question is how greater use of innovative procurement practices could be encouraged in public authorities. Value for public money is, of course a key consideration in public procurement. Combining technology, innovation and new arrangements for delivering services can often provide significant added value in public purchasing. As most contracts are awarded on the basis of the "most economically advantageous tender", in which price is just one criterion, there is scope for contracting authorities to set broader criteria which can encourage innovation.

In May 2007, the NPPPU, as a first step in an initiative on promoting SME participation, published a consultation paper 'Improving SME Access to Public Procurement'[47]. While accessibility to public procurement opportunities is the main focus of the initiative, the document points to the possibility of stimulating innovation in the context of promoting whole of government objectives. Submissions are currently being examined.

e-Procurement

The continuing growth of e-procurement in the public sector reduces tendering costs for bidders (particularly important for SMEs) and typically results in a wider range of potential bidders, thus increasing the scope for innovative proposals.[48]

Eco-Innovation and Public Procurement

Eco-innovation is any form of innovation aimed at significant and demonstrable progress towards the goal of sustainable development, through reducing impacts on the environment or achieving a more efficient and responsible use of natural resources, including energy. As defined in the revised Lisbon Strategy, eco-efficient innovation is identified as an economic and competitiveness driver and a key factor to achieving sustainable development. In some cases, contracting authorities, operating under EU procurement law, can stimulate the market. Public authorities at all levels can take the lead by specifying appropriate selection criteria that favour eco-efficient and innovative products and services and secure market entry for innovative SMEs. This will also encourage the wider business community to follow suit.

[47] http://www.etenders.gov.ie/guides/Guides_show.aspx?id=1863

[48] Enterprise Ireland, through it's 'OpenUp' e-business initiative for SMEs, has useful guide to public sector eProcurement for suppliers, at http://www.enterprise-ireland.com/ebusiness/guides/e_procurement/EI_eprocurment.pdf

InterTradeIreland, in co-operation with Enterprise Ireland and Invest Northern Ireland, has developed **Go-Source**[49]. This is an all-island Public Procurement directory and website, launched in 2002. The development of Go-Source brought together the considerable expertise and industry knowledge of cross-border enterprise agencies and presented companies with a unique source of all-island buyer contacts and procurement strategies. This project continues to be updated and promoted throughout the island. A related programme, **Go-Tender,**[50] managed by InterTradeIreland, helps SMEs on both sides of the border enhance their skills, expertise and efficiency to improve their propects of securing public procurement contracts by providing brieifng and mentoring sessions.

The EU Dimension

While the objectives of the public procurement regime are primarily economic, over time, the European Commission came to recognise the opportunity that public procurement provides to promote policy in certain "non – economic" areas (such as on environmental issues, social issues, sustainability). In the context of innovation it has recently indicated that *'Improved public procurement practices can help foster market uptake of innovative products and services, while raising the quality of public services in markets where the public sector is a significant purchaser'*.[51]

The legislative framework underpinning EU procurement was updated in 2004. It includes new provisions, such as a new flexible competitive dialogue procedure for complex contracts and the encouragement of contracting authorities to express their requirements in functional (rather than technical) terms (allowing suppliers or service providers to offer their own solutions). The new provisions also accept "variants" where specifications are precise, are quoted as features that can be used to promote innovation.

The EU Commission Guidelines on **innovative solutions in public procurement**[52] are timely. These new Guidelines are aimed at helping contracting authorities in the Member States to take full advantage of the possibilities offered by the Public Procurement Directives[53]. The guide identifies a number of principles and good practice examples on how public procurement can promote innovation.

Pre-Commercial Procurement

The European Commission have suggested a number of approaches that could be adopted, for example contracting authorities can describe their needs in a broad and performance based way, which allows the bidders to propose a wider variety of solutions. Account should be taken of costs incurred during the whole life of a product or service and not simply purchase costs. Long-term plans that are communicated to the market and technical dialogue between purchasers and the market are also promoted. The Commission also suggests that "pre-commercial procurement" is a yet untapped opportunity for public authorities in Europe.

[49] http://www.go-source.com/flash/
[50] http://www.intertradeireland.com/index.cfm/area/information/page/SupplierEducationProgramme
[51] European Commission Communication, *Putting knowledge into practice: A broad-based innovation strategy for the EU*
[52] SEC (2007) 280, see: http://www.proinno-europe.eu/doc/procurement_manuscript.pdf
[53] For an overview of current EU public procurement legislation see http://ec.europa.eu/internal_market/publicprocurement/legislation_en.htm

Pre-commercial procurement is already widely practiced in the US and Asia, where the state is first buyer of a product that is the result of successful R&D, but is not yet fully commercialised. This type of procurement, when compatible with EU rules on procurement and state aid, can be a useful driver of innovation, sharing the risks between government and innovator. A European Commission Communication on the possibilities that public procurement directives offer for commercial and pre-commercial innovation-oriented tendering was published in December 2007.[54] This Communication proposes a strategy on pre-commercial procurement that will strongly link mid to long term public purchasing needs with research and development programmes. This type of procurement may assist EU Member States in reaching the Barcelona target of devoting 3% of EU GDP to research and development.

Next Steps

The National Public Procurement Policy Unit encourages contracting authorities to modernise their procurement practices in ways that will help create scope for innovation in procurement, including:

- Developing and completing corporate procurement plans;
- Providing information to the market on long term procurement plans, including the use of a Prior Information Notice (PIN) on potential purchases in e-tenders each year;
- Training staff, in particular full-time procurement staff, on developing output based tenders to encourage an innovative approach to tendering and including appropriate and fair marking and evaluation procedures for tenders.

A procurement innovation group, established by the Department of Enterprise, Trade and Employment, will explore ways of linking public R&D funding, development agencies and public procurement. In particular, the group will explore how analysis of the public procurement market could help entrepreneurs more easily identify areas where there may be significant opportunities for innovation.

The appropriate development agencies will also be asked to work with contracting authorities to identify good examples of innovation (including output-based or innovative tenders) and publicise these examples. It may also be useful for them to work with both innovative companies and other State agencies responsible for promoting technology and innovation to explore the potential for developing lead markets.

[54] http://ec.europa.eu/information_society/research/priv_invest/pcp/documents/commpcp.pdf

5. Regional Innovation through Networks, Clusters and Gateways

Increasingly, the most affluent countries and regions are characterised by networks of firms, public institutions and educational institutions engaged in training and innovation. New forms of collaboration and cooperation between firms can be a fertile source of innovation capacity. Our policies are geared towards stimulating and supporting networks of enterprises, and other innovative forms of collaboration, both domestically and transnationally. Nevertheless, while public authorities can act as a catalyst for such collaboration, firms themselves need to take a leadership role to ensure success. To compete, it is essential that enterprises in Ireland are attuned to the added value of successful collaboration in terms, for example, of opening international markets and learning from good practices elsewhere as part of a continual renewal process. Higher Education institutions provide an important space in which the connections and dialogue essential for collaboration can take place.

Innovation in a Regional Context

Enterprise Ireland operates in a regional context, with client companies, not just located in major urban centres, but spread throughout the regions. EI itself has ten regional offices throughout the country.

Enterprise Ireland has three broad objectives in driving regional development. Firstly, it drives the growth of innovation-based start-ups in locations throughout the country. Secondly, EI develops existing client companies in all locations. Thirdly, it facilitates entrepreneurial development and the development of an enterprise environment through the provision of appropriate infrastructure types.

