Regional Innovation Monitor

Regional Innovation Report (Border, Midland and Western Region, Ireland)

To the European Commission
Enterprise and Industry Directorate-General
Directorate D – Industrial Innovation and Mobility Industries

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The Regional Innovation Monitor (RIM) is an initiative of the European Commission's Directorate General for Enterprise and Industry, which has the objective to describe and analyse innovation policy trends across EU regions. RIM analysis is based on methodologies developed in the context of the INNO-Policy Trendchart, which covers innovation policies at national level as part of the PRO INNO Europe initiative.

The overarching objective of this project is to enhance the competitiveness of European regions through increasing the effectiveness of their innovation policies and strategies. The specific objective of the RIM is to enhance the scope and quality of policy assessment by providing policy-makers, other innovation stakeholders with the analytical framework and tools for evaluating the strengths and weaknesses of regional policies and regional innovation systems.

RIM covers EU-20 Member States: Austria, Belgium, Bulgaria, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Netherlands, Poland, Portugal, Romania, Slovakia, Spain, Sweden and the United Kingdom. This means that RIM will not concentrate on Member States where the Nomenclature of territorial units for statistics NUTS 1 and 2 levels are identical with the entire country (Estonia, Latvia, and Lithuania), Malta which only has NUTS 3 regions, Slovenia which has a national innovation policy or Cyprus and Luxembourg which are countries without NUTS regions.

The main aim of 50 regional reports is to provide a description and analysis of contemporary developments of regional innovation policy, taking into account the specific context of the region as well as general trends. All regional innovation reports are produced in a standardised way using a common methodological and conceptual framework, in order to allow for horizontal analysis, with a view to preparing the Annual EU Regional Innovation Monitor reports.

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1 http://www.rim-europa.eu
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Executive Summary

1. Introduction: Main recent trends in the Regional Innovation System

The Border, Midland and Western (BMW) region of Ireland with a population of 1.2m accounts for 47% of the national land area.

Cohesion Policy is designed and delivered in Ireland following a strong, top-down approach by central government. Research and innovation policy measures at regional level are national measures designed and managed by national authorities such as Enterprise Ireland, the Higher Education Authority and Science Foundation Ireland.

Any analysis of the BMW region since 2007 has to be viewed in the context of the financial and economic crisis. Although research and innovation funding has been cut, there has essentially been a reallocation of funds away from research in higher education institutions (HEIs) to enterprise support measures.

The BMW region has been hit hard in terms of reduced economic activity and rising unemployment (16%). As a consequence, the region has fallen back against regional, national and EU27 comparators. Prior to this, improvements in various socio-economic indicators were witnessed.

On a more positive note the BMW region is home to world recognised economic clusters (in medical devices and software), and a hotspot for tourists contributing to a high quality of life. Recent research points to economic potential in six clusters with the medical technology cluster (9,000 people employed in the sector) around Galway suggesting a “growth pole”.

The higher educational institutions in the region – one university, five Institutes of Technology (IoT) with a historical background in teaching in technical disciplines; and two research centres have a vital role to play in smart growth for the region but such a small research base puts the region at a comparative disadvantage to other regions.

There is now greater acknowledgement of the importance of innovation policy. A range of national innovation measures has been introduced putting emphasis on start-up enterprises and commercialisation. The establishment of the €500m Innovation Fund Ireland to provide seed and venture capital is one such instrument. The full list of research and innovation policy measures is provided in Appendix F.

The main categories of support measures in Ireland are research and technologies, and promoting and sustaining growth of innovative enterprises. With the government cutbacks in funding for R&D, a clear outcome is a renewed focus on getting a return from investment in research and innovation. Commercialisation, close-to-market and overall enterprise development initiatives are now the focus of research and innovation policy and instruments as per new government proposals in its Programme for Government. Grants predominate but with the introduction of Innovation fund Ireland more of a focus is now public-private partnership. EU Structural Funds, while much reduced, play an important role in 50% funding research and innovation interventions under the BMW Regional OP.
2. Major innovation challenges and policy responses

Key challenges for the region include the need to address regional disparities by providing increased levels of investment, take more account of specific regional needs, create a critical mass of research and innovation, increase capabilities within the HEIs and company base, increase connectedness between companies and between HEIs/companies, ensure the continued relevance into the future of the already funded research centres, address the distinctive needs of SME such as information, significantly improve infrastructure.

Three main challenges for the region are: (i) strengthening connections between the research and innovation system actors; (ii) sustaining and developing the research and innovation base; and (iii) creating and growing innovative companies.

