



**EXPERT EVALUATION NETWORK
DELIVERING POLICY ANALYSIS ON THE
PERFORMANCE OF COHESION POLICY 2007–2013**

TASK 1: POLICY PAPER ON INNOVATION

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**PROF. P.J. DRUDY
CENTRE FOR URBAN AND REGIONAL STUDIES
TRINITY COLLEGE, DUBLIN**

**A report to the European Commission
Directorate-General Regional Policy**

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1 EXECUTIVE SUMMARY

“Balanced regional development” has for long been a stated national objective of the Irish government and policy is initiated and framed in a national context after discussion with a range of regional and national institutions and agencies. The two NUTS II Regions – the Border Midland and Western (BMW) Region and the Southern and Eastern (S&E) Region have their own Regional Assemblies which currently “manage” allocated national and EU funding. These and other agencies, such as the Western Development Commission in the BMW region, most clearly articulate the regional dimension. The regional dimension is also evident in the 2002 National Spatial Strategy (NSS), designed to build up, encourage innovation and develop nine “Gateways” and nine “Hubs” in existing urban centres in both regions. A “Gateway Fund” of €300 million was proposed but is now deferred and replaced by ERDF-supported initiatives. In the Southern and Eastern Region, the key regional innovation objectives are to enhance research capacity of the Institutes of Technology and to create synergy and collaboration between all third level institutions and industrial and service-type firms by establishing “incubation centres”. The BMW Assembly and other agencies such as the Western Development Commission place considerable emphasis on the need to encourage and develop micro-enterprises and the Institutes of Technology throughout the region, to invest in marine and renewal energy areas and “creative industries” and to expand broadband to small towns and rural areas. A framework for regional innovation has been put in place with the establishment of Applied Research Centres, incubation centres, the encouragement of micro-enterprises, collaboration between research workers and industry and the extension of broadband. These are, in effect, the main innovation activities specific to the regions.

The European Regional Development Fund (ERDF) has played a central role in Irish regional policy over the past thirty years. For most of this period it has been a particularly important source of funding for improving transport and infrastructural networks throughout the country. In the 2007–2013 Operational Programme there is a strong focus on innovation and the knowledge economy instead of transport and infrastructure. However, funding is much reduced from previous Programmes and the ERDF now represents a modest proportion of total expenditure which is channeled through the *National Development Plan 2007–13*. Nevertheless, its importance in the two Irish (NUTS II) regions should not be under-estimated in relation to innovation and it complements and strengthens the regional dimension of innovation policy articulated by the key regional agencies. The two Regional Assemblies which manage ERDF funding at a regional level are heavily reliant on this source.

The available evidence to date suggests that the ERDF is continuing to play a positive role in furthering innovation and a range of positive impacts/outputs are identified, especially in relation to knowledge transfer and boosting applied research. However, the third policy area, innovation friendly environment also indicates achievement. The key impacts arising from both national and ERDF initiatives identified in the two Irish regions include:

- significant additions and improvements to physical innovation infrastructure and employment in third level institutions via the Programme for Research in Third Level Institutions (PRTLII)
- the establishment of Applied Research Centres and Incubation Centres especially in the Institutes of Technology, resulting in additional training, employment, research capacity and increased research and industry collaboration
- the establishment and creation of employment in micro-enterprises
- the extension of broadband to residences and businesses

Among the challenges being faced on a national scale and in the two Irish regions are the distinctive differences in needs and potential in the regions, the specific requirements of SMEs, including micro-enterprises, the need to create a critical mass of research and innovation especially in the BMW region, the preoccupation with national as opposed to regional goals and the cutbacks in expenditure arising from the economic downturn.

2 NATIONAL AND REGIONAL INNOVATION POLICY AND THE CONTRIBUTION OF ERDF

2.1 INTRODUCTION

Background and Context

Since the early 1990s and for almost 15 years Ireland experienced remarkable levels of economic growth as measured by GDP and GNP. Employment also increased significantly while unemployment fell to very low levels. While these broad indicators suggested economic success, this was largely influenced by the export-oriented activities of manufacturing and service-type multinational companies attracted to Ireland by an educated workforce, a favourable tax regime and membership of the European Union. However, indigenous firms played a much weaker role and the economy had become heavily dependent for job creation on construction activity and services related to construction. In addition, an unsustainable “property boom” took place between 1995 and 2007. With interest rates at unprecedented low levels and lax lending and investment practices in the banks, many individuals and companies borrowed heavily. Due to this and excess demand for housing, house prices rose significantly and remained seriously out of line with normal inflationary tendencies over this period. Serious risk-taking by construction companies eventually led to an over-supply of housing and contributed to a major collapse in house prices since 2007. A range of property companies are in serious financial difficulties and a number of the major lending institutions have been nationalised or are part owned by the state. Over the last few years, therefore, economic growth has been negative, unemployment has increased significantly and emigration has resumed. A National Asset Management Agency (NAMA)

has been established by the government to acquire and manage the devalued assets of property companies. Government borrowing and debt has increased significantly and the debt to GDP ratio is one of the worst in the European Union, resulting in severe cutbacks in expenditure. It is in this changed context that this Report is written.

The Regional Problem in Ireland

Significant differences have for long existed between the relatively prosperous and more urbanised east of Ireland (with its capital city of Dublin) and the poorer and predominantly rural west, midlands and north west of the country¹.

Since the 1950s a whole range of grants and incentives relating to manufacturing industry favoured the western areas and a number of agencies with a regional orientation were established. Institutes of Technology were established during the 1960s with a specific regional responsibility. Other initiatives included Regional Offices of the main national industrial promotion body, the Industrial Development Authority, Shannon Development which concentrated on the Mid West Region, nine Regional Authorities (also established in all parts of the country), the Western Development Commission and County Enterprise Boards. However, these promotion bodies were invariably controlled by central government and few had significant decision-making or financial power. The nine Regional Authority Regions (NUTS III Regions) were amalgamated in 2000 into two larger NUTS II Regions – the Border Midland and Western (BMW) Region and the Southern and Eastern (S&E) Region with their own Regional Assemblies which currently “manage” allocated national and EU funding. The current challenges facing these two Regions were analysed in some detail in two separate Reports produced on behalf of the Regional Assemblies. We summarise the findings below.

An *Audit of Innovation in the BMW Region* was carried out by CIRCA Group Europe Ltd on behalf of the BMW Assembly (CIRCA Europe Ltd., 2004). Apart from the structural and locational challenges mentioned earlier, the Audit showed that the level of entrepreneurship among companies in the BMW Region was much less and the volume of start-ups was only half that in the S&E Region. An Innovation Survey of 215 companies in the BMW Region illustrated that only 53 per cent undertook innovative activities compared to 79 per cent in its S&E counterpart. Having a large rural hinterland, a preponderance of small urban centres and only one city, Galway, the region is lacking in sufficient critical mass to fully facilitate innovation. The *Audit* stressed the need for a

¹ For many years the “western periphery” suffered from a heavy dependence on agriculture, poorer land, fewer employment opportunities outside agriculture, a relatively under-developed transport and communications network and a peripheral location – a combination of “structural” and “locational” difficulties. The “eastern core” on the other hand, had a wider range of industry as well as the vast majority of government and private sector services and facilities. It was thus an attractive location for migrants from the west. The east of the country suffered severe manufacturing losses during the 1970s and 1980s, especially among traditional manufacturing concerns and it also experienced significant diseconomies such as traffic congestion and inflationary tendencies in the Greater Dublin area. However, it still retained its dominant position in Ireland and does so to the present day.

change of “culture, attitude and enabling conditions” and argued for more “innovation stimulators”.

The S&E Region contrasts sharply with the BMW Region. In a *Needs Analysis*, the S&E Region was described as “the economic powerhouse of the country”. For example, it is home to in excess of 80 per cent of the urban population, having four of the five Irish cities. It has six of the seven Irish Universities. Over 80 per cent of national GDP is produced and 80 per cent of all third-level places and jobs in foreign-owned high-tech companies are in the Region. The S&E contains 90 per cent of all jobs in agency-assisted internationally traded services, 96 per cent of all air passengers travel through the region, and it has all the major national seaports (Fitzpatrick Associates et al., 2006). In relation to innovation, it lags behind the EU average for RTDI capacity, but it is far ahead of the BMW Region in this respect, accounting, for example, for eight out of every ten third-level researchers in the country. It also has many features of a knowledge economy including a relatively hi-tech industry base and a high proportion of third level graduates in its population.