From the perspective of regional development and innovative start-up activity, Enterprise Ireland recognises the importance of providing adequate infrastructure throughout the country. Business incubators for start-ups, for example, provide an essential complement to public investment in scientific research and help drive the commercialisation of research into long-term business opportunities.

As of 2006, we invested over €46 million in business incubation activity, funding 25 incubation centres, 16 of which are based in Institutes of Technology in all regions, three in universities and six bio-incubation facilities on university campuses.

Institutes of Technology (IoTs) are important to balanced regional development with Centres of Excellence in applied research and assists institutes of technology competing successfully for national and international research funding. In 2006, the Applied Research Enhancement[55] (ARE) programme was re-introduced on a national, non-competitive basis. ARE provides opportunities for the IoTs to develop research capability in areas of strategic importance to the individual colleges and which are of relevance to industry in that particular region. By 2006, eight centres had received funding, with an investment of €10 million, with a target of 42 centres in the fourteen Institutes of Technology by 2013.

[55] http://www.enterprise-ireland.com/ResearchInnovate/Research+Commercialisation/Applied+Research+Enhancement+(ARE)+Programme.htm

In February 2008, €50 million in Regional Enterprise Funding was announced by the then Minister for Enterprise, Trade & Employment, Micheál Martin TD. The funding will be used by Institutes of technology to purchase industry-relevant research equipment, providing more incubation space for start-up companies and to establish market-focused research groups in the Institutes

Participation by **Universities** in regional innovation is central to the EU's vision of creating a European Research Area (ERA). A demanding globalised marketplace requires universities to become significant economic players at local, regional and national levels and be able to respond better and faster to the demands of the market. Developing wider and deeper partnerships, which collectively harness regional scientific and technological knowledge, is key.

Universities are important sources of "innovation assets", i.e. skilled, qualified people, innovators etc. who can provide key inputs into firms' innovation processes. Enterprise Ireland is working with the Universities to strengthen their ability to support industry at regional level. For example, industry in the Western Corridor is supported through the Atlantic University Alliance[56] (AUA) which pools the expertise and resources of the National University of Ireland, Galway, University College Cork and the University of Limerick. The AUA conducts a number of joint projects in the area of training, education and R&D. Access to expertise in all the Universities in Ireland North and South is available through Expertise Ireland[57].

Networks

Enterprises, particularly SMEs, increasingly find that it necessary to look externally for vital skills and expertise required maintain or improve competitiveness. Collaboration is critical for competitive enterprises. The Enterprise Strategy Group (ESG) Report, ***'Ahead of the Curve'***[58] remarked that, 'in the future, business networks will increasingly facilitate knowledge transfer, disseminate market knowledge [and] foster innovation."

By coming together to identify and address enterprise needs, interests and requirements **Industry-led networks** have the potential to deliver benefits over and above what individual companies can achieve on their own. The Industry-Led Networks Pilot[59], launched in 2006, with funding for numerous network-related activities, is designed to support Industry-led networks, or groups of companies undertaking time limited collaborative projects with such benefits to regional development, women in enterprise, rural development or other national economic objectives.

Inter*Trade* Ireland (ITI)[60], the Trade and Business Development body, is one of six North/South Implementation Bodies arising from the Good Friday Agreement. One of its functions includes helping to coordinate and develop **All-Island Business Networks.** This helps to reverse traditionally disjointed economic connections between jurisdictions and especially in the Border Regions. Through creating and fostering networks of people and businesses in key sectors, ITI enables them to develop business opportunities while helping individual businesses to access knowledge and share information so they can themselves build alliances and become more profitable and

[56] http://www.aua.ie
[57] http://www.expertiseireland.com
[58] http://www.forfas.ie/esg
[59] http://www.enterprise-ireland.com/Grow/Finance/Industry+Led+Networks.htm
[60] http://www.intertradeireland.com

competitive. Certain enterprise sectors will play an intrinsic part in future enterprise growth and ITI is active in establishing networks in these areas. Already robust networks have been set up in the health/biotechnology, food, software, polymer and plastics sectors. Inter*Trade* Ireland recently completed a Mapping Study of Research and technology development centres across Ireland and Northern Ireland, highlighting the potential for collaborative cross-border research.

The first meeting **Business Networks Forum** was held in Farmleigh in January 2007, bringing together 150 invited experts from business, government, research and academia to highlight the potential business and economic benefits of collaboration across the island of Ireland. This all-island Forum is expected to provide input to networks development policy on the island of Ireland and will also provide useful input into developing cluster and network initiatives throughout the EU.

Clusters

Clusters are geographical concentrations of interconnected businesses, suppliers, buyers and associated institutions in a particular field. As countries attain a higher standard of living, innovation assumes increasing importance as a driver of prosperity and prosperity growth. While less developed countries grow though investment in productive capacity and adopting technology developed elsewhere, richer countries need to move the productivity frontier, introducing new products, services or ways to serve customer needs in order to sustain prosperity. To this end, clusters are instrumental. Their interconnectedness helps increase productivity level among their constituent parts.

Clusters and regional specialisation are empirically associated with higher levels of innovation and prosperity. The European Cluster Observatory[61] has demonstrated that between 30% and 40% of all employment is in industries that concentrate or "cluster" regionally. Regions with a higher share of the employment in these industries that belong to strong clusters are more prosperous. While many other factors alongside clusters have an impact on prosperity, the data provides clear evidence that clusters are significantly related to prosperity and thus considered as a central part of any economic strategy.[62]

Successful clusters can demonstrate several elements of an effective national system of innovation such as close industry/higher education links and effective knowledge flows. Clustering helps to build the synergies of Irish businesses working in the same sector and encourages activities that benefit them as a group. We are currently enhancing our ability to utilise clusters and especially networks as precursors to better integrated and developed clusters to drive innovation, with significant emphasis on the potential of those to stimulate cross-border activity.

Enterprise Ireland also supports clusters, focusing on building clusters of companies and encouraging corridors within sectors, such as software and medical devices, for example.

[61] http://www.clusterobservatory.eu/

[62] Unpublished EU Commission Staff Working Paper "Promoting World Class Innovation Clusters in Europe Through trans national Cooperation, May 2007

EU Cluster Policies

Implementing the Single European Market has opened all sorts of product and service markets to competition. It enables resources to flow more effectively to sectors, regions and these markets, to provide the best returns and improve Europe's competitiveness. This is important for helping develop clusters and where transnational co-operation can be a potent force in strengthening their growth. Considerable work is underway in this context through the PRO INNO Europe[63] initiative These are the early stages of more profound cluster policy initiatives to strengthen cluster competitiveness that will be developed by the EU Commission in the medium term. Ireland is participating on a High Level Advisory Group on Clusters under the Europe INNOVA[64] initiative. We will continue to work with this Group to steer preparation of new cluster activities such as the European Cluster Memorandum as well as developing a cluster agenda of common actions to foster trans-national cooperation between national and regional policy authorities and agencies.

Transnational co-operation between clusters can act as bridge builders across Europe's regions. By connecting clusters through EU Programmes and our other international partners, new business and research contacts are made and fostered, allowing cross border knowledge flows and innovation. This cross border activity can improve labour mobility and stimulate new opportunities for innovators and entrepreneurs, while bringing international expertise and capabilities to regional and national clusters and cluster initiatives.