Challenge 1: Strengthening connections between the research and innovation system actors

Despite a number of good, ongoing initiatives collaboration and interaction between central government, national authorities responsible for implementation of innovation measures and regional actors needs to be improved, as do the connections between the research and business communities, and within the business community. Otherwise, government priorities of a return on research investment, and increased commercialisation and close-to-market initiatives will not be attained. One solution to bring the relevant actors together is through the development of a smart specialisation strategy, now a requirement linked to EU Structural Funds. Such a strategy will support development of multi-level governance for strategic and integrated innovation policies, better linking research and innovation policy to other policy areas from an enhanced understanding of own strengths in relation to other regions.

National research and innovation policy needs an effective regional dimension. A smart specialisation strategy and the outputs ongoing national research prioritisation exercise will lay the foundation for the second challenge, sustaining and developing the research base by allocating much greater targeted research and innovation related investment to the region.

Challenge 2: Sustaining and developing the research and innovation base

National research and innovation funding has been overwhelmingly directed towards existing centres of excellence, thus reinforcing the gap between the BMW and Southern and Eastern (S&E) Regions. On the one hand, there is a need for much greater investment in research and innovation in the BMW region (particularly in the IoTs) and for region-specific supports (CM International et al., 2011), while, on the other hand, Enterprise Ireland, the Higher Education Authority and Science Foundation Ireland have allocated just 19%, 13% and 11% of national research and innovation funds to the BMW region, respectively, over the last decade (Appendix G). In 2010, the region received just 13% of national public funds allocated to research and innovation and of these funds 93% went to the only university in the region (Appendix F).

Following the review of the existing research and innovation base when developing a smart specialisation strategy, it is necessary to address the specific needs of the BMW region with tailored, well-funded instruments. The “one size fits all policy” has reduced potential to provide positive impact due to the high heterogeneity of regional profiles in terms of bottlenecks and advantages. The Strategy for Higher Education to 2030 (the “Hunt report”, 2011) recommends for the IoT sector and other smaller institutions to be consolidated, amalgamating institutions to promote coherence and reach an appropriate scale and capacity.
A key challenge from recent research is to move to a next-generation level in indigenous enterprise establishment, moving beyond the old economic model of attracting FDI based on cost competitiveness and grant incentives (Best et al., 2010). Responding to the need to create and grow innovative companies is the third main challenge.

**Challenge 3: Creating and growing innovative companies**

Despite Irish strengths in educational attainment, in-house SME innovation, non-R&D innovation company expenditure and exports related to knowledge intensive sectors, areas for improvement are the provision of company internal and external finance, increasing access to venture capital, reducing the high costs of innovation, increasing SME innovation collaboration, sales of new-to-firm and new-to-market innovations, and developing a world-class ICT infrastructure.

Sound framework conditions for innovative companies to start and grow have to be put in place – hard and soft infrastructure at national level is vital. A nation-wide high speed, low-cost broadband service is necessary as are skills in areas such as ICT. With reduced numbers of small enterprises innovating compared to medium-sized and large enterprises, there is a need to target small companies if they are to grow, create jobs and export.

Recent research led by Technopolis Consulting Group Belgium has shown that most of the high impact enterprises created in worldwide innovation hotspot are spin-outs of firms rather than universities (Reid and Nightingale, Eds., 2011). Furthermore, despite the large amounts of public funds allocated for the creation of university spin-outs such spin-outs are few and often perform poorly. Reid and Nightingale note that finding the right balance between spin-outs and licensing of technology in TTOs could be a key issue to maximising returns from research commercialisation. Putting specific measures in place for spin-out of firms deserves particular attention. A review of worldwide literature on venture capital shows, inter alia, that the main problem in the EU is not one of a lack of start-ups but a lack of growth in enterprises. Thus, policy needs to re-direct to quality over quantity and focus on a small select group of companies who can push job creation and growth. With venture capital only a part of an interconnected system and enterprise needs depending on their stage of growth other aspects such as business angels and loan guarantees have a role to play.

**3. Innovation policy governance**

Focusing on innovation policy governance the BMW and S&E regions are concerned about the possible adverse consequences of a re-nationalised regional policy arising from the noted weak territorial dimension of various national policies and the limited acknowledgement of a regional dimension in national competitiveness. While both Assemblies propose an alternative framework to be introduced post 2013 - national authorities would still agree priorities at central level but the Assemblies would become responsible for programme design, making allocations, project selection and payments – such an eventuality is unlikely with the trend towards a centralist approach and aggregation of power in the Department of Finance.
4. Conclusions: future actions and opportunities for innovation policy

Looking to the future, the Government recently published infrastructure and capital investment policy to 2016 indicates that supports to industry will be maintained in excess of pre-recession levels, while there will be some reduction in funding to research and development. In 2011, Ireland had a strong export performance, a lower cost base for companies, improvements in productivity and lower unit labour costs in 2010, but, on the other hand, there are ongoing concerns in relation to the cost of doing business, the need to enhance productivity levels which are still below the OECD average, the poor performance in infrastructure such as energy and telecommunications and the major funding challenges in higher education.