2.2 NATIONAL AND REGIONAL INNOVATION POLICY

Summary of National Innovation Objectives

- To create new knowledge for economic and social progress
- To encourage innovation and the knowledge economy
- To improve productivity potential
- To encourage excellence in research
- To improve the physical infrastructure relevant to innovation, including the expansion of broadband throughout the country and the establishment of “incubation centres” especially in third level institutions where collaboration with firms and industry will be encouraged
- To strengthen the research capacity of Institutes of Technology
- To facilitate the establishment and expansion of micro-enterprises
- To encourage SMEs to “buy innovation”.

Summary of Main National Innovation Policy Measures

- The establishment of the Programme for Research in Third Level Institutions (PRTLII)
- The establishment of Science Foundation Ireland (SFI)
- The establishment of the Irish Council for the Humanities and Social Sciences
- The setting up of Third Level Alliances e.g. Trinity College, Dublin and University College, Dublin; National University of Ireland, Galway and University of Limerick; National University of Ireland, Galway and Institutes of Technology in the BMW Region

- The establishment of “Incubation Centres” in Institutes of Technology to encourage collaboration between the research community and firms and industry
- The Enterprise Ireland “commercialisation fund” to encourage entrepreneurship and the transfer of research knowledge to business and industry
- The micro-enterprise programme to support training and job creation
- Policy to encourage firms to “buy innovation”
- National Broadband Scheme to expand broadband throughout the country
- Tax incentives (tax credits) to encourage investment in Research and Development and intellectual property and to facilitate start-up companies and to encourage venture capital to locate in Ireland.

Discussion

An Action Plan on Research and Development produced by a government Inter-departmental Committee in 2004 hoped that “Ireland by 2013 will be internationally renowned for the excellence of its research, and will be at the forefront in generating and using new knowledge for economic and social progress, within an innovation-driven culture” (Government of Ireland, 2004). Particular emphasis was also given to “innovation and the knowledge economy” in the *Strategy for Science, Technology and Innovation, 2006–2013* (Department of Enterprise, Trade and Employment, 2006), in the *National Development Plan, 2007–2013* (Government of Ireland, 2007) and in the *Policy Statement: Innovation Policy in Ireland* (Department of Enterprise, Trade and Employment, 2008)².

An Innovation Task Force focussed recently on what it called the “Ideas Economy” and made a wide range of recommendations (Government of Ireland, 2010). A number of “Progress Reports” on various aspects of innovation have also been published by the government over the past two years (see, for example, Department of Enterprise, Trade and Employment, 2009 and Government of Ireland, 2010b).

The *Programme for Research in Third Level Institutions (PRTL)* was initiated by the government in 1998 and significant funding in five funding cycles has been committed to this programme since then. PRTL funding has been earmarked to improve the physical infrastructure relevant to innovation in third level institutions, particularly in science and technology.

² When launching the Policy Statement, the Minister for Enterprise stated : “Our ambition is to become a leader in innovation. Our future competitiveness depends on combining the strength of our knowledge base with delivering demand-driven innovative products and services. The relentless pursuit by the Development Agencies in promoting and implementing measures to improve the economy’s innovation and productivity potential is key to this process” (Minister for Enterprise, 2008).

An *Irish Council for Humanities and Social Sciences* was established by the government to encourage research in the humanities and social sciences. The Council has provided significant funding for Ph.D students and for senior academics to focus on relevant research.

A *Third Level Strategic Alliance* has recently been forged between Trinity College, Dublin and University College, Dublin (Ireland's two largest Universities) to provide stronger mechanisms for technology transfer and business support. A similar Strategic Alliance has also been initiated between the National University of Ireland, Galway and the University of Limerick with the aim of boosting and commercialising innovation through international linkages.

A total of 16 *Institutes of Technology* (originally called Regional Technological Colleges) were set up throughout the country in the 1960s. They concentrate on the provision of technical education, engineering and business studies at third level and have a particular responsibility to contribute to regional development. A key element of Irish innovation policy is to strengthen the research contribution of these Institutes.

In 2001 a *Collaborative Research and Innovation Strategy, Lionra*, comprising seven partners in Higher Education (the National University of Ireland, Galway and six other institutions) was established in the Border, Midlands and Western (BMW) region.

Science Foundation Ireland (SFI) was established by the government to encourage innovative research. This body funds *Centres for Science, Engineering and Technology (CSETs)* and *Strategic Research Clusters (SRCs)* to encourage research partnerships between academics and industry.

Government Research Centres and Agencies are carrying out research relevant to innovation in various parts of the country. These include the Agricultural Institute in several locations, the Marine Institute in Galway and the Salmon Research Institute in Newport, County Mayo. The agencies also include Enterprise Ireland, Forfas, Shannon Development, the Western Development Commission and Udaras Na Gaeltachta. The Southern and Eastern Regional Assembly and the Border, Midland and Western Regional Assembly also play key roles in commissioning and carrying out relevant research. InterTrade Ireland was established under the Good Friday Agreement to initiate cross border research and cooperation and to promote links between industry and academia in all parts of Ireland (Department of Enterprise, Trade and Employment, 2006).

A range of *Applied Research Centres* were established under the Productive Sector Operational Programme 2000–2006 and this initiative was restructured and expanded by Enterprise Ireland in 2008. *Incubation Centres* have also been set up, mainly in Institutes of Technology, to facilitate the commercialisation of research and development projects and the encourage start-up companies.

Procurement Policy Guidelines, approved by the government in July 2009, are designed to encourage small and medium sized businesses in Ireland to “buy innovation” in order to increase access to both exporting and non-exporting sectors.

Tax Allowances in the form of “tax credits” of up to 25 per cent of the cost are given to encourage investment in Research and Development and intellectual property. Expenditure on new or refurbished buildings for use in part for R&D likewise qualify for grants and tax relief. Tax incentives are also available for start-up companies and to encourage venture capital to locate in Ireland.

A Regional Dimension to National Innovation Policies?

“Balanced regional development” has for long been a stated national objective of the Irish government. Policy is initiated and framed in a national context after discussion with a range of regional and national institutions and agencies. The Border Midland and Western (BMW) Region and the Southern and Eastern (S&E) Region with their own Regional Assemblies currently “manage” allocated national and EU funding. These and other agencies, such as the Western Development Commission in the BMW region, have built up considerable knowledge and expertise on regional development. The regional dimension is most clearly articulated by these regional agencies. However, these bodies work under the auspices of central government and have modest decision-making and financial power.

The regional dimension is also evident in the National Spatial Strategy (NSS) proposed by the government in 2002 to build up, encourage innovation and develop nine “Gateways” and nine “Hubs” in existing urban centres in both regions with a “Gateway Fund” of €300 million. However, the NSS was overshadowed by a separate decentralisation programme initiated in 2003 which proposed and partially implemented a policy to move public sector employees from Dublin to over 50 smaller urban centres which did not coincide with the NSS centres. The proposed Gateway funding of €300 million has now also been deferred in view of the economic downturn and separate more modest Gateway Funds are being co-funded with ERDF in a number of centres.

In the light of the above, EU Cohesion Policy and the availability of ERDF funding, however, modest, are critical in influencing a continuing regional orientation in policy. Such an orientation is further influenced by regional and local authorities and agencies which articulate the critical and specific needs of the regions. These argue (and they are supported by the academic literature) that there is an economic as well as a social and political case for a strong regional policy.

Specific Regional Innovation Activities?

In the Southern and Eastern Region, national objectives are pursued but the key regional innovation objectives are to enhance research capacity of the Institutes of Technology and to create synergy and collaboration between all third level institutions and industrial and service-type firms by establishing “incubation centres”. The more extensive rollout of the National Broadband Scheme to small towns and rural areas is also a critical objective.