Gateway Innovation Fund (GIF)

The National Spatial Strategy[65] (NSS), launched in 2002, is a long-term planning framework up to the year 2020 designed to help all regions achieve their potential, thereby facilitating a better balance of social, economic, physical development and population growth both within and between regions while also supporting better strategic land-use planning more generally. The NSS identified nine Gateways with the potential to drive the development of their wider regions and to achieve the overall objective of balanced regional development. The Government announced the establishment of the Gateway Innovation Fund[66] (GIF) as part of the National Development Plan (NDP) 2007-2013 as a strategic targeted intervention to stimulate Gateway development in the context of the National Spatial Strategy.

This €300 million Fund will finance better co-ordination of Gateway developments, supporting distinctive and innovative projects in Gateway areas (Athlone/Mullingar/Tullamore - a linked Midlands Gateway, Cork, Dublin, Dundalk, Galway, Letterkenny-Derry, Limerick, Sligo and Waterford). The allocation of €300 million for 2008-2010 requires at least 20% co-financing at local level. The GIF provides capital funding.

All-Island Cooperation

Close working relationships have also been established on a cross-border basis with Inter*Trade* Ireland and Invest Northern Ireland and with more regionally-focused bodies such as the Business Innovation Centres (BICs) and the Crafts Council of Ireland for example.

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[63] http://www.proinno-europe.eu
[64] http://www.innova-eu.net
[65] http://www.irishspatialstrategy.ie
[66] http://www.irishspatialstrategy.ie/GatewayInnovationFund

Strategic cooperation between Enterprise Ireland (EI), Invest Northern Ireland (INI) and Inter*Trade* Ireland (ITI) strongly complements to the aim of accelerating the development of world-class Irish companies. Enterprise agencies have actively contributed to a number of all-island economy initiatives under consideration in the British Irish Intergovernmental Conference (BIIGC), while the Department of Enterprise, Trade and Employment and agencies North and South are in discussions with the Special EU Programmes Body (SEUPB) on the new EU Territorial Co-operation Programme (INTERREG IV) and potential future initiatives under these programmes.

Enterprise Ireland and Inter*Trade* Ireland cooperate closely on areas of mutual interest that include stimulating cross-border trade (e.g. Acumen Programme[67]), knowledge and technology between industry and academia (FUSION Programme), all-island collaborative R&D (Innova Programme[68]), benchmarking (Irish Best Practice Forum[69]), graduate placement, sectoral studies, and the development of the equity markets and Business Angels networks on the island of Ireland. EI also assists and advises the International Fund for Ireland[70] and the Ireland Funds[71] on the assessment of business-related proposals as required. EI is also a partner in MicroTrade,[72] an all-island programme that helps small businesses build contacts, markets and partnerships across the island of Ireland.

Since October 2007, under the **North-South Research Partnership Supplement,** existing Science Foundation Ireland award holders may now apply for supplementary awards to fund collaborative projects with researchers in Higher Education Institutions in Northern Ireland.

[67] http://www.intertradeireland.com/index.cfm/area/information/page/acumen
[68] http://www.intertradeireland.com/index.cfm/area/information/page/INNOVA
[69] http://www.irishbpf.com
[70] http://www.internationalfundforireland.com
[71] http://www.irlfunds.org
[72] http://www.microtrade.org

6. Innovation Value Through Intellectual Property

Intellectual Property is often a company's most valuable asset, adding significantly to the market value of firms. The creation, protection and exploitation of intellectual property are key concerns in considering any world-class innovation environment. Technology transfer and commercialisation flourish where intellectual property rights, such as patents, trademarks and copyrights, are guaranteed and legally enforced.

There are several distinct, but closely related, aspects of intellectual property relevant to innovation. Several factors have a role to play in creating an innovation-friendly intellectual property environment including;

- The regulatory regime for IPR (Intellectual Property Rights),
- the research context encouraging the creation of IPR and the most tax-efficient way in which to exploit the resulting IPR and
- the tax treatment of research funding

Regulatory and tax issues

The IPR regulatory system in Ireland is a vital part of the legislative framework, which promotes, protects and encourages innovation. Our system reflects best international practice reflecting our commitment to EU Intellectual Property Law as well as those arising under various other international treaties and conventions e.g. the European Patent Organization (EPO), the World Intellectual Property Organisation (WIPO) and the World Trade Organisation (WTO).

On the taxation side, the Government has created an attractive fiscal environment for Intellectual Property. The 2004 Finance Act exempts the sale of Intellectual Property from stamp duty, while royalties on patents are tax-free. In addition to an effective regulatory and taxation regime, we have also taken a number of measures to strengthen the operational environment for researchers and firms.

Managing Intellectual Property

In 2004, the Irish Council of Science, Technology and Innovation launched the first National Code of Practice for Managing Intellectual Property from Publicly Funded Research[73], providing certainty, confidence and consistency to all stakeholders in publicly funded research. Strengthening Ireland's commercialisation framework in this manner helps underpin Ireland's appeal as an attractive location for Research, Development and Innovation (RDI) and its exploitation. In 2005, a complementary code for collaborative research was published. The National Code of Practice for Managing and Commercialising Intellectual Property from Public-Private Collaborative Research[74] provides a framework and practical guideline for joint research by enterprises and higher education. Technology Transfer Offices play a vital role in managing IP in Higher Education Institutions.

In addition, organisations such as Science Foundation Ireland (SFI) advise collaborators to agree a statement on intellectual property prior to undergoing joint projects. The

[73] http://www.forfas.com/icsti/statements/icsti040407/index.html
[74] http://www.forfas.ie/publications/show/pub213.html

Intellectual Property Fund for the Higher Education Sector[75] and the Intellectual Property Assistance Scheme[76] offers both advice and financial support for the patenting process and commercialisation.

Cost and Awareness Issues

Small and Medium Enterprises (SMEs), including start-ups, benefit from an awareness of the nature and value of protection of their Intellectual Property. In terms of international developments, TechSearch[77] allows companies, particularly SMEs, to access and licence intellectual property by locating suitable partners and facilitating negotiations on the use of IP. As well as publishing a website, brochure and related IP information, the Patents Office[78] - the primary public institution charged with implementing our national patents, trade marks, copyright and design regimes - has sought to promote awareness of intellectual property, on the part of entrepreneurial start-ups in cooperation with a number of City and County Enterprise Boards (CEBs). It's work in this regard has recently benefited from EU support provided though the Office of Harmonisation of the Internal Market (OHIM) , the EU's Trade Mark and Design Office.

There are various other ways in which a greater awareness of IP could be further developed in Ireland. Since 2000, WIPO, the United Nations body charged with framing global IP rules, has designated each 26 April as World Intellectual Property Day to raise awareness of the role of intellectual property in daily life, celebrate the contribution made by innovators and artists to the development of societies and to provide an opportunity to all countries to reflect on the importance of creativity and innovation. The event has been marked in Ireland in various separate events over recent years, we will work towards a more co-ordinated marking of the day between interested bodies and interests.

The costs of patenting can be a disincentive to SMEs in particular. There can also be problems for firms in enforcing their intellectual property rights and in defending themselves against allegations of patent infringement by big companies, as the cost of legal action is high. The EU Commission's Communication *"Enhancing the patent system in Europe"*[79] (April 2007) is concerned with the establishment of an efficient EU-wide patent jurisdiction for the litigation of patent disputes. Work on this project may also pave the way for the creation of an affordable and legally secure Community patents, negotiations on which have been stalled since 2004. Negotiations on the shape of the jurisdictional arrangements are at an early stage. Ireland has strongly supported the view that much more could be done at European level to reduce the costs involved in protecting Intellectual Property Rights and we have equally supported renewed efforts with regard to the proposal for a Community Patent.