Due to the presence of multinationals, Ireland has absorbed various technological, manufacturing and managerial capabilities (Best et al., 2010). Prospects are promising in the BMW region in areas such as IT, pharmaceuticals, medical technology, the creative industries and nanotechnology. The renewable energy sector has vast potential but much foundational work needs to be undertaken. Best et al. state the skills and capabilities built up over time can be leveraged to make the transition to the much-needed next-generation level in indigenous enterprise establishment (e.g. for the medical technology sector). Success factors for the transition include encouraging skills transformation processes, creating new indigenous enterprises to exploit the new skills, attracting more FDI and exploiting the existing FDI stock, and most critically promoting the convergence of technologies for the development of the new technologies and products. An issue for start-ups in the BMW region is how to incentivise skilled personnel in multinationals who wish to start up a new venture.

With an annual public procurement market for goods, services and works of about €15bn there are a number of opportunities to be grasped from demand-side innovation policies. There have been little or no sectoral specificities in existing demand-side innovation support measures and R&D tax credit has not been used to guide demand towards specific products or services.
1. Main Trends and Challenges in the Regional Innovation System

1.1 Recent trends in regional economic performance

The Border, Midland and Western (BMW) region is one of two NUTS II regions in Ireland (the other being the South and Eastern Region, S&E), consisting of 13 counties in three NUTS III regions (Border, Midland and Western). It accounts for 47% of the national land area and 27% of the population.

The economic crisis of 2008 onwards overshadows recent regional socio-economic performance. Appendix D presents an overview of various socio-economic indicators, also comparing the region against S&E region.

The current population is about 1.2 m people with almost two-thirds living in rural areas, compared to 30% in the S&E region. Population growth is mostly concentrated in the urban areas, particularly in those urban areas closer to the Dublin conurbation area (i.e. in the Midland region). Whilst both the BMW and S&E regions showed population growth between 2004-2007, there has been a significant decline in growth since then, resulting mainly from the downturn in the construction and hospitality sectors. Emigration from Ireland in the year to April 2010 was about 65,300 and the number of immigrants into Ireland fell dramatically, resulting in the highest net outward migration since 1989. Overall emigration is estimated to have reached 76,400 in the year to April 2011, an increase of 16.9% over the year to April 2010.

There are five gateway cities and towns (as designated under the National Spatial Strategy 2002-2020) in the region, each with distinct spatial characteristics and having a cluster of enterprises in a range of sectors. Galway has been found to be the second highest scoring gateway in Ireland in 2008 after Cork (Fitzpatrick Associates, 2009a). The multimodal accessibility index for the region is lower than the rest of the country and the EU average. While the rail network has improved between 2001-2006, less than optimal air and road connections mean the region is considerably behind the S&E region and the EU average. Considering the generally positive correlations between GDP and the accessibility index and between accessibility and migration, the region is considered as a Category 2 region according to the ESPON accessibility index (CM International et al., 2011).

Up to Quarter 3 2007, there were steady increases in the labour force and employment. However, with the economic crisis the unemployment rate stood at 16% in Q2 2011, compared to 13.7% for S&E region. Data shows that the total labour force decreased by 1.8% between 2004 and 2010 (compared to only 0.4% in the S&E region). Sectoral composition of employment data from 2010 shows that the largest employers in the region are: industry (15.1%), wholesale and retail trade (14.9%), health and social work (13.0%), education (8.3%), construction (7.7%), agriculture, forestry and fishing (6.8%) and accommodation and food services (6.9%). In comparison with national and S&E data, the industry, construction, accommodation and food services, education and health and social work sectors account for a higher proportion of employment.

Due to the impact of the recession, sectors such as construction have been particularly badly affected (employment has decreased by 36.3% from 57,000 in Q1 2004 to 36,300 in Q3 2010). On a more positive note, employment decreases in higher technology sectors have been less in service sectors with even increases in sectors such as Professional and Scientific and Technical activities (+8.2%) and information and Communication (+24.3%) between 2004 and 2010.

Using 2010 social occupational code data, the BMW region is a lower skilled economy than S&E with lower numbers of employers and managers, and high professional skilled workers. In contrast the region is stronger than S&E in manual skills, semi-skilled, own account workers and farmers (CM international et al., 2011).
There were 104,775 business units in the region in 2008. Construction (26.5%), and wholesale and retail trade (21.3%) represented the largest percentage of business units. (Manufacturing only represented 6.3%). However, the housing sector boom and bust and the recession has severely affected these sectors, strongly influencing unemployment figures.

MacFeely et al. (2011) notes that the BMW region has total exports six times less than the S&E region (2005 data) with significant differences in export potential in the region.