The BMW region also supports national objectives but has also its own specific rural, structural and locational difficulties. With respect to its main regional innovation objectives the BMW Assembly

and other agencies such as the Western Development Commission place considerable emphasis on the need to encourage and develop micro-enterprises and the Institutes of Technology throughout the region, to invest in marine and renewal energy areas and “creative industries” and to expand broadband to small towns and rural areas.

As mentioned above, the two Irish regions have their own particular challenges and accompanying regional policy objectives. However, while the key regional agencies have control over the ERDF, they lack the executive and financial power to fully influence policy or the allocation or expenditure of national funding. Despite this constraint, a framework for innovation has been put in place with the establishment of Applied Research Centres, incubation centres, the encouragement of micro-enterprises, collaboration between research workers and industry and the extension of broadband. These are, in effect, the main innovation activities specific to the regions.

Role of ERDF

The EU financial allocation (ERDF and ESF) to Ireland’s two regions under the Regional Competitiveness and Employment Objective of the two Operational Programmes was €750 million for the 2007–13 funding period. This is much smaller than previous funding rounds and reflects the concentration on convergence categories and the progress of Ireland up to recent years. It represents only 0.05 per cent of Ireland’s GDP compared to 2 per cent in the 1990s and 0.5 per cent in the period up to 2006. The ERDF allocation of €375 million to the two regions over the seven year period is just half the total allocation.

Despite its current modest size, the ERDF and cohesion policy in general have influenced thinking and policy in Ireland at both regional and national levels. Regional needs have been articulated via the Operational Programmes and EU or co-funded assessments of needs. Policies to deal with specific regional challenges would therefore be much weaker in the absence of ERDF.

The allocation of the ERDF to innovation for the period 2007–2013 and the main initiatives implemented as well as expenditure from ERDF up to the end of 2009 are given in Annex A Table 1.

2.3 ERDF CONTRIBUTION ACROSS POLICY AREAS

The key focus of support in both Irish regions is currently on knowledge transfer and boosting applied research capacity (see Table 2 in Annex A), the principal programme being the Programme for Research in Third Level Institutions (PRTL). The establishment of “incubation centres” in third level institutions and the encouragement of micro-enterprise innovation has also been facilitated by ERDF funding as well as expanding the availability of broadband.

The ERDF and national funding benefits a range of recipients. These include third level institutions, in particular universities and to a lesser extent Institutes of Technology. The PRTL measures

provide much-needed buildings and equipment to facilitate innovation, together with employment and support for Principal Investigators, post-doctoral researchers, research students, and a range of administrative and support staff. SMEs are also receiving significant support to use ICT and the facilities offered in incubation centres. The National Broadband Scheme, being rolled out throughout the country, benefits the general population as well as firms, agencies and institutions in each region.

From discussions and interviews carried out in both regions and with the Department of Finance, it seems clear that ERDF support is well placed and is focussed correctly on building much needed research capacity, R&TD infrastructure and the use of ICT. However, the long-standing disadvantage of the BMW region persists. In that region, as in its more prosperous partner, a greater focus on small firms and on small towns and rural areas would be desirable where small-scale “incremental” innovation should receive more attention. The two Assemblies would also argue, with justification, for greater control in relation to allocation and expenditure of funds.

Inter-Regional Co-operation and the ERDF

The ERDF is used to support a number of programmes of inter-regional cooperation with respect to innovation policy. These are :

- The Ireland Wales Programme
- Ireland/Northern Ireland/Scotland programme
- Atlantic area programme
- Northern periphery/western coastal programme
- North-West Europe programme

Two of these Programmes are particularly relevant and are briefly outlined. The S&E Regional Assembly is the Managing Authority and Certifying Authority for the **Ireland Wales Territorial Co-operation Programme** 2007–2013. The areas eligible for inclusion are the NUTS III regions of Dublin, Mid East and South East in Ireland and Gwynedd, Isle of Anglesea, Conwy, Denbighshire and South Wales. The purpose is to contribute to greater competitiveness and sustainable development in the areas concerned; to improve overall economic, social and environmental well-being and to achieve a more cohesive, balanced and sustainable development of the co-operation area. A total budget of €70.2m, including €52.7m from ERDF was allocated in the 2007–13 Ireland Wales Programme and €12m of ERDF has been allocated to focus on innovation under R&TD activities, technology transfer and co-operation networks and assistance to R&TD (including access to services in research centres) particularly in SMEs. Expenditure of almost €140,000 has taken place to date.

The **Atlantic Area Programme** supports projects in Spain, Portugal, France, the United Kingdom and Ireland. It has a total ERDF budget of €104m for the period 2007–2013. To date, 24 projects

have been approved throughout the area totalling some €39.5m in ERDF. Of these 24 projects, 19 involve 28 Irish Partners. The total approved ERDF to Irish Partners is €4.45m. The Innovation and marine/coastal environment priority accounts for 68% of Irish participation to date. Irish Projects supported include initiatives to promote research, innovation and enterprise networks, including higher education/industry collaboration, access to venture capital in rural regions of the Atlantic Area, SME internationalisation and local tourism development.

3 EVIDENCE AVAILABLE ON THE PERFORMANCE OF INNOVATION MEASURES CO-FINANCED BY ERDF

3.1 ACHIEVEMENTS UNDER THE COMPETITIVENESS OBJECTIVE

In this section, using a small selection of data available, we assess the performance or achievements of innovation policy drawing mainly on recent *Annual Implementation Reports* from the two regions. The data provides insights on the “impacts” of the policies in terms of new buildings, research staff and equipment, publication of research findings, patents, incubation centres, firm and industry collaboration and the development of ICT. These “impacts” represent key elements of any evaluation. In addition, we provide in Annex D a brief review of a number of evaluations carried out in both Irish regions. These cover broader aspects of evaluation and supplement the evidence provided below.

Knowledge Transfer and Support to Innovation Poles and Clusters

The Programme for Research in Third Level Institutions (PRTLTI) is one of the main current initiative designed to further innovation in Ireland. It falls mainly under the present policy area. Since its establishment in 1998 the PRTLTI has been central to the rapid development of research and development in the Irish universities and other institutes of higher education. As regards expenditure, awards have been made under four cycles to date. Capital expenditure on buildings, equipment etc accounted for €535.6 million while current expenditure on researchers, students and support staff amounted to €330.1 million. Total expenditure to date for the period 2000 to 2012 was therefore €865.7 million. A fifth cycle was agreed in 2009 and announced in July 2010. An illustration of recent expenditure in selected individual institutions is given in Annex B.

A number of evaluations of PRTLTI have been carried out and are summarized in Annex D (HEA, 2004 and 2006, Technopolis UK and Ismeri Europa, 2006, Forfas 2007 and 2009). The general consensus of these evaluations is that the investment made over recent years, building on the complementarity between the PRTLTI, SFI, the Research Councils, Enterprise Ireland, and other research funders, has brought about a steep change in the research environment appropriate for innovation in Ireland. A 2004 survey by Jordan and O’Leary (2007) claimed that interactions between third level institutions and high technology industry were weak but this conclusion was questioned in various replies to that paper.

Impacts: Physical Infrastructure, Employment and Outputs of PRTL

While new physical infrastructure, new equipment and new employees do not necessarily represent innovation in themselves, they do lay the critical foundation and framework within which new products, services and approaches are likely to emerge. Up to 2006 the PRTL funding allocations provided:

- 33 research centres, including multi-site, collaborative centres
- 90,000m² additional purpose-built research space including almost 20,000 square metres of new library space
- 5,800 new research spaces and 1,600 new library spaces for researchers.
- State-of-the-art, sophisticated equipment and technology.

Examples of the types of new facilities funded include the Gene Vector Core Facility at NUI Galway (the only one of its kind in Ireland and the UK); the Genome Hospital-based Clinical Resource Units at Dublin hospitals (the first of their kind in Ireland); the Green Building at University College, Cork, which has been designed, constructed and operated according to the principle of sustainability; and the Microthermal Analysis facility at Athlone Institute of Technology (a specialised national resource). Over €134 million has been invested in world-class equipment, including X-ray diffraction systems, DNA sequencers, and high-performance clusters.