EU Developments

The European Commission is due to bring forward a comprehensive IPR Strategy in 2008 intended to complement its current Communication and to address the main outstanding non-legislative and horizontal measures in all fields of Intellectual Property.

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[75] http://www.enterprise-ireland.com/ResearchInnovate/Research+Commercialisation/Intellectual+Property+Fund+for+the+Higher+Education+Sector.htm

[76] http://www.wipo.int/sme/en/best_practices/ireland.htm

[77] http://www.enterprise-ireland.com/TechSearch

[78] http://www.patentsoffice.ie

[79] http://ec.europa.eu/internal_market/indprop/patent/index_en.htm#system

At EU level, the European Commission has launched an IPR Helpdesk[80] financed by the Entrepreneurship and Innovation pillar of the Competitiveness and Innovation Framework Programme (CIP).[81] This will significantly raise awareness and knowledge of IPR issues among SMEs, as well as those participating in Framework Programme 7, improving registration and enforcement of rights and combating counterfeiting.

The Commercial Court, established in 2004, is a quick effective method of enforcing Intellectual Property rights. 50% of all cases at the Court were concluded within 14 weeks in 2006. The €1 million threshold necessary for other cases does not apply for Intellectual Property disputes, while court-appointed experts enable complex IP issues to be dealt with expeditiously. This flexible and innovative approach by the Commercial Court is consistent with Government policy of ensuring IP rights are fully respected and alleged violations are promptly dealt with.

Intellectual Property and Services

Generally, effective IP protection is a significant motivation for innovation. The increasing investments in services R&D point to the increased importance of effectively protecting intellectual property. There is a need to better support the optimal use of IPRs by SMEs in the service sector, providing neutral information on the costs and benefits of the various options that different forms of IPRs can provide for innovative service companies. This also includes mechanisms such as confidentiality, database protection or digital rights management. Awareness raising activities should not only focus on a more active use of existing IPR, but also on strategies and practical options on how to deal with the IP rights of services companies.

With a shift in Ireland's economy towards a services and knowledge economy, having an effective IPR framework for service innovations is crucial. Services are characterized by their intangible nature and in many cases by significant knowledge or information content. There are, however, some limits to the scope for using regulatory-based protection of IP in the services sector. Trade marks can be registered for certain kinds of services and copyright may apply in some cases but the scope for patenting is limited to technical inventions. Business methods and software are not, per se, patentable under the European Patent Convention to which Ireland is a party. Service innovations are multidimensional and often of an incremental nature and do not often meet the requirements for protection through patenting. Patents are more widely used by industrial and manufacturing than by services firms. The product or types of knowledge generated by services such as business methods cannot be protected through patents. The situation in, and scope of, the trade mark area is quite different. The Trade Marks Act, 1996 introduced the concept of service marks i.e. a trade mark which is used to identify a service rather than a product. A substantial number of service marks are now being registered each year in Ireland relative to the total number of trademark registrations - in 2006 there were 2,019 national marks registered and 1,177 of those related to services.

Ireland requires a framework for intelligent management of intellectual property, to continue to have significant potential for the location of internationally mobile productive service industry investment projects. A critical factor in that regard would be the relative attractiveness of our fiscal regime for ownership and licensing of IP. Other

[80] http://www.ipr-helpdesk.org/controlador/principal?seccion=principal&len=en
[81] http://ec.europa.eu/cip/index_en.htm

important factors include the availability of skilled professionals, such as lawyers, licensing executives and tax experts needed to manage such portfolios. If Ireland is to develop as a preferred location for the IPR management projects, we need to identify and assess any barriers in our current tax regime and judge whether any changes are feasible or desirable.

7. Innovation in Services and in emerging sectors

The services sector is becoming an increasingly important locus for innovative activity with emerging knowledge economies. Irish employment in services grew by 58% in the decade to 2004, with almost 70 percent of the Irish workforce now employed in this sector. In 2007, 42 percent of Ireland's exports were in services, worth €64.8 billion, making Ireland the 11th highest exporter of services in the world. Services exports grew by 18% in 2007, with business services exports experiencing remarkable growth of 35% during the year. Our future performance in services activities will therefore be increasingly important to overall growth in the economy as a driver of overall export growth.

Traditionally, innovation in Ireland focused on manufacturing, with surveys showing that as little as 13% of Irish services enterprises engage in innovation. Inherently, because of its relative labour intensity, productivity and innovation in services in Ireland lags behind manufacturing. As new models of economic activity emerge in a globalised market place, new thinking on services innovation is required if policy and supports favouring services innovation are to be matched to the new models.

Creating opportunities for Innovation

A recent OECD global study of knowledge-intensive business services innovation shows that few countries are focusing attention on innovation in the services economy.[82] Consequently few governments have begun to develop policies and programmes for promoting services innovation. This leaves a very fertile field in which to develop truly innovative policies in Ireland, giving us an excellent opportunity to position itself as a world leader in the area of services innovation policy.

In response to this gradual shift in emphasis, Forfás conducted studies on *The Changing Nature of Manufacturing and Services*[83] and *Services Innovation in Ireland - Options for Innovation Policy*[84] both in 2006. Forfás established a Services Strategy Group (SSG)[85] in March 2007 to develop a national services vision and strategy. The object of the SSG is to thoroughly assess how to maximise the future returns to Ireland from services activities in all enterprises, both current and potential, and make a limited number of high-impact recommendations on how to achieve this.

In addition, Ireland's enterprise development agencies, Enterprise Ireland and IDA Ireland, are auditing their current support measures for services innovation.

International financial services

The Global Financial Centres Index[86] (funded by the City of London) has ranked Dublin as the fifteenth most important international financial centre in the world (ahead of Amsterdam but behind San Francisco). When the top financial centres are examined by just business environment factors, Dublin scores better (10th), reflecting Ireland's strong regulatory environment. The latest survey also gives a breakdown of importance of financial centre by sector, with asset management respondents rating Dublin 9th, ahead

[82] OECD. 2006. 'Innovation and Knowledge-Intensive Service activities'.
[83] http://www.forfas.com/publications/show/pub237.html
[84] http://www.forfas.ie/publications/show/pub242.html
[85] http://www.forfas.ie/events/servicesstrategy/index.html
[86] www.cityoflondon.gov.uk/Corporation/media_centre/files2007/City+launches+new+Global+Financial+Centres+Index+(GFCI).htm

of Luxembourg. In Insurance, Dublin is ranked 4th, after London, New York and Zurich. Clearly, a strong emphasis on innovation and boosting productivity will secure the sector's role as a leading global player.

The review of the International Financial Services Industry in Ireland – *Building on Succe*ss – published in 2006[87] recorded that the role of financial services in Ireland as a source of both wealth generation and employment has become more pronounced as Irish standards of living continues to rise. It noted that the international financial services sector operates in a global environment where innovation and productivity are essential drivers of competitive advantage. It identified a number of issues that warranted consideration and actions that needed to be taken to further enhance the capabilities of the industry having regard to studies being undertaken by Forfás and the supports being provided by IDA Ireland, Enterprise Ireland and Science Foundation Ireland in forging appropriate support links with academic research capacity. The Clearing House Group, which operates under the auspices of the Department of the Taoiseach and has representatives of the public and private sector, is monitoring and driving this process.

Increasing our understanding of services innovation

Services have long been perceived as being non-innovative. In reality they *do* innovate, albeit in a different manner to manufacturing.[88] Recent surveys show that R&D expenditures in services are increasing rapidly. Modern technologies, such as ICT, also drive innovation in services and particularly in financial services.