Focusing on innovation/knowledge economy related sectors such as ICT, R&D + Technical and Management, 2008 data suggests about 1,500 related businesses in the region, about 15% of the national total, much lower than the S&E region. The R&D+Technical category represents about 25% of the national total. Associated employment levels were estimated at about 4,000 in 2008 or 10.6% of the national total, indicating that such companies in the region are generally smaller than comparable enterprises in the S&E region. Moreover, another indicator of smaller than average innovation related businesses in the region is a turnover of €973m in 2008, or 6.4% of the national total. Noteworthy is the turnover in the R&D sector, representing 11.2% of the national total, indicating its relative strength in the region.

In 2008, the region generated 18.7% of national gross value added (GVA), comprising of agriculture, forestry and fishing (31%), manufacturing, building and construction (19.1%) and market and non-market services (18%). The GVA per capita in the region was 69.9% of the national average in 2008. The wide gap with the S&E region shows no improvement. At EU27 level, BMW regional GVA is close to the EU average, decreasing moderately against the average between 2000-08. (Ireland’s GVA in general was about 33% higher than the EU average in 2008, with the S&E region being 48% higher than this value). The regional disposable income per capita was 9.2% below the national average in 2008.

### 1.2 Recent trends in regional innovation performance

With the design and funding of regional innovation policy following a strong top-down approach by central government, and innovation policy measures at regional level being national measures designed and managed by national authorities, there is no regional innovation system, nor strategy.

There is only one university in the region (the National University of Ireland, Galway, NUIG); five Institutes of Technology (IoT – in Athlone, Dundalk, Galway-Mayo, Letterkenny and Sligo) with relatively low levels of research capacity deriving from their historic background as teaching institutions focusing on technical disciplines; and two research centres – Teagasc Rural Economy research centre and the Marine Institute.

The Irish research and innovation system is characterised by a high level of co-publications, a tapping into international knowledge networks and potentially benefitting from knowledge spillovers, and a move towards high-research intensive sectors (e.g. ICT, chemicals, medical, pharmaceutical, precision and optical instruments). Making good progress in all areas over the past 10 years, Ireland, an innovation follower from Innovation Union Scoreboard 2010 rankings, outperforms the EU average, USA and relevant comparator countries on most research and innovation indicators (with the exception of number of patents). Private R&D intensity increased from 0.85 in 2000 to 1.17% in 2009. EU (ERDF and ESP) funding has played a positive role in advancing innovation.
As a consequence of the economic downturn, GBAORD and GOVERD have decreased since 2008, GBAORD by 8% in 2010 over 2009 (€872m vs. €941m), and GOVERD down to €91m in 2010 from €140m in 2008. Funding for industry-higher education collaboration and applied research initiatives has so far escaped relatively intact while there have been cuts in the research funding allocation for the higher education sector. The installing of a new government in March 2011 has brought more emphasis on commercialisation and close-to-market research funding.

The region is well below the national average in terms of R&D expenditure from all sources and considerably below the EU average.

Evidence from the 2004 regional audit of innovation concluded that the region had an innovation deficit, was less entrepreneurial than S&E and found the linkages between industry and third level institutions to be very weak. The volume of start-ups was only half of that in the S&E region, the number of innovative companies (53%) was well below the national level (63%) and S&E region (79%), there were fewer internationally traded companies particularly in financial services, R&D was only undertaken as a part-time activity, 85% of innovative companies undertook R&D, 32% of companies were involved in some form of partnership, joint venture or network and the most important innovation results were new product development (62%) and patent applications (20%). Key recommendations included: taking local ownership and responsibility; develop various SME support schemes such as training programmes, research vouchers, business networks, business angels and local venture capitalists; attract more multinationals; educational institutions to expand services and integrate more with the private sector; develop international clusters such as medical devices and local clusters in eco-tourism, organic food and pharmaceuticals; and improve telecoms.

The latest BMW innovation audit published in May 2011 (CM International et al., 2011) found that: (i) the total BERD in the region in 2007 is 18.6% of the national total, a significant drop from a 2005 figure of 25.7%; (ii) higher education (HE) expenditure on R&D in the region in 2009 accounted for 14.4% of the national total. Using 2003 data, HE R&D spend in the region was 0.2% of GDP (compared to 0.4% for S&E). Eurostat data on overall (gross) R&D expenditure as a percentage of GDP was 1.3% for the region (compared to 1.2% for S&E); and (iii) the number of personnel engaged in R&D in 2007 was 2,323 staff or 21.2% of the national total. As a percentage of the total regional workforce (553,000), the R&D workforce is 0.42% (less than S&E at 0.54%), suggesting a higher level of BERD intensity with a smaller proportion of employees. Overall the number of full-time equivalent (FTE) research personnel in Ireland in 2007 (2,138,800) was 0.5% of the total workforce.