The “outputs” of the PRTL on the research and innovation landscape is evident in the 33 research centres and two research libraries allocated funding through the 47 building projects undertaken. At the end of 2005, 34 of these building projects had been completed. It should be noted however that the vast majority of PRTL activities have taken place in the Southern and Eastern Region where the majority of third level institutions are located. These are given in Annex C.

Under PRTL 4 covering the period 2007–12 the following new employees were in place by the end of 2009 in the Southern and Eastern Region:

- 35 Principal Investigators
- 122 post-doctoral researchers
- 23 research assistants
- 28 technicians
- 286 Ph.D students
- 76 support staff

For the same period, the BMW region had the following new appointments:

- 8 Principal Investigators
- 28 post-doctoral researchers

- 3 research assistants
- 4 technicians
- 44 Ph.D students

Over the period 2007–09 both regions achieved a total of 1,645 peer review publications, 2,870 conference presentations, 579 research awards, 59 patents, 386 additional teaching and learning courses, 103 national collaborations, 257 international collaborations, 23 collaborations with Northern Ireland and 75 industry collaborations. It may be noted that of 16 PRTL current Cycle 4 (2007–12) projects, 6 involve collaborative partnerships with Northern Irish institutions.

One illustration of “results” which the PRTL has had is in the strategic emphasis now placed on research in each institution’s forward planning. In 1996 there was one part-time Dean of Research with supporting infrastructure in the Irish university system. At present Deans or Vice Presidents of Research have been appointed in all universities, reflecting the importance now attached to building research capability across all disciplines. The build up in postgraduate student numbers and the planned doubling of capacity at doctorate level are all indicative of the huge emphasis now being placed on research as an intrinsic part of the mission of the higher education institutions. The most obvious manifestation of the impact of the PRTL is the range of world-class research facilities outlined above and now in evidence on the campuses of Irish higher education institutions. These are on a scale and to a standard that could previously only have been imagined. By providing a strong attraction to top-class Irish and international researchers, the investment in new facilities has made a significant contribution to the build-up in research capacity witnessed over recent years. The combined effect of the range of initiatives taken to date is that Ireland is now an attractive place to pursue a research career. This is illustrated not only by the number of returning Irish graduates but also by the fact that some twenty per cent of the researchers recruited under the PRTL come from abroad. The significant progress made to date will serve as a solid foundation for maintaining momentum into the future.

Impacts: Science Foundation Ireland (SFI)

The *Centres for Science, Engineering and Technology (CSETs)* and *Strategic Research Clusters (SRCs)* have been funded by SFI to encourage research partnerships between academics and industry. At April 2010 a total of 10 SFI Centres and 19 Research Clusters were in operation. A total of 302 researchers are currently employed and the Centres are linked to 40 companies in fields such as communications, technology, energy and health.

Framework for Innovation: The ERDF Gateway Scheme

The economic downturn has resulted in the deferment of the €300 million expenditure originally earmarked for the proposed Gateways under the National Spatial Strategy. During 2009 the Southern and Eastern Regional Assembly introduced a new sub theme, the co-financed ERDF Gateway Grant Scheme. Grant assistance was made available for the 4 NSS Gateways in the Ireland Final Draft, August 2010

Southern & Eastern Region (Dublin, Cork, Limerick/Shannon and Waterford) for projects which will improve the Gateways economically, environmentally, socially, and/or culturally and which fell within the scope of Article 8 of Commission Regulation 1080/2006. A total of €11m is available for allocation at a maximum grant rate of 50%. Works must be completed by 31st December 2010. Following assessment of proposals the Steering Committee approved the following grants and work is now in progress.

Cork Gateway: €2.80m

Dublin Gateway: €2.4m

Limerick/Shannon Gateway: €3.0m

Waterford Gateway: €2.76m

A similar co-financed "Gateway and Hub Scheme" with a fund of €17.1 million is underway since 2009 in the BMW region. Grants have been provided for a range of improvements including refurbishment, environmental improvements, Art Galleries and traffic improvements in Dundalk, Galway, Tuam, Sligo, Mullingar, Athlone, Tullamore, Letterkenny, Ballina, Castlebar, Monaghan and Cavan. Work is well advanced in most of these centres.

Boosting Applied Research and Product Development

This category is important in both regions. In the Southern and Eastern Region, 10 **Applied Research Centres** have been established under an Applied Research Enhancement Scheme, 4 of which were established during the 2000–06 period under the auspices of the Productive Sector Operational Programme. Each Centre must satisfy criteria relating to level of technology and commercial potential and are mostly set up in existing buildings. Enterprise Ireland provides complementary financial support from a **Commercialisation Fund** designed to foster a commercially aware research community. During the period 2007–09 under the 2007–13 Operational Programme a total of 322 Commercialisation Fund proposals were approved with funding of €53 million, comprising 89 Technology Development projects, 210 Proof of Concept projects and 23 Commercialisation Plus projects. By December a total of 24 new start-up enterprises had resulted.

Incubation Centres represent new infrastructure and most are located in Institutes of Technology. A total of nine centres in all parts of the region have been established since 2000 and all are currently operating. These provide supports and business space in order to develop start-up companies and to facilitate the commercialization of research and development projects carried out by the incubating companies. By December 2009, a total of 129 companies were incubating with 447 personnel in the above Centres. See Table a. During 2009 two further Centres were approved (in Cork Institute of Technology and University of Limerick). The criteria for establishment include enterprise and market need, evidence of institutional commitment to company creation and contribution to balanced regional development.

Micro-enterprise Development is a further initiative under Boosting Applied Research. The micro-enterprise programme is delivered through the 22 City and County Enterprise Boards in the Southern and Eastern Region. By the end of December 2009, a total of 5,342 enterprises had been supported, 108,400 recipients had received training and a cumulative 23,600 jobs had been created. See Table b.

Table a. Performance Indicators: Southern and Eastern Region

Indicator	Baseline	Final Target	Outturn to 31 st Dec. 09
No. of Incubation Centres	9	16	11
Total employed in Incubation Centres	284	434	447
No. of additional Researchers employed in the region's HEI	0	560	686
No. of training days provided to SMEs	74,294	249,249	165,462
No. of micro-enterprises supported	4,029	8,029	5,342
No. of recipients of training in micro-enterprise theme	57,159	141,159	108,446
No. of jobs created in micro-enterprises theme	24,858	32,558	23,609
No. of enterprises created in incubation centres	62	108	129

Table b. Core Indicators: Southern and Eastern Region

No.	Indicator	Baseline	Final Target	Outturn to 31 st Dec. 09
1	Jobs Created	25,142	32,992	24,056
6	Research Jobs Created	0	560	686
7	No. of direct Investment Aid	4,029	8,029	5,342
8	No. of start-ups supported	62	108	129
9	Jobs created from direct investment aid	24,858	32,558	23,609

Source: Southern and Eastern Region Operational Programme *Annual Implementation Report*, 2009

In the BMW region 8 Applied Research Centres catering for 21 "industrially focused" projects were in place by December 2009. These were funded under the 2000-06 Programme but extended into 2009. A total of 6 incubation centres are now operating successfully with 69 companies involved and 193 employed. See Table c.

Table c. Progress of Incubation Centres in BMW Region

Class	Indicator	Baseline	Final Target	Outturn to 31st December 2009
Output	No. of business incubation centres in place/ extended	5	9	6
Result	No of companies in centres	55	68	69
Impact	No of employees in these companies	187	230	193 (24 female)

Source: BMW Region Operational Programme *Annual Implementation Report*, 2009

In relation to micro-enterprise in the BMW region, a total of 3,370 enterprises had been assisted, 93,300 training days had been provided and 14,743 jobs had been created by December 2009. See Table d.