In an effort to address disparities in our understanding of services innovation in Ireland, Forfás has initiated its own study to identify and develop innovative policy thinking on services innovation. Two recent Forfás studies[89] identified the need for a better understanding of services innovation, including a new 'vocabulary' for discussion and debate on policy that matches the reality of innovation in services. Furthermore, there is a need for a robust and validated set of innovation models that can be used to create new services innovation policy.

Awareness of innovation is a key issue for enterprises in the service sector, along with managing and capitalising on related opportunities. Difficulties often arise around the within-company capability and capacity to identify new knowledge/technology external to the company, and their ability to absorb and manage this by integrating it into new products, processes or services.

There are significant sectoral differences in the innovation profile within the service sector. Knowledge Intense Business Services (KIBS), such as computer services and R&D services, are among the innovation leaders[90]. Other services are far less innovative or tend to innovate in a more continuous and incremental way, often non-technologically. This heterogeneity of the service sector should caution us against

[87] Building on Success – International Financial Services Industry in Ireland – http://www.taoiseach.gov.ie/attached_files/Pdf%20files/Building%20on%20Success.pdf

[88] Howells J. and B. Tether. 2004.Innovation in services: Issues at stake and trends. European Commission. Innovation papers No. 40.

[89] The Review of Product, Process and Services Innovation (2003) and the Services Innovation Scoping Study (2004).

[90] Not only are business services innovation leaders in the services sector, they are also a thriving sector, with 35% growth in Ireland in 2007 resulting in over €20 billion in export sales last year.

drawing general conclusions about the innovativeness of the services sector and actions to be taken.[91]

The Services Strategy Group's work will suggest new areas of services innovation (such as servicing international supply chains) requiring further development and will examine how to advance the innovation research agenda, while increasing both the national capability and capacity in services innovation.

Cartoon Saloon, founded in 2000, is a growing Kilkenny-based animation company with a workforce of 70. It has evolved as a start-up by graduates with skills in hand-drawn animation techniques. Over the years animation has evolved in sophistication, encouraging the company to diversify into alternative animation techniques, including new technological approaches using computer aided line drawing to manipulate drawings and 'flash' animation for web-based output. The company has acquired these new skills through self-learning. Recent output is being shown in 22 countries, including on BBC in the UK.

ETeams, based in Scariff, County Clare, is a specialist translation service provider to businesses, governments and private clients both in Ireland and abroad. The company has few permanent employees. Instead it builds global e-working teams for each new project on a case-by-case basis. In this respect, the company is able to maintain cost competitiveness, while accessing different skill sets as required and developing new services quickly as opportunities arise. This organisational model underpins all other innovation initiatives within the company.

Innovation in Environmental Goods and Services

While climate change and the need for more sustainable use of resources pose significant challenges for industry, they also offer significant enterprise opportunities which can be exploited through innovation across a range of sectors. This includes mature industries such as drinking water supply, waste-water treatment and solid waste management. At the same time, it encompasses newer industries at the leading edge of technological innovation, such as environmental monitoring, renewable energy and 'clean' technologies. Technologies and processes that minimise pollution and material use, have enormous potential.

The worldwide market for environmental industries was estimated at €1,000 billion in 2005, with a potential to reach €2,200 billion in 2020. In Europe environmental industries generate a turnover of €227 billion or 2.2% of EU GDP, and employ about 3.5 million people. The sector in Ireland has expanded greatly in recent year, due primary to heightened environmental awareness and improved environmental regulation. Emerging sectors include waste management and recycling, waste-water treatment, energy-related goods and services and other environmental services. Global annual sales of Irish environmental goods and services now total €680 million, with a predicted growth of 15-20 percent in the next three to four years. The sector currently employs about 4,000 people in Ireland.

[91] European Commission. Commission staff working document - *Towards a European strategy in support of innovation in services: Challenges and key issues for future actions*. 2007.

In March 2008, Mr. Micheál Martin, TD, then Minister for Enterprise, Trade and Employment, announced a €90 million fund for sustainable energy and energy technologies, to be administered by Science Foundation Ireland (SFI) over the next five years. The targeting of this funding, in cooperation with the Department of Communications, Energy and Natural Resources, involved extending the remit of SFI to this third research pillar, with launch calls for funding to follow later in 2008.

Progress has been made, but more can be achieved with renewed effort. An accelerated rollout of the "knowledge intensive" economy must increasingly replace the "resource intensive" model if our ambitious energy efficiency and greenhouse gas targets are to be achieved. The *Programme for Government* contains a commitment to support the development of environmental technologies in Ireland to achieve a win/win situation in terms of improved competitiveness and environmental performance.
In the light of the growing recognition of the need for more environmentally friendly products, processes and services, and the future importance of environmental conservation to the global economy, there appears to be significant growth opportunities within the global market for indigenous industry in this sector and, potentially, for foreign direct investment. Innovation will be a key element in exploiting such opportunities.

JFC PLASTICS: Irish Eco-innovation Success
Based in Tuam, County Galway, JFC Plastics employs over 100 people and specialises in developing new plastic products. One of its latest innovations, the HydroChamber storm water system for building sites, disposes of rainfall and ground water in an environmentally friendly way and prevents flash flooding. The system is complementary to drainage pipes manufactured from recycled plastic by JFC. The innovative HydroChamber product was developed at the Company's R&D unit and received development funding from Enterprise Ireland

A sectoral study, on an all-island basis, has been commissioned through Forfás and Inter*Trade* Ireland to map out the current state of the sector in Ireland, the enterprise opportunities for existing firms and potential entrants, and the supports and framework conditions required to assist Environmental, Goods and Services (EGS) companies. The aims of the study include:

- estimating broadly the size of the EGS sector on the island of Ireland
- examining, for the all-island market, the market drivers, and the strengths and weaknesses of each sub-sector
- identifying the most promising areas in the EGS sector where new opportunities are likely to occur, both indigenous and foreign direct investment, as a result of forthcoming market stimuli

The EU is currently developing its policy to promote sustainable consumption and production patterns and sustainable industrial policy. The aims of the policy measures involved are to:

- Promote sustainable consumption and production by addressing social and economic development within the carrying capacity of ecosystems and decoupling economic growth from environmental degradation.

- Improve the environmental and social performance for products and processes and encouraging their uptake by business and consumers.
- Achieve, by 2010, an EU average level of Green Public Procurement (GPP) equal to that currently achieved by the best performing Member States.
- Seek to increase the EU global market share in the field of environmental technologies and eco-innovations.

This increasing focus at EU level on sustainable consumption and production will result in the need for increased innovation at enterprise level to meet the challenges and exploit the opportunities arising.

8. Innovative Enterprises in an Entrepreneurial Society

Entrepreneurial behaviour fuels the engine of innovation and growth around the world. In January 2008, the Global Entrepreneurship Monitor[92] measured an early stage entrepreneurship rate of 8.2% in Ireland, ranking Ireland 2nd in the EU and 5th among OECD countries for entrepreneurial activity. This suggests that the climate in Ireland for entrepreneurship is positive, assisted by our benign business framework conditions such as relatively low taxation and low regulatory burden and relatively easy access to finance.

In Ireland, our enterprise development agencies are organised at regional and local level. Enterprise Ireland has ten regional offices and the Council Enterprise Boards based in every County in Ireland. These organisations have a suite of enterprise supports which are described briefly below.