As part of the BMW innovation audit published in 2011 a survey of primarily manufacturing, technology and internationally traded service micro enterprises (1-10 employees) who received some form of innovation support in the past was undertaken (by project partner WESTBIC) to understand the current position of innovation and the potential for knowledge services in the region. Results (from 159 respondents) showed that 70% undertook product/service innovation activities, 58% undertook marketing innovation and 43% social/organisational innovation. Mostly projects were progressed to implementation and/or commercialisation stages but 42% of respondents reporting bringing new/improved products and services to only concept/development stages, and only 46% of cases reported organisational innovation at implementation and commercialisation stages. Explanations provided included lack of funding and support services, and for business reasons.
Only 20% of the respondents reported being totally happy with innovation activities and support provided. A majority (63%) listed innovation inhibitors as: lack of time, cost factors, lack of information and awareness of available supports, lack of funding and support services and bureaucracy in accessing support. Some reported difficulties in dealing with higher educational institutions, namely: a perception of poor support/research quality, slowness in response and a different culture. Responses were generally similar to comparable S&AE surveys with the exception of two aspects:

1. 24% of respondents in the S&AE region found it difficult to find suitable services compared to 30% in the BMW region; and
2. 27% and 21% in the S&AE sample reported lack of time and resources compared to 49% and 40%, respectively, in the BMW region.

Companies in the region are mainly looking for services related to R&D prototyping and design services, management and strategic planning support, market research, ICT, design and development engineering projects, business modelling, quality processes and project identification and management. Of those cases where support was sought, 40% found services in the private sector with a further 23% seeking support in the public sector (third level educational institutions and state agencies such as Enterprise Ireland). About 12% found it very difficult/did not succeed to identify a suitable service provider. In comparison companies in the S&AE region rely more on private sector suppliers for supply of innovation services and less on the public sector. BMW located companies reported high satisfaction with private sector suppliers (92%) and somewhat less with public sector suppliers (77%), particularly in the areas of communications (50%) and environment/energy management (50%). Engagement with public sector institutions is mainly as a result of availability of funding and proximity to the business.

Data from 2008 suggest there are about 1,500 private knowledge service providers in the region (CM International et al., 2011). Results from a company survey show 90% of the private knowledge providers in the region have less than 10 employees. Focusing on R&D services, 58% operated in R&D or innovation services with the majority (25%) operating in design and development. Most clients are in the service sectors with also a significant proportion in industry. Companies reported difficulties in identifying private providers while providers reported that the greatest barrier they faced was client-lacking awareness of available services.

There are a number of collaborative activities in the region such as CEIM in the BMW North West and the Midland and West Enterprise programme. The HEIs have also initiated collaborative arrangements in the region, nationally and internationally. Such examples are generally not focused on knowledge transfer (CM International et al., 2011).

1.3 Identified challenges

Like all regions there are many challenges to innovation performance to be addressed. The recent BMW innovation audit and BMW Assembly submissions to the Innovation Taskforce (2009) and on the future of cohesion policy (2008) outline some of the key challenges.

The BMW Assembly submission to the Innovation Taskforce, pointing out why regions matter for research and innovation, frames issues around four pillars (Figure 1 below).
### Figure 1 BMW proposals for reform of innovation policy

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<th>Pillar</th>
<th>Key Point</th>
<th>Policy Proposal</th>
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<tbody>
<tr>
<td><strong>Supply side</strong></td>
<td>• Innovation at regional level needs to be addressed by STI policy</td>
<td>• Develop and implement a Regional Innovation Strategy</td>
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<td></td>
<td>• Consistent under-investment in R&amp;D in the BMW region</td>
<td>• Incentivise collaboration with less established research institutions</td>
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<td></td>
<td></td>
<td>• Collaborative research in the BMW region to be fully supported at national level</td>
</tr>
<tr>
<td><strong>Demand side</strong></td>
<td>• RTDI policy is too heavily focused and driven by supply-side considerations</td>
<td>• RTDI policy of HEIs to be re-focused on diffusion of knowledge</td>
</tr>
<tr>
<td></td>
<td>• Challenges exist for 4th level linkages between industry and academia</td>
<td>• Develop collaborative postgraduate scholarships</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Focus on untapped industries (e.g. creative industries/wood energy)</td>
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<tr>
<td><strong>Intermediary infrastructure</strong></td>
<td>• A catalyst is required to address the deficit in industry-academia engagement</td>
<td>• Resource knowledge intermediaries</td>
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<td></td>
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<td>• Rollout of InterTradeIreland Fusion Initiatives within Ireland</td>
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<td></td>
<td></td>
<td>• Avail of pilot experimental actions theme in regional OPs to pilot test new initiatives to link firms with knowledge</td>
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<tr>
<td><strong>Supportive infrastructure</strong></td>
<td>• Develop a user oriented innovation approach to complement intermediary infrastructures</td>
<td>• Develop sector specific technology transfer arrangements</td>
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<tr>
<td></td>
<td></td>
<td>• Research centres to provide regular sector briefings to industry</td>
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<td></td>
<td></td>
<td>• Develop business mentoring initiatives for potential HPSU enterprises</td>
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</tbody>
</table>

Source: BMW Regional Assembly submission to the Innovation Taskforce (2009).