Table d. Progress of Micro-enterprises in the BMW Region

Class	Indicator	Baseline figures as of 31 st Dec 2006	Final Target 2013	Out-turn to 31 st December 2009*
Output	No of micro-enterprises assisted	2,511	5,011	3,370
	Of which Male Promoters	1,792	3,576	2,460
	Of which Female	608	1,213	786
	Promoters Of which Promoter is company/partnership/other	111	222	124
	No of training days provided	35,572	119,572	93,319.30
	Male			43,575.5
	Female			49,635.8
	Other			108.0
Result	No. of jobs created in assisted micro-enterprise	16,684	20,884	14,743.5
	Male F/T	10,460	13,093	8,747
	Female F/T	4,324	5,412	3,997
	Male P/T	1,401	1,757	1,501
	Female P/T	2,399	3,001	2,498
	No of training recipients	26,550	61,550	45,974
	Of Which Male	12,059	27,562	21,234
	Of Which Female	14,239	33,688	24,458
	Of Which Companies /partnership/other	252	300	282

Source : BMW Operational Programme *Annual Implementation Report*, 2009

For evaluations under this policy area see, for example, Evaltech, 2003; Fitzpatrick Associates, 2005 and INNO Policy Trend Chart European Commission, 2009.

Innovation friendly environment

The key initiative under this policy area launched in both Irish regions is the National Broadband Scheme (NBS). This Scheme was launched in January 2009. See expenditures under Codes 15 and 10 in Table 2.

As regards **outputs/results**, half of the planned coverage area was completed by the end of 2009 catering for a population of 110,600 and 14,500 additional businesses in the Southern and Eastern Region. It addressed over 1,000 electoral divisions that were deemed to be without adequate broadband services. All residential and business premises within the NBS Coverage Area in the Southern and Eastern Region will have broadband connectivity by the end September 2010. In the BMW Region 44,689 residences had been served by December 2009 as had 2,674 businesses (*BMW Annual Implementation Report, 2009*).

4 CONCLUSION: MAIN CHALLENGES FACED BY COHESION POLICY PROGRAMMES

This Report indicates a number of challenges for the future. Cohesion policy and the ERDF have played critical roles in the past in Ireland and it is important that they continue to do so. They have been particularly helpful in a regional context when national resources are stretched and when a regional focus in national innovation policy has often been weak. The guidelines laid down by the EU and the ERDF have also been helpful in influencing the direction of national expenditure.

The available evidence on “impacts” and results of ERDF co-financed programmes is very positive. One key innovation instrument, the PRTLTI, has virtually transformed the Irish research landscape in relation to buildings, equipment, personnel and research outputs, especially in the universities. The Institutes of Technology have also made considerable progress due to co-financed programmes in recent years, and applied research centres and incubation centres have been established in the Institutes with important links to industrial and service-type firms in the regions. The strong emphasis on micro-enterprise development with significant training elements, firm collaboration and job creation are clear positive impacts. The results of the National Broadband Scheme, supported by ERDF, are also impressive.

The present innovation policies and the ERDF focus are, in the main, well-placed and appropriate. There is a strong concentration on allocations to third level institutions in order to enhance research capacity and output. However, in this respect, the BMW region is at a distinct disadvantage in that it possesses only one University eligible for significant support. Research capacity needs to increase further in the Institutes of Technology. The need to build further on the established links and co-operative partnerships between firms and third level institutions as well as with other research institutes is also evident. Above all, there is a critical need to review and focus on tackling the specific needs of the two regions in Ireland with innovation and other policies.

There are many remaining challenges. These include :

- Ensure that innovation is not just an end in itself, but a means to ensure “development” of people and all regions in the broadest sense.
- The current economic climate, budget cuts and reduced ERDF funding are affecting the delivery of various schemes to support innovation
- Innovation policy tends to be largely top-down from central government and needs to take more account of specific regional needs and potential
- Develop and implement specific Regional Innovation Strategies e.g. the Marine Research Cluster in the BMW region and focus more on “incremental innovation”
- Maintain and strengthen links between third level institutions and industry to forge specific research and innovation beneficial to the regions
- While higher education institutions can play a key role in innovation, they are just one element in a broader innovation system
- Focus more on untapped “creative industries”

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Note: The studies with useful evaluations are given three asterisks (***)

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INTERVIEWS

I carried out interviews with the following for this Report:

Mr David Kelly, Assistant Director, Southern and Eastern Regional Assembly, Waterford

Mr Gerry Finn, Director, BMW Regional Assembly, Ballaghadereen

Mr Kieran Moylan, Assistant Director, BMW Regional Assembly, Ballaghadereen

Mr Adrian O'Donoghue, Policy Analyst, BMW Regional Assembly, Ballaghadereen

Mr Ian Brannigan, Development Manager, Western Development Commission, Ballaghadereen

Mr Pauline White, Policy Analyst, Western Development Commission, Ballaghadereen

Mr Jim Deane, Head, EU Structural Funds Policy, Department of Finance, Dublin

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ANNEX A – BACKGROUND DATA ON EU COHESION POLICY SUPPORT TO INNOVATION

Table 1 – Total ERDF resources allocated per programme (2007–2013)

Programme	Total ERDF resources for innovation	Total ERDF	Innovation support as % of total ERDF	Main initiatives implemented Via ERDF only 2007–09 2 REGIONS= national total
BMW Region	80,600,000	228,758,838	35.2%	Boosting Applied Research (Code 01) Expenditure: €27.4m Knowledge Transfer (Code 02) €85.5m Innovation friendly environment (Codes 10/15) €18.2m Micro-enterprise innovation enterprise innovation €10m (Code 08) (see Note (c) below)
S&E Region	92,000,000	146,603,534	62.8%	
Total Objective 2	172,600,000	375,362,372	46.0%	€141.1m
Overall total	172,600,000	375,362,372	46.0%	€141.1m

Note: (a) The last column refers to both regions as requested. (b) BMW data changed from that received in accordance with OP allocation and expenditure data received. (c) The list of codes provided does not include Code 10 which is used in the BMW region and equates closely to Code 15. The list also does not include Code 08 which refers to “micro-enterprise innovation” and is regarded as critical in this region and also important in the S&E region. There may be a case for an extra code dealing with small enterprise innovation.

*The term initiatives should be understood in a wide sense covering measures, projects, actions and so on co-financed by the ERDF. Among these, experts should identify the main kinds of intervention.

Source: core team on EC data.

Table 2 – ERDF contribution to innovation by policy area (2007–2013)

Policy area	Categorisation of expenditure (corresponding FOI codes)	Total ERFD Expenditure 2007/09	%	
			Regional share	National share
Innovation friendly environment	05			
	11			
	12			
	13			
	14			
	15 (10 in BMW)	€10.2m in BMW	23.4%	12.9%
	74	€8m in S&E	8.2%	
Knowledge transfer and support to innovation poles and clusters	02	€20.8 in BMW	47.8%	60.6%
	03	€64.7 in S&E	66.3%	
	04			
	08 (new code)	€10m in BMW	23.0%	7.1%
Boosting applied research and product development	01	€2.5m in BMW	5.7%	
	06	€24.9m in S&E	25.5%	19.4%
	07			
	09			

Source: core team on EC data.

ANNEX B – DETAILS OF SELECTED PRTL AWARDS 2007–09

Cork Institute of Technology

Biopharmaceutical Chemical Research €325,000

Redevelopment of existing space to provide wet-lab facilities, autoclave room, meeting area and bioinformatics facility for the expansion of the research cluster

Dublin City University

Bio-analytical Science Facility €3,765,000. Refurbishment of vacated space in old college buildings to house additional workstations which were integrated with specialist facilities in bio-analytical and bioengineering sciences

Dublin City University

School of Computing Research Facility €840,000. Conversion of undergraduate space in the School of Computing into fit-for-purpose research space to support large-scale research ventures involving inter-institutional collaborations and industrial partnerships between the Faculties of Engineering and Computing

Dublin City University

Humanities and Social Sciences Research Facility €430,000. Created a quality, fit-for-purpose research space for 3 University Designated Research Centres within the Faculty of Humanities and Social Sciences, thereby fostering innovative collaborative links

Institute of Technology, Blanchardstown

Engineering Research Laboratory €160,971

Creation of a dedicated, hardware-centred research laboratory space within the Engineering Department for researchers in the areas of clinical engineering (incorporating medical device test, measurement, and sensor development) and roads infrastructure management (incorporating machine vision, GPS, and sensor fusion).