Business Start-Ups and Early Stages:

- HALO Business Angels Partnership[93], open to businesses North and South, offering access to private equity;
- Seed Capital Scheme[94], using tax incentives to attract financing for start-ups;
- Incubation Centres, offering services, business and management development, and networking capabilities to young entrepreneurs;
- High Potential Start Ups[95] (HPSUs), given specialised help and funding from Enterprise Ireland. 79 export-orientated HPSUs were supported by EI in 2007 with €69 million in funding. These Start Ups will eventually employ over 1,500 and generate sales of over €750 million over the next 3 years ;
- Enterprise START Programme[96], providing information and training by experienced entrepreneurs for those just starting out;

- County and City Enterprise Boards[97] (CEBs), enabling the development of local indigenous enterprise potential in the micro-business sector through the stimulation of economic and entrepreneurial activity at city and county levels. CEBs operate a range of support instruments to assist the establishment and on-going development of viable business proposals coming forward from within their individual and local areas of operation including financial and soft supports;
- Community Enterprise Centres[98]: These encourage entrepreneurship at grass root level. The Centres provide a supportive environment for budding entrepreneurs and serve to help the development of entrepreneurship at the local level. The latest CEC scheme (2007-09), worth €21 million, will be rolled out over three calls for applications from communities over the next three years. There are currently 105 Centres with a further 29 in the pipeline.

[92] http://www.gemconsortium.org
[93] https://www.businessangels.ie
[94] http://www.enterprise-ireland.com/Grow/Finance/Seed_Capital_Scheme.htm
[95] http://www.enterprise-ireland.com/CommonPages/High_Potential_Start_Ups.htm
[96] http://www.enterprise-ireland.com/StartBusiness/EnterpriseSTART+Programme.htm
[97] http://www.enterpriseboards.ie
[98] http://www.enterprise-ireland.com/Grow/Finance/Community+Enterprise+Centre+Scheme.htm

Business Development:
The Government is also targeting business expansion, with assistances including:

- Tech-Check,[99] offering ICT audits for up to 2,000 growing businesses each year to identify appropriate ICT needs;
- Business Expansion Scheme,[100] providing tax incentives for investors in expanding businesses. The extension of the two schemes in the December 2006 budget for a further seven years provides for an increase in the amount of money that firms can raise through the scheme to €2 million (up from €1 million). The higher limit is subject to a maximum of €1.5 million being raised in any one 12-month period;[101]
- Management Development, through Skillnets,[102] enhancing management capability;
- R&D Tax Credits,[103] encouraging in-house R&D;
- Enterprise Platform Programme,[104] a one-year training and support programme for entrepreneurs;
- Driving management and strategic capabilities: Enterprise Ireland is working with companies to ensure they have the world-class management teams with those key management skills over the critical areas of sales, marketing, technology and innovation (e.g. Leadership 4 Growth programme and the International Selling Programme[105]);
- Sustainable global companies: Dedicated teams, in partnership with other company focused divisions across Enterprise Ireland have been working with over 50 companies over the last two years to assist them achieve annual sales of greater than €20 million world-wide (while maintaining headquarters and a substantial presence in Ireland).
- Growth Fund,[106] launched in February 2008, provides eligible SMEs with up to €650,000 each for certain capital equipment and technology acquisition as well as training and consultancy. The Fund has a budget of €60 million

Financing Entrepreneurship
Funding innovative concepts is an ever-present issue for entrepreneurs. The Seed Capital Scheme and Business Expansion Scheme, already discussed, provide vital tax incentives at various stages of the entrepreneurial process. Financing gaps still exist, however. The Seed and Venture Capital Programme (2007-2012) is investing €175 million in an new round of venture capital funding that will leverage €1 billion, but

[99] http://www.techcheck.ie
[100] http://www.enterprise-ireland.com/Grow/Finance/Business_Expansion_Scheme.htm
[101] The European Commission has imposed a number of conditions, which means that companies in counties Dublin, Meath, Kildare and Wicklow will qualify only for seed capital or as start-ups. Existing businesses must be in EU "assisted areas", which effectively means the other 22 counties in the Republic
[102] http://www.skillnets.com
[103] http://www.revenue.ie/publications/txbrefng/tb66/tb06.htm
[104] http://www.enterprise-ireland.com/ResearchInnovate/Research+Commercialisation/Busines_Development_Phase_-_EPP.htm
[105] http://www.enterprise-ireland.com/Exports/Export+Training/Building+Export+Sales+International+Selling+Programme.htm
[106] http://www.enterprise-ireland.com/Grow/Finance/Growth+Fund.htm

private sector initiatives, such as the IBM European Venture Capital Centre based in Dublin, are vital for a healthy venture capital sector in Ireland.[107]

Reinforcing entrepreneurial thinking

The City and County Enterprise Boards (CEBs) are strongly committed to promoting enterprise in second level schools through their involvement in programmes including the Student Enterprise Awards.[108] The competition is a countrywide event with 1 in 6 second-level students participating. Over 40,000 second-level students are engaged in various forms of work experience each year and Enterprise Education has been integrated into the Leaving Certificate Vocational Programme.

The CEBs also promote successful female entrepreneurs as role models, using mentoring and networking opportunities through Programmes such as the *Women in Business* initiative. The CEBs have also been very successful at attracting the active participation of women in their range of training programmes such as *Start your Own Business* courses and *Management Development Programmes*. Women make up nearly 60% of participants on these programmes. The first ever **National Women's Enterprise Day**[109] was held on 21 November 2007.

The **Report of the Small Business Forum**[110] called for the establishment of a National Entrepreneurship Policy that would include stimulating latent entrepreneurial potential (particularly amongst women and immigrants), reinforcing entrepreneurial thinking in the educational system; and enhancing the culture of entrepreneurship, perhaps through an awareness campaign highlighting the importance of Entrepreneurship to the future development of the Irish economy. Such a campaign would assist in embedding the culture of entrepreneurial mindsets by highlighting success stories and also help reduce the "fear of failure" in relation to starting (or re-launching) a business. In 2007, Forfás published ***Towards Developing an Entrepreneurship Policy for Ireland***[111] setting out a blueprint for driving entrepreneurship in Ireland.

Innovation in the Firm

Ireland's innovation performance at the level of the firm is very healthy. There are many innovative firms operating in Ireland across a range of sectors from sandwich making and supermarkets to air transport and software. Ireland ranks 4th out of the EU 15 for firm-level innovation activity.[112] However, turnover derived from "new to market products" and "new to firm products" is relatively low. From an enterprise perspective, it is desirable that efficiency inputs are transformed into outputs in terms of actual results. In this context, the figure below, comparing Ireland's level of Innovation Efficiency against the EU25 Member States, demonstrates that innovation conversion rate from inputs to outputs is not as efficient as it could be. Countries positioned above the top dotted line are very successful in transforming Innovation Inputs into Innovation Outputs.