With an overall objective to build a sustainable economic base, key challenges include: address regional disparities, take more account of specific regional needs, create a critical mass of research and innovation, increase capabilities within the HEIs and company base, ensure the continued relevance into the future of the already funded research centres, increase connectedness between companies and between HEIs/companies, address the distinctive needs of SME such as information, and provide for significant improvements in infrastructure.

Under the over-arching call for a regional dimension in national policy, responding to specific BMW region needs, in an era of limited funding, three key challenges where realistically achievable short- to medium-term policy corrective actions can be taken are outlined below.
Challenge 1: Strengthening of the connections between the research and innovation system actors

Strengthening connections can come about on a number of levels; from central government by supporting the development of a smart specialisation strategy bringing all actors together; from national bodies responsible for support instruments by developing more strategic relationships with the HEIs; and connections between the research and business communities, and within the business community. Challenges exist at all levels in the BMW region.

Despite a number of valuable initiatives (listed below), lack of mutually enforcing links between knowledge institutions and enterprises is an acknowledged issue, seriously constraining the commercialisation, close-to-market and return on investment agenda. From the recent BMW audit of innovation, private knowledge providers and client companies also have communication difficulties.

One solution to bring the relevant actors together in the region and make them more aware of each other’s activities is the development of a smart specialisation strategy, now an EU requirement for receipt of Structural Funds in the future, and a key element in developing multi-level governance for strategic and integrated innovation policies, better linking research and innovation policy to other policy areas from an enhanced understanding of own strengths in relation to other regions. Academic literature on regional studies highlights the importance of spatial dependence in knowledge production, i.e. research activities in a given place are often influenced by related activities nearby, and that some regions may be better adapted than others to advancing the frontier, while other regions could be involved in the co-production of applications. Arguments for smart specialisation (e.g. Foray et al., 2009; Foray and van Ark, 2007) focus on inefficiencies in resource allocation and priority identification, a fragmented research base (e.g. duplication of research projects, weak competition between research groups, subcritical mass of research groups), a lack of coherence in matching between own science base, technology production and economic structure, and from a lack of practical collaboration/cooperation within and between regions. All too often priority setting is undertaken with only national considerations in mind.

A smart specialisation strategy should be: (i) place based (aka the Barca report, 2009), (ii) include a pool of strategic resources, (iii) be broad enough to allow for a diversified portfolio of related activities, (iv) seek complementarities with other regions, (v) be timely accompanied by a diverse policy mix (e.g. higher education and vocational training, support to innovation and SMEs), and (vi) be continually assessed and monitored, and revised as required. Strategic objectives, naturally depending on context, could include: retooling (upgrading within an already existing industry resulting from the emergence of a new area of R&D and innovation specialisation), extending (diversification of the knowledge base), emerging (discovery of a new niche), and cross sectoral (a new combination of sectors helping generate new ideas for products and services).

Numerous approaches exist to foster collaborative arrangements between research performers and firms. Fitzpatrick Associates (2009b) outline various models, which can be of interest to the region. These models include: (i) Business Innovation Centre (BIC), Murcia, Spain: University of Murcia has developed a working relationship with the BIC where one of the roles of the BIC is to exploit the commercial potential of the University R&D output; (ii) Knowledge House, Northern England: an alliance of different universities in the region have established an independent consultancy and project management service; and (iii) North-West Ireland: two Institutes of Technology (Sligo and Letterkenny) collaborate to deliver a joint campus to generate knowledge-based innovative start-ups.
Effective signposting of services is another issue, to ensure that firms in the region know where to look for the most appropriate knowledge provider(s) to deal with their specific need(s). One proposal is to establish a “one-stop-shop” with a relevant web portal, bringing together all the relevant information on knowledge providers and the professional services market (CM International et al., 2011). Part of a central Enterprise Ireland office in the region could be used for such a purpose.

The research performers, particularly NUIG, have a crucial responsibility to reach out to the business community. The Ignite Technology Transfer Office (TTO) in NUIG has a large role, as have the CSET and three SCRs, and the ARE programme funded applied research centres in the IoTs.

The “National Strategy for Higher Education to 2030” recommends that higher education institution engagement with, *inter alia*, enterprise will be at the heart of higher education in the decades ahead. Higher education is viewed as playing a major role in making Ireland recognised for innovation and competitive enterprise, thus continued investment in research and innovation is essential for national development. It is recommended that the public funding system should be more prioritised and better coordinated, a framework for system-wide collaboration between diverse institutions should be developed meaning that collaboration between institutions within a region should be promoted in order to improve responsiveness to local socio-economic needs, that a researcher’s role have a wider focus, increased mobility and better career opportunities.