Institute of Technology, Tallaght

Applied Research Capacity Enhancement €1,400,336. Increased laboratory research space in the areas of bioscience and engineering in order to facilitate the development and strengthening of inter-institutional collaborations. Funding also used to upgrade equipment to support ongoing research activities.

Institute of Technology, Tralee

Establishment of a Mammalian Cell Culture Facility €1,024,000. Upgrading of laboratories in applied biotechnology including a clean air facility dedicated to postgraduate training and applied biotechnology research in mammalian cell culture techniques.

Limerick Institute of Technology

Enhancement of Department of Applied Science Infrastructure €500,000

Funding to equip a new laboratory in the Department of Applied Science which has an active core research team in analytical and forensic science

Mary Immaculate College

Upgrading of Postgraduate Research Centre €35,000

Upgrading of accommodation in the Postgraduate Research Centre including IT facilities and equipment

National University of Ireland, Maynooth

Callan Building Enhancement €2,900,000

Creation of new and refurbished laboratory and office space in the area of the biosciences, thereby consolidating and enhancing existing analytical facilities and services into a single, more effective unit.

National University of Ireland, Maynooth

Refurbishment of St. Anne's House €2,000,000

Renovation of a 1960s' building to accommodate research groups in the areas of climate change and the Innovation Value Institute (IVI)—two of NUI Maynooth's key research areas and areas of strategic growth

St. Patrick's College, Drumcondra

DORAS FEASA: Refurbishment and Enhancement of Digital Research Tools and Facilities €400,000

To increase SPD's research-focused ICT capacity and expertise through the development of a high-quality repository of research literature, theses, reports, teaching materials, and digitized records with open access options.

Trinity College Dublin

Trinity SFI Centres Enhancement Plan €3,170,000

Adaptation and refurbishment of space in the Trinity Technology & Enterprise Campus (TTEC), and to procure core equipment for research in the areas of nano-science and biological immunology

Trinity College Dublin

Sir Patrick Dun's Laboratories for Translational Research, St. James's Hospital Campus €3,200,000

Re-development of the translational medical research laboratories on the St. James's hospital site with a view to establishing a fit-for-purpose, fully-integrated modern and well-equipped translational research facility

Trinity College Dublin

Arts Technology Research Laboratory €1,700,000

Adapt and equip two units in the Trinity Technology and Enterprise Centre (IITEC) as a dedicated postgraduate media arts and technology research facility, namely, the Arts Technology Research Laboratory (ATRL).

University College Cork

Kane (Science) Building: Core Research Facilities for the Chemical and Physical Sciences
€5,040,000

Refurbishment of laboratory space in the Kane Building constructed in the 1970's and housing the Departments of Chemistry and Physics and the computer network for the UCC campus. Upgrading of the core electrical services and network connectivity of the building.

University College Cork

Mammalian Cell and Microbial Culture €2,211,027

Refurbishment of laboratory space and replacement of obsolete equipment and in the Food Science Academic Building, thereby addressing both capacity and health and safety issues

University College Dublin

Science Centre Research Development €8,109,000

Refurbishment of existing space in the Science Centre to provide additional research capacity and to create fit-for-purpose laboratory facilities

University College Dublin

Nano-biology and Energy Research Development €2,060,000

Creation of a dedicated Energy Centre with a nano-fabrication laboratory and provision of new imaging facility including a transmission electron microscope

University of Limerick

Composite and Glass Materials €1,565,000

Refurbishment of laboratory space and replacement of equipment for the Composites and Glass Research Cluster (CGRC) within the Materials and Surface Science Institute (MSSI). This upgrade facilitated the cluster's development in nano-composites, an increasingly important application of nanotechnology.

University of Limerick

Food and Health €2,280,000

Restructuring the space and provision of equipment-intensive analytical laboratories and postgraduate workstations for the food and health research group working in the core areas of functional foods, food safety, human metabolism, bioenergetics, health and physical activity

University of Limerick

The Charles Parsons Initiative (CPI) on Energy and Sustainable Environment €972,000

Refurbishment of rooms in the Main University Building for use by the CPI and renewal of equipment for this research group

Waterford Institute of Technology

Pharmaceutical & Life Sciences Cluster €2,035,000

Conversion and upgrading of space to accommodate the Pharmaceutical and Life Sciences research cluster and provision of core items of equipment

Waterford Institute of Technology

Telecommunications Strand €1,200,000

Provides for the complete refurbishment of accommodation and the purchasing of essential equipment for the Telecommunications Software & Systems Group (TSSG), the Optics Research Group (ORG), and the Mobile Telecommunications Group (MTG) – groups with a complementary focus that work collaboratively.

Source: Southern and Eastern Region, *Annual Implementation Report, 2009*

ANNEX C – DETAILS OF PRTL I BUILDING PROJECTS COMPLETED IN IRELAND BY 2005

- Geary Institute (UCD)
- Institute for the Study of Social Change (UCD)
- Biotechnology and Environmental Science (Carlow Inst. of Technology)
- Institute for Advanced Materials Science (TCD)
- Ussher Library (TCD)
- Institute of Biopharmaceutical Science (Royal College of Surgeons in Ireland)
- Centre for the Study of Human Settlement and Historical Change (NUIG)
- Nanofabrication Facility (UCC)
- Biosciences Institute (UCC)
- Materials and Surface Science Institute (UL)
- National Centre for Plasma Science and Technology (DCU)
- Research Institute in Networks and Communications Engineering (DCU)
- National Centre for Sensor Research (DCU)
- Urban Institute Ireland (UCD)
- Institute of Immunology (NUIM)
- Institute of Bioengineering & Agroecology (NUIM)
- Environmental Research (Cork Institute of Technology)
- Institute for International Integration Studies (TCD)
- Conway Institute for Biomolecular and Biomedical Research (UCD/TCD)
- Dublin Molecular Medicine Centre (UCD/TCD)
- Environmental Change Institute (NUIG)
- National Centre for Biomedical Engineering Science (NUIG)

- Trinity Centre for Bioengineering (TCD)
- Humanities Institute of Ireland (UCD)
- Centre for Synthesis and Chemical Biology (RCSI)
- National Institute for Regional and Spatial Analysis (NUIM)
- Institute for Information Technology and Advanced Computation (TCD)
- Institute of Neuroscience (TCD)
- Optical Characterisation and Spectroscopic Facility (DIT)
- Biopolymer and Molecular Research (Athlone Inst of Technology)
- Biopharmaceutical Sciences Network (RCSI)
- Programme for Human Genomics (RCSI)
- Environmental Research Institute (UCC)
- Centre for Synthesis Chemical Biology (TCD)
- Centre for Innovation and Structural Change (NUIG)
- Analytical Biological Chemical Research Facility (UCC)
- Programme for Human Genomics (Mater Hospital Site)
- Programme for Human Genomics (St. Vincent's Hospital Site)
- Centre for Synthesis and Chemical Biology (UCD)
- Biosolids Programme Centre for Sustainability (IT Sligo)
- National Institute for Cellular Biotechnology (DCU)
- M-Zones (WIT)
- Research Library (UCC)
- Cosmo-Grid (Dublin Inst. for Advanced Studies)
- Marine Research Programme (NUIG)
- Boole Centre for Research in Informatics (UCC)
- Eco-Electronics (UCC)
- Nanoscale Science (UCC)

ANNEX D – A REVIEW OF SELECTED EVALUATION STUDIES OF INNOVATION IN IRELAND

This Annex briefly presents the main conclusions of a small selection of publications which examine the nature of the problems encountered in the two Irish regions and some of the challenges for innovation policy. It is not exhaustive and does not attempt to examine data, methods used or to analyse the evaluation evidence as this will be done in the Country Report.

CIRCA Group Ltd (2004) *Audit of Innovation in the BMW Region*, Report to the BMW Regional Assembly, Ballaghadereen

This Report examined the long-standing problems of the BMW region. Despite some progress during the recent decade, the region still has a high proportion in a largely undeveloped agriculture, a low proportion in services and relatively high unemployment. The volume of start-ups, entrepreneurship and innovation falls far behind the more prosperous Southern and Eastern region. The presence of only one university and Institutes of Technology with relatively weak research records places the region at a considerable disadvantage. The Audit identifies a range of key changes required. In particular it stresses the need for a change of “culture and enabling conditions”, including the development of networks and clusters with particular reference to the proposed Gateways and Hubs in the National Spatial Strategy.