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[107] See *Towards Developing an Entrepreneurship Policy for Ireland* (October 2007) for a more detailed discussion of Entrepreneurial financing. (http://www.forfas.ie/publications/forfas071023/forfas-entrepreneurship-report-sept-2007.pdf)

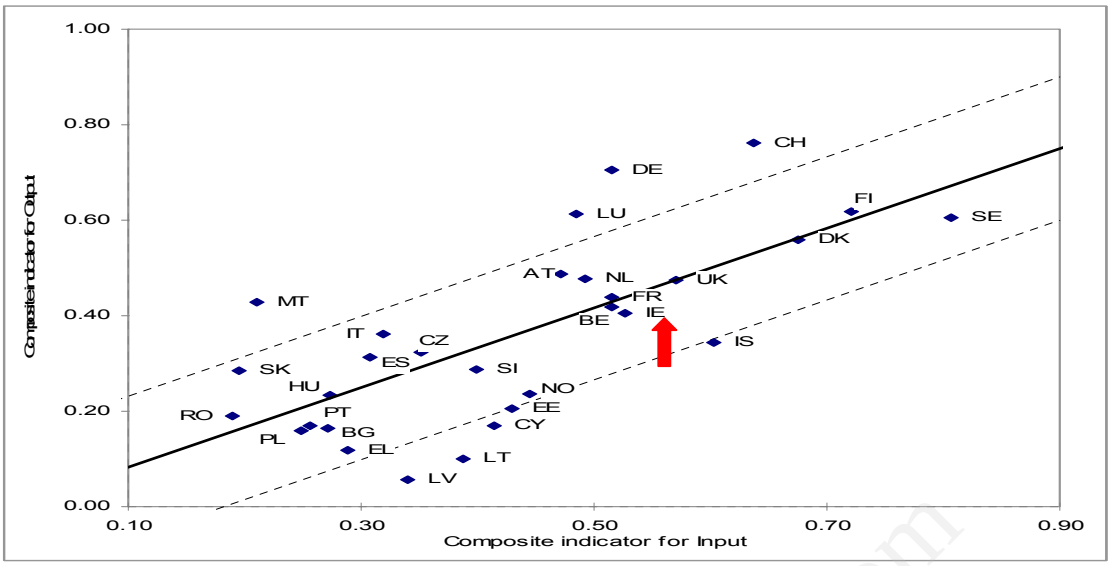
[108] http://www.studententerprise.ie

[109] www.nwed.ie

[110] http://www.smallbusinessforum.ie

[111] http://www.forfas.ie/publications/forfas071023/forfas-entrepreneurship-report-sept-2007.pdf. Forfás also produced another report: *Mapping of Entrepreneurship Initiatives* available at http://www.forfas.ie/publications/forfas071023/mapping-of-irish-entrepreneurship-initiatives.pdf

[112] Forfás Community Innovation Survey 2007



Innovation within the firm is driven through leadership and entrepreneurship within the management of that firm. In addition to the suite of training support available from our development agencies, the establishment in May 2007 of the **Management Development Council,** as recommended by the Small Business Forum (see Chapter 3), is also enhancing the culture of entrepreneurship in individual firms by focusing on the value and need for leadership and management skills in SMEs.

Tapping into the entrepreneurial skills of migrants

There is scope for maximising the value added by the substantial immigrant community. Immigrants have contributed significantly to our society and economy. They have skills, talents and new perspectives on the world that can be of benefit to Ireland. They can make a material and positive impact on future social and economic growth. It is estimated that currently between 6 and 10 percent of new businesses are now established by non-nationals every year. Research suggests that the skills profile of immigrant workers actually exceed that of the resident population. As mentioned in Chapter 3, projects piloted through the European Social fund Programmes can be a rich source of learning and innovation based on tested and validated results. The "EMERGE" project[113], for example, established to promote ethnic minority entrepreneurship, provides free training to ethnic minority entrepreneurs at pre-enterprise, start-up and growth stages. The project's research shows that access to translation facilities and English language capabilities, business permission and supports and advice are significant obstacles which need to be addressed by financial institutions and others providing services to immigrants.

[113] www.equalemerge.ie

9. Partnership and Workplace Innovation

The role of Social Partnership has been critical to Ireland's recent economic success. *Towards 2016*, the seventh national partnership agreement since the process was initiated in 1987, is testimony to the strength and durability of this economic and social model in finding solutions to shared problems that serve the public good. The industrial relations environment has been transformed. Prior to social partnership, an average of over 317,000 days were lost annually through industrial disputes in the 1980's, compared with just over 7,300 in 2006, the lowest on record. This has been significant in attracting increased investment. Social partnership has also provided avenues for groups of stakeholders to input to and impact on Government policy through pilot and experimental initiatives undertaken jointly by employers and Unions. Workplace Innovation is a Social Partnership initiative that focuses on stimulating workplace change and innovation through inclusive dialogue leading to a more efficient, innovative workplace.

National Workplace Strategy

In 2005, the National Centre for Partnership Performance launched '***Working to our Advantage: A National Workplace Strategy'***,[114] the Government's blueprint to transform Irish workplaces into 'Workplaces of the Future'. It focuses on stimulating workplace change and innovation, recognising the critical role that Social Partnership can play in this process. The key message of the National Workplace Strategy is that the quality of Irish workplaces and the levels of innovation and change therein are critical to Ireland's ongoing transition to a more dynamic, highly skilled and knowledge-based economy.

The National Workplace Strategy has identified five strategic priority areas in which action is currently being concentrated:

- ***Commitment to Workplace Innovation***
- ***Capacity for Change***
- ***Developing Future Skills***
- ***Access to Opportunities***
- ***Quality of Working Life***

The Strategy identifies the need for greater innovation in products and processes but also the need for more *organisational* innovation and related improvements in workplace cultures. It also highlights the need for improvements in organisational culture which will facilitate the delivery of higher quality services in the private, public, community and voluntary sectors.

The sources of added value and new ideas are not limited to the laboratory or R&D activities, the market place or technical research institutions. The workplace is critical for innovation in generating new ideas, developing new products and improving processes. The National Workplace Strategy, already firmly embedded at national level, is now to be targeted at enterprise-level stakeholders in the public and private sectors. The **Workplace Innovation Fund** was launched in January 2007 by the Taoiseach as an aid to enhancing capacity for strategic change across Irish workplaces. It involves €9m over three years and comprises three strands:

[114] http://www.ncpp.ie/dynamic/docs/NationalWorkplaceStrategy.pdf

Public Awareness Campaign
This strand of the Fund provides for funding to the National Centre for Partnership and Performance for a national awareness-raising campaign on innovation, change and partnership issues under the National Workplace Strategy. The campaign runs from June 2007 into 2008.

Support for capacity building among Social Partners
This aims to enhance social partner capacity and to build a stronger commitment to workplace innovation and change. The fund is administered by the Department of Enterprise, Trade and Employment and can be accessed by IBEC, CIF and ICTU. An initial amount of €0.3m was provided to the social partners for projects under this strand in 2006 with a further €1.4m provided for 2007-8.

Promotion of Innovation at Enterprise Level
Funding under this strand focuses on companies aiming to improve competitiveness and productivity. The support allows them to develop their capacity for workplace innovation and change through participative approaches with employees and their representatives. It is expected to run for three years with total funding of €6m. The National Centre for Partnership and Performance is committed to developing case studies of completed projects under the Workplace Innovation Fund and widely diffuse best practices to Irish workplaces.

Workplace Innovation - Case Study

A manufacturing company employing 80 people introduced significant organizational change through new arrangements that facilitated increased employee involvement through partnership. With a history of difficult industrial relations, an overtime compensation agreement for new technology had prompted the company to look for new forms of workplace development. Work was re-organised to deliver substantial improvements in both the performance of the company and the welfare of the employees. Key elements of the change included:

- New team-based structure; Re-organisation into four cross-functional teams;
- Introduction of Team Working, Team Leaders and Key Performance Indicators;
- Significantly increased spending on training;
- Cross-skilling and up-skilling of employees;
- Introduction of new reward system;
- Skill-based pay, gain-sharing, profit-sharing and annual time contract initiatives;
- Introduction of structured appraisal system.