This more affects the BMW region from its already weak position compared to the S&E region. In exception the Strategy for Higher Education to 2030 does recommend greater collaboration at regional level and consolidation of the HEIs.

Noteworthy initiatives responding to the close-to-market and commercialisation emphases to build upon are:

- Competence Centres (e.g. Centre for Bio-energy, NUIG);
- Industry Led Research Programmes;
- European Enterprise Network, business angel networks, Innovation Partnership Programme; Innovation Voucher scheme linking small enterprises with public knowledge providers;
- Digital Enterprise Research Institute CSET in NUIG;
- Strategic Research Clusters in NUIG: (i) Network of Excellence for Functional Biomaterials (NFB); (ii) Alimentary Glycoscience Research Cluster (AGRC); and (iii) Regenerative Medicine Institute (REMDI);
- The MeTRIC initiative (located in NUIG) – a single professional point of for the medical technology industry bringing together 15 specialist research centres and 150+ researchers;
- EI objectives to strengthen the applied research centres and TTOs in the HEIs;
- The new SFI/EI jointly launched Technology Innovation Development Feasibility Study Award (SFI, 2011) to enable researchers to initiate commercially relevant applied research programmes, develop the commercial expertise within their laboratories and be primed at the end of their awards to apply for more significant levels of commercialisation funding; and
- The collaborative innovation and research strategy by Lionra (the regional higher education network), with the intention of bringing together the HEIs, SMEs and institutional companies into a Technology Hub.

The developmental process and outputs of the smart specialisation strategy and the ongoing national research prioritisation exercise lay the foundation for the second challenge, sustaining and developing the research base by allocating much greater targeted research and innovation related investment to the region.
Challenge 2: Sustain and develop the BMW research and innovation base

With only one university, five IoTs, two research centres, and a relatively smaller business base the region is at a comparative disadvantage to S&E to absorb the funding on offer. Perceived issues of lack of scale and critical mass have impeded more widespread funding of research and innovation in the region. R&D investment has been overwhelmingly directed towards existing centres of excellence, which are invariably found in more prosperous regions (i.e. S&E Region), thus reinforcing the gap between the BMW Region and the S&E Region.

There is a need for much greater investment in research and innovation in the region (particularly in the IoTs) and for region-specific supports (CM International et al., 2011). Companies need to be supported and the existing centres of excellence and other specialised activities need to be sustained. For example, a lack of core funding for the campus incubation centres is limiting capacity to sustain delivery of research and innovation services to companies. There is strong evidence that a critical mass of research funding is linked to the potential to create start-ups (Reid and Nightingale, Eds., 2011).

National research and innovation policy does not have an effective regional dimension. As outlined in the BMW Assembly submission to the Innovation Taskforce (2009), the existing conflict between Cohesion policy and the quest for excellence in research has to be reconciled. The regional dimension of innovation is conspicuously absent in major policy documents (e.g. Innovation Taskforce report, Innovation Ireland, 2010). The national Strategy for Science Technology and Innovation (SSTI) 2006-2013 acknowledges that companies in regional locations are at a disadvantage when it comes to accessing support for innovation due to the large concentrations of scientific and technological resources in the major cities.

For the successful execution of any innovation programme, it is important to address the specific needs of a region with specific instruments. “The one size fits all policy” limits potential to provide positive impacts due to the high heterogeneity of regional profiles in terms of bottlenecks and advantages.

While the provided national funding outlined in Appendices E and F has made quite a significant contribution to developing the BMW Region’s research and innovation capacity, the region’s share of national available funding is much below that of the S&E region. Over the last decade or so, Enterprise Ireland, the Higher Education Authority and Science Foundation Ireland have allocated 19%, 13% and 11% of national research and innovation funds to the BMW region, respectively. In 2010, the region received just 13% of national public funds allocated to research and innovation and of these funds 93% went to the only university in the region.

With the increased emphasis on commercialisation and achieving a return on investment, the higher education sector has new challenges to respond to. The internal culture, particularly in the IoTs, providing few incentives to engage with industry continues to be a serious barrier (CM International et al., 2011). The Strategy for Higher Education to 2030 (the “Hunt report”, 2011) recommends for the IoT sector and other smaller institutions to be consolidated, amalgamating institutions to promote coherence and reach an appropriate scale and capacity. There is a need for more strategic relationships between the IoTs and national authorities. Recognising that the ARE programme funded applied research centres in the IoTs are mostly under-performing due to lack of industry connections, and that the Institutes generally need to increase collaboration with the business sector, the Enterprise Ireland initiative (to start in early 2012) to further support the applied research centres, allocate additional funding under the Enterprise Platform programme and provide for placement of IoT innovation related graduates in companies is a welcome initiative.
Following the evaluation of the (region-specific) BMW Regional Programme of Innovative Action (Fitzpatrick Associates, 2009b), extension and expansion of particular pilot actions (e.g. business mentoring for winners programme, food technology transfer programme, research and intelligence briefings) should be considered. (The pilot voucher scheme, while successful, needs to be reviewed in the context of the national voucher scheme in order to ensure full synergy).