BMW Regional Assembly, (2008), Submission to the Evaluation of the Science, Technology and Innovation Programme, Ballaghadereen

BMW Regional Assembly, (2009), *Submission to the Innovation Taskforce*, Ballaghadereen

These two submissions are useful in raising serious questions regarding the thrust of innovation policy, at least in the BMW region which has a range of structural and locational challenges. However, the suggestions made have also relevance in the Southern and Eastern region. The *Submission to the Evaluation of Science and Technology* points to the weak collaboration between third level institutions and industry, confirming the research of Jordan and O’Leary (2007) and the urgent need to rectify this. This was partly due to the lack of interest from industry in research activity. The submission also points to the focus on co-operation between large enterprises (more than 250 employees) and third level institutions and the adverse implications this has for a region such as BMW with mainly small firms. It emphasises the case for a stronger regional orientation of innovation policy with more concentration on small towns and rural areas. It also points to the need to focus on and link supply-side initiatives with demand-side conditions.

The *Submission to the Innovation Taskforce* again stresses the importance of a stronger regional orientation and a focus on both supply and demand factors. It also argues that more consideration should be given to areas of innovation not generally considered when discussions of

innovation takes place. This is a view echoed by the Western Development Commission (2009) which has highlighted the opportunities in unexplored areas such as creative industries.

Fitzpatrick Associates et al., (2006). External Competitiveness, Internal Cohesion : Southern and Eastern Regional Needs Analysis 2007–13, Report to the S&E Regional Assembly, Waterford

The S&E Region contrasts sharply with the BMW Region. It was described as “the economic powerhouse of the country” in this Report. Over 80 per cent of national GDP is produced and 80 per cent of all third-level places and jobs in foreign-owned high-tech companies are in the Region. The S&E contains 90 per cent of all jobs in agency-assisted internationally traded services, 96 per cent of all air passengers travel through the region, and it has all the major national seaports. In relation to innovation, it lags behind the EU average for RTDI capacity, but it is far ahead of the BMW Region in this respect, accounting, for example, for eight out of every ten third-level researchers in the country. It also has many features of a knowledge economy including a relatively hi-tech industry base and a high proportion of third level graduates in its population.

It has however a range of difficulties. For example, the S&E Region has some of the worst pockets of unemployment and deprivation in the country, especially in the main urban centres of Dublin, Cork and Limerick as well as in the South East Region. Long distance commuting, infrastructural deficits and traffic congestion represent serious diseconomies. These are likely to be exacerbated into the future in the light of the recent internal and external economic and financial crises.

Technopolis UK and Ismeri Europa (2006), Strategic Evaluation on Innovation and the Knowledge Based Economy in Relation to Structural and Cohesion Funds for the Period 2007–13 : Country Report Ireland, Report to the European Commission

This Report compares the level of innovation in Ireland to that in the 25 EU member states. It identifies the main needs and potential for innovation in the two Irish regions and recommends investment priorities for the future. This Report again illustrates the significant divide between the two Irish regions and most of Ireland’s growth over the period to 2004 was associated with the S&E region, while the BMW region remained heavily dependent on traditional sectors. The Report argues that “balanced regional and local development” and the introduction of “regional targets” should become a “core priority” for the government. The development of “poles” and “clusters” also needs more attention. The authors conclude that a strong focus on high-tech sectors which has characterised Irish policy can limit the effort to support micro-enterprises in medium and low-tech sectors – currently a pre-occupation in less developed areas. A case study of the PRTL is provided and the conclusion is that this initiative has achieved a great deal in relation to R&D. However, the universities, Institutes of Technology and SMEs need to be more closely networked in the BMW region and inter-regional links need to be further developed.

Community Support Framework 2000–2006 Update Evaluation. Final Report, 2005

It may be noted that this Report was written towards the end of what was arguably called the “Celtic Tiger” period in Ireland. This has now evaporated. Nevertheless the CSF had a considerable impact via the various Operational Programmes including two Regional Programmes. The Evaluation identified the following broader impacts:

- in “policy terms”, EU involvement influenced prioritisation of a number of policy themes which might not have occurred to the same extent otherwise. These include gender and equality, the environment, innovation, regional development, and North–South co–operation;
- in “confidence” terms due to the reassurance of a major multi–annual public investment programme in key areas of the economy, supported by large and high profile EU assistance. This provided an important signal to businesses and to other key stakeholders of EU commitment to Irish convergence, and Irish commitment to taking advantage of the opportunity on offer; and
- in expenditure “programming” terms, the requirements of the CSF contributed to the development and expansion of multi–annual programming, to more extensive adoption of a partnership approach at national and local level, and to a greater level of formal monitoring and evaluation of Programmes. Within the present CSF, a more consistent level of investment has continued to be achieved in co–financed than in non–co–financed parts of the NDP.

FGS Consulting (2007) Ex Ante Evaluation of the Southern and Eastern Operational Programme, Dublin and Belfast

This evaluation was generally positive about the S&E draft *Operational Programme* which was judged to be “more strategic” than the previous Programme. The evaluation consisted of a detailed review of relevant literature, an examination of various drafts of the Programme and a series of meetings with the Regional Assembly. The specific needs of the region were clearly identified and the case for intervention was well argued. The Programme was coherent and the impact indicators were justified. The evaluation recommended that the innovation objective should be integrated with the broader “sustainable development” objective, including town and city regeneration as a key element in competitiveness. It pointed to the dependence of the region on multinational firms and stressed the case for a secure indigenous innovation and R&D base.

Higher Education Authority (2004), PRTL I : Impact Assessment, Dublin

An international panel carried out an evaluation of the PRTL I programme in 2004. This involved detailed research visits and interview with the main stakeholders. The assessment concluded that PRTL I was “the beginning of a major and most beneficial transformation of the research landscape of Ireland that will help to install an innovation driven economy”. The panel stated that: “In our experience, PRTL I is a remarkable endeavour. It breaks new ground in research funding schemes;

especially in its focus on strengthening the linkages between teaching and research, its emphasis on institutional prioritisation of research investments and its support for institutions working together to create a more competitive critical mass of research effort. The integration of these features into a single funding scheme is what differentiates and gives a high profile to PRTL I and makes this initiative one of the most innovative that we have encountered.”

Higher Education Authority (2006) Research Infrastructure in Ireland : Building for Tomorrow, HEA, Dublin

According to this Report: “We have found a research system in impressive transition as a result of the major injection of funds over the last few years. This investment is beginning to transform the research base in Ireland, supporting a growing influence and recognition in the now-global research enterprise. Research investments have had a strong positive impact” (p.11).

Evaltech (2005), Review of the IDA’s Research and Development Capability Grants Scheme, Final Report, Dublin

This scheme, introduced in 2000, provided grants to companies towards the cost of establishing a major R&D operation in Ireland or expanding an existing facility. Over the three year period examined, 31 firms provided €109.5 million themselves and received supporting grants of €32.2 million. The early evidence suggested that projects supported would yield substantial positive impacts and benefits. The scheme was considered to be an excellent use of state money due to the increase in R&D staffing levels, as well as further and high-value employment.

Fitzpatrick Associates (2005) Productive Sector Operational Programme : Update (Final) Evaluation, Dublin

Under the 2000–06 National Development Plan, the Productive Sector Operational Programme (PSOP) included investment in research, technological development and innovation (RTDI), co-financed by the ERDF. The overall purpose of the evaluation was to “provide an analysis of the physical and financial progress under the programme to end-2004 and to assess the likely eventual impact of the programme”.

Three sub-measures were examined : PRTL I, RTDI Industry Collaboration and the RTDI Competitive Scheme. In relation to PRTL I the evaluation summarised the main findings (given above) of the HEA evaluation and the evaluation carried out by Technopolis UK. In relation to the RTDI co-financed elements, progress was found to be quite significant in the case of the Strategic Research sub-measure (with total NDP spend to end-2002 having reached 62% of the original target), less advanced in relation to the Industry Collaboration sub-measure (spending having been 38% of target), and considerably behind target under the Competitive RTDI sub-measure (22% of target). Across the entire RTDI Priority it found that progress in the BMW significantly lagged that in the S&E region.