Key benefits of this approach include:

- Employees have a say in the organization of their workplace;
- Company now has a stable work organisation capable of being responsive to customer's needs. Employees have a greater understanding of the customer and market demand;
- Very little time is spent on Industrial Relations issues;
- Further new work practices have been introduced with relative ease as a direct result of the partnership and employee engagement process;
- Costs have been stabilized and employees have a real input into their work.

10. Competition and Better Regulation as Drivers of Innovation

Competition

Competition fuels innovation. Market entry by new firms and existing firm rivalry promotes price competition, improves quality and service, and encourages innovation. Effective competition brings the benefits of competitive pricing but firms may go beyond this, using entrepreneurial and innovative skills to develop new products and services, exploit particular strengths, abilities or other advantages held by a firm and, by these means, meet consumer needs more effectively than competitors. In recent years, we have witnessed this to varying degrees in the health insurance, banking and mobile phone markets, but there remain sheltered areas of the economy that stymie the motivation to innovate. Enhancing competition within Ireland's domestic economy is critical to improving the cost competitiveness of Irish-based firms who trade internationally.

Ireland's anti-trust regime, established in 1992, mirrors that of the EU. The legislation has since been strengthened, particularly by the Competition Act, 2002. A further review of competition legislation is underway with the Department of Enterprise, Trade and Employment receiving submissions on the operation and implementation of the 2002 Competition Act. The Competition Authority is the public body charged with regulating competition, enforcing anti-trust and investigating anti-competitive practices. The Authority has recently completed studies into the non-investment banking sector, private health insurance, and the professions (engineers, architects, optometrists, dentists, solicitors and barristers) with further reports due. In insurance and banking, the Financial Regulator has already implemented many of the recommendations, while the Competition Authority continues to consult stakeholders on the finding of its reports on various professions. The Authority has had enforcement successes, with 15 criminal convictions in 2006, while its resources have recently been significantly increased.

Taxi Deregulation Case Study

To cope with competitive pressures following taxi deregulation in 2000, a Dublin taxi firm (NRC Plc) has seized opportunities to grow its business. The firm became the first Irish taxi company to install a full Global Positioning Satellite (GPS) taxi management system. The company saw the potential in deregulation to employ more drivers leading to more customers. In 2003 the company introduced the first internet booking system in the country. The company now provides call centre facilities for three other taxi companies. They receive approximately 4,500 calls every day and the fleet has grown in size from 208 cars in 1999 to an 860-strong fleet today

Better Regulation

A simplification of regulation can facilitate innovation research and business creation. Better Regulation, as implemented across the EU, consists of a number of measures including Impact Assessments, simplification programmes and a reduction in administrative burdens. The EU Commission carries out regular screenings of pending legislative proposals. The key is to strike the right balance between protecting and empowering consumers on the one hand, while simultaneously encouraging innovation, investment and enhancing market fairness and efficiency.

Ireland is not an overly regulated economy by international standards. A 2007 ESRI Business Regulation Survey[115] measuring business attitudes to regulation found that 55% of businesses felt that the level of regulation was 'about right'. Regulation should not be overly burdensome. Nor should the costs of compliance impact negatively on competitiveness. In 2007, the National Competitiveness Council concluded that the regulatory environment has played a successful role in the development of Ireland's international competitiveness.[116]

If new regulations are to make a positive contribution to competitiveness, it is important to ensure that the regulatory changes are designed to help, not hinder, businesses in general and innovators in particular. In January 2004, the Government announced its approach in the White Paper, *"Regulating Better"*[117] setting out the core principles of good regulation and a programme of actions to give effect to these principles. This was followed, in November 2006, by a European Commission proposal to reduce administrative costs by 25% at both EU and Member State levels by 2012. They estimate that administrative costs in Ireland are approximately 2.4% of GDP (compared to the EU average of 3.5% of GDP) and that a 25% reduction in these would boost Ireland's GDP by almost 1%, saving Irish businesses up to €500 million annually.

In Ireland, the application of Regulatory Impact Assessments (RIAs), itself an innovation, was broadened in 2005 to all proposals for primary legislation, significant statutory instruments, draft EU Directives and significant EU Regulations. Government is addressing the recommendations of the Report of Business Regulation Forum (2007) and the regulatory aspects of the Report of the Small Business Forum (2006). The Business Regulation Forum has highlighted five areas which the Government has agreed to focus on: taxation, health and safety, environment statistics, and employment and company law. A high-level group comprising of business, union and government representation is working to implement the recommendations of the Business Regulation Forum.

Better Regulation does not just have the potential to remove obstacles to innovation but can, indeed, itself drive innovation. In healthcare and environment, for example, necessary and innovative regulating can lead to innovations such as tamper-proof medication or, in the area of eco-innovation, through cleaner motor engines. While it is often the case, 'Better Regulation' does not always mean less regulation. For example, in the case of Intellectual Property, better regulation can mean better enforcement of intellectual property rights, thereby creating the appropriate environment for successful innovation and the creation of efficient markets. Regulation can also improve our welfare as in the case of regulations governing the use of dangerous substances.

Certain aspects or types of regulation can have adverse effects on productivity, particularly regulatory burdens that hinder market access or impose inordinately high administrative or compliance costs. Thus, a reduction of administrative burdens is likely to have a positive impact on competitiveness. This could be achieved, for example, by making better use of technology and avoiding multiple reporting requirements or

[115] http://www.betterregulation.ie/attached_files/Pdfs/BUSINESS REGULATION SURVEY.pdf
[116] National Competitiveness Council, Annual Competitiveness Report, 2006, Volume 2: "Ireland's Competitiveness Challenge", 7 February 2007. http://www.competitiveness.ie/ncc/reports/ncc_challenge_06/webopt/ncc070207_acr_challenge_2006_webopt.pdf
[117] http://www.betterregulation.ie/upload/Regulating_Better_html/index.html

changing the frequency of reporting information. Reductions in administrative burdens can sometimes be achieved by simply clarifying existing requirements or by providing better guidance without compromising the integrity of the legislation.

In December 2007, the Taoiseach announced a Review of the Economic Regulatory Environment, as provided for in the Programme for Government. The Government intends on recruiting independent experts to advise on international experience and best practice across a wide spectrum of regulation as it frames the future direction of sectoral regulatory policy.

Conclusions

This innovation mapping exercise charts the various components of our national innovation system. We have identified the depth and breath of innovation activity taking place in Ireland. Our enterprise support agencies are already highly geared to stimulate and assist people and firms to produce new services and products and gain new markets and we have programmes in place to create knowledge and build on the skills and talents of our people.

In so doing it is our ambition not only to document our progress but also to recognise and acknowledge the contributions of many people, companies and organisations to the national innovation agenda. We hope that we have also created an awareness of how individual efforts can combine to support and underpin innovation. It is clear that there is a momentum embracing change, collaboration and creativity in Ireland which manifests itself in our relatively high performance ranking in the sectors which drive innovation.

This policy statement also recognises that measures taken by Government impacting on the supply-side of innovation can be complemented by actions to stimulate the demand-side for innovative products and services. Government can play a further supporting role, in particular through its procurement policies and we will establish a group to take this forward.

Innovation as a concept has become a defining feature of much of our economic activity. We are confident that the further incremental steps we identify will help to sustain our economic performance and take us to the next level of prosperity shared across the regions and throughout society.

"Just as energy is the basis of life itself, and ideas the source of innovation, so is innovation the vital spark of all human change, improvement and progress"

- Ted Levitt

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