There was substantial progress across most co-financed sub-measures in 2003 and 2004.

- Under PRTL 33 out of 45 building projects were completed, and 72,000 m² of space had been created compared to a final target of 100,000m². Activity and spend in the BMW region was well behind that originally envisaged;
- under the National Collaboration sub-measure, 927 research collaborations had been supported, far beyond the end-programme target, and 318 researchers had become involved in third level-industry collaborations for the first time, representing 80% of the final target. 146 non R&D-performing firms became involved in collaborations (52% of the final target), and enterprises invested €7.7m in collaborations (against a final target of €9m). Activity and spend in the BMW region was behind the original plans, but less dramatically than under the Strategic Research sub-measure, particularly in relation to physical outputs;
- under the Competitive RTDI sub-measure, 66% of the final target had been met by end-2004. In terms of increased spend on R&D by participating firms, just under 100% of target had been achieved, and in relation to the increase in the number of new R&D performers, 71% had been achieved. While spend in the BMW region continued to lag that planned, physical progress in the region was closer to target levels.

INNO Policy Trend Chart (2009) Innovation Policy Progress Report : Ireland, European Commission Enterprise Directorate, Brussela.

This Report provides a summary of the government support for innovation and offers an evaluation of policy and competitiveness. Investment has followed “best practice” in other small successful European countries and progress has been made. Nevertheless, the Report calls for further emphasis on “outcomes” and “impacts” of the policy. Thus, the main areas for improvement identified are:

- the approach to evaluations should encompass a more programmatic approach based on the new policy measure groupings rather than an individual measure approach, e.g., to assess whether the industry R&D initiatives could achieve their targets and how they interact;
- Additional innovative measures are needed to assist medium-sized indigenous companies with growth potential/capability to increase their R&D expenditure;
- There needs to be greater attention to industry research within third-level institutions;
- Ireland needs to address its broadband deficiencies – to improve access throughout the country and achieve significantly higher speeds at a reasonable cost;
- The number of rapidly expanding high-tech service or manufacturing companies needs to be increased.
- New measures are needed to get new Ph.D. researchers into private companies;

- Need to better define the role and contribution of third-level institutions in national and regional development (at NUTS 3 level);
- Develop a new strategy for the third-level sector (currently under way).
- how does Ireland ensure that this investment in innovation and knowledge results in the creation of a knowledge economy and knowledge society? New research, international comparisons and studies are necessary to see how best to meet this challenge

Fitzpatrick and Associates et al. (2009) Evaluation of the BMW Programme of Innovative Actions, Dublin

This evaluation focussed on SMEs and can be classified under the “Knowledge Transfer” policy area. It covered the period 2006–08 and was designed to improve the capacity of SMEs to:

- Acquire and absorb technological data and information
- Engage in collaborative research with research centres and third level institutions within BMW
- Create conditions needed to expand capacity to translate knowledge and technology into market opportunities.

However, the study pinpointed a number of key obstacles which the BMW region must overcome. These include the perceived lack of an “innovation culture”, the time constraints on companies demand for some programmes, the difficulties experienced by some firms in finding suitable knowledge partners and the need for a mainstream business support agency. The key “outputs” of the Programme were as follows:

- Research and intelligence briefings on four major R&D topics
- Innovation management training for 20 participant companies
- Take-up of research voucher support among 24 companies
- Assistance to 50 companies under the Food Technology Transfer programme
- Assistance to 35 companies under the Business Mentoring for Winners programme
- Completion of a feasibility study on R&D links between SMEs, multinational companies and knowledge institutions

ANNEX E – CLASSIFICATION OF INNOVATION POLICY AREAS, INSTRUMENTS AND BENEFICIARIES

Policy area	Short description
Innovation friendly environment	<p>This category covers a range of actions which seek to improve the overall environment in which enterprises innovate, notably three sub groups:</p> <p>innovation financing (in terms of establishing financial engineering schemes, etc.);</p> <p>regulatory improvements and innovative approaches to public services and procurement (this category could capture certain e-government investments related to provision of services to enterprises);</p> <p>Developing human capital for the knowledge economy. This category will be limited to projects in higher education aimed at developing industry orientated courses and post-graduate courses; training of researchers in enterprises or research centres.</p> <p>The category also covers initiatives geared towards improving governance capacities for innovation and knowledge policies (e.g. specific technical assistance funding, support for regional foresight)</p>
Knowledge transfer and support to innovation poles and clusters	<p>Direct or indirect support for knowledge and technology transfer:</p> <p>direct support: aid scheme for utilising technology-related services or for implementing technology transfer projects, notably environmentally friendly technologies and ITC;</p> <p>indirect support: delivered through funding of infrastructure and services of technology parks, innovation centres, university liaison and transfer offices, etc.</p> <p>Direct or indirect support for creation of poles (involving public and non-profit organisations as well as enterprises) and clusters of companies</p> <p>direct support: funding for enterprise level cluster activities, etc.</p> <p>indirect support through funding for regrouping R&D infrastructure in poles, infrastructure for clusters, etc.</p>
Boosting applied research and product development	<p>Funding of “Pre-competitive development” and “Industrial research” projects and related infrastructure. Policy instruments include:</p> <p>aid schemes for single beneficiary or groups of beneficiaries (including IPR protection and exploitation);</p> <p>research infrastructures for non-profit/public organisations and higher education sector directly related to universities.</p> <p>Any direct or indirect support for the creation of innovative enterprises (spin-offs and start-ups)</p>

Instruments	Short description
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Infrastructures and facilities	Building and equipping laboratories or facilities for university or research centres, Telecommunication infrastructures, Building and equipment for incubators and parks for innovative enterprises
Aid schemes	Grants and loans for RTDI projects Innovative finance (venture capital, equity finance, special bonds, etc.) for innovative enterprises
Education and training	Graduate and post-graduate University courses Training of researchers

Beneficiaries	Short description
Public sectors	Universities National research institutions and other national and local public bodies (innovation agencies, BIC, Chambers of Commerce, etc..) Public companies
Private sectors	Enterprises Private research centres
Others	NGOs
Networks	cooperation between research, universities and businesses cooperation between businesses (clusters of SMEs) other forms of cooperation among different actors

ANNEX F – CATEGORISATION OF EXPENDITURE TO BE USED FOR CALCULATING EU COHESION POLICY RESOURCES DEVOTED TO INNOVATION

FOI Code	Priority Theme
	Research and technological development (RTD), innovation and entrepreneurship
01	R&TD activities in research centres
02	R&TD infrastructure (including physical plant, instrumentation and high-speed computer networks linking research centres) and centres of competence in a specific technology
03	Technology transfer and improvement of cooperation networks between small businesses (SMEs), between these and other businesses and universities, postsecondary education establishments of all kinds, regional authorities, research centres and scientific and technological poles (scientific and technological parks, technopoles, etc.)
04	Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres)
05	Advanced support services for firms and groups of firms
06	Assistance to SMEs for the promotion of environmentally-friendly products and production processes (introduction of effective environment managing system, adoption and use of pollution prevention technologies, integration of clean technologies into firm production)
07	Investment in firms directly linked to research and innovation (innovative technologies, establishment of new firms by universities, existing R&TD centres and firms, etc.)
09	Other measures to stimulate research and innovation and entrepreneurship in SMEs
	Information society
11	Information and communication technologies (access, security, interoperability, risk-prevention, research, innovation, e-content, etc.)
12	Information and communication technologies (TEN-ICT)
13	Services and applications for the citizen (e-health, e-government, e-learning, e-inclusion, etc.)
14	Services and applications for SMEs (e-commerce, education and training, networking, etc.)
15	Other measures for improving access to and efficient use of ICT by SMEs
	Human capital
74	Developing human potential in the field of research and innovation, in particular through post-graduate studies and training of researchers, and networking activities between universities, research centres and businesses