One vital aspect of research and innovation policy support to the region is the need to create and grow innovative companies, the third challenge, thereby contributing to sustainable economic development.

**Challenge 3: Creation and growth of innovative companies**

The BMW enterprise audit clearly points to the need to create and grow many more innovative business units in the region. The challenge now for the BMW region is to move to a next-generation level in indigenous enterprise establishment, moving beyond the old economic model of attracting FDI based on cost competitiveness and grant incentives, by further increasing skill levels and convergence of technologies in order to compete with other worldwide high-tech regions (Best et al., 2010).

With the renewed national focus on enterprise development, it’s important to understand the optimal conditions under which implementation of measures such as Innovation Fund Ireland will be optimised.

Forfas (2011) analysis of the national Community Innovation Surveys 2006-2008 points to the following SWOT analysis.

**Figure 2 SWOT analysis of Ireland’s current innovation performance at firm level**

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• High proportion of firms (45%) undertake some sort of innovation, relative to EU27/EEA (7th highest)</td>
<td>• High costs of innovation, especially for small companies</td>
</tr>
<tr>
<td>• Relatively high levels of expenditure on innovation by EU standards</td>
<td>• Contribution to turnover of new-to-firm and new-to-market innovations below EU average</td>
</tr>
<tr>
<td>• Innovation intensity feel between CIS between 2006 and 2008</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Evidence suggest Ireland’s high innovation intensity will lead to firms remaining innovative during the recession</td>
<td>• Innovation expenditure could be poorly targeted, with over-emphasis on technological innovation and R&amp;D, and machinery and equipment</td>
</tr>
<tr>
<td>• Potential value in non-technological innovation</td>
<td>• Relatively poor physical infrastructure especially telecoms</td>
</tr>
</tbody>
</table>


Key findings are that foreign-owned companies are much more likely to innovate than indigenous enterprises, reflecting differences in ownership and structure and also the less effective collaboration of indigenous firms with a number of partners, particularly universities and publicly-funded bodies (Challenge 1). Recognising these different ownership characteristics, key areas for Irish firms to focus on are product innovation and collaboration arrangements, taking advantage of proximity to the foreign-owned firms. Another point of note from the analysis is that particular innovation approaches are more suited to certain industries than others; for example, high-value sectors such as chemicals and ICT will focus on long-term product innovation while other manufacturing sectors may pursue process innovation as a way of reducing the cost base. Thus technological or non-technological policies should take into account-targeted sectors. With the ongoing shift towards service industries, it seems there is potential for greater impact at enterprise level from non-technological innovation areas such as marketing and organisational arrangements. Finally, the innovation agenda should seamlessly link with other national initiatives and fora – for example, in relation to Expert Group on Future Skills and the National Competitiveness Council.
Sound framework conditions for innovative companies to start and grow have to be put in place – hard and soft infrastructure at national level is vital. A nation-wide high speed, low-cost broadband service is necessary as are skills in areas such as ICT. About 40% of small firms innovate (rank 8 in EU27/EEA) compared to 61% (rank 4) and 76% (rank 9) of medium-sized and large enterprises, respectively. Thus innovation policies need to target small companies if they are to grow, create jobs and export. Perhaps reflecting poorer targeting of R&D resources by enterprises or indeed a positive sign having attained a “steady state” level of return to product innovation, the rate of return to new-to-firm product innovations (as a percentage of turnover) is lower in Ireland than in many other EU Member States. On technological innovation, Ireland ranked eight highest with about 43% of all enterprises undertaking some marketing or organisational innovation. Overall, Irish companies spent about 3% of GDP on innovation activities in 2008. However, owing to the preponderance of foreign-owned firms in the country GNP is a more accurate indicator, thus 3.4% of GNP was spent by firms on innovation, the third highest of all comparator countries.

In summary, despite strengths in educational attainment, in-house SME innovation, non-R&D innovation company expenditure and exports related to knowledge intensive, areas for definite improvement are the provision of company internal and external finance, increase access to venture capital, reduce the high costs of innovation, increase SME innovation collaboration, sales of new-to-firm and new-to-market innovations, and develop a world-class ICT infrastructure.

Recent Technopolis Consulting Group Belgium led research has shown that most of the high impact enterprises created in hotspot areas such as Silicon Valley, route 128 in Massachusetts, Lyon (France) or Cambridge (UK) are spin outs of firms rather than universities (Reid and Nightingale, Eds., 2011). Furthermore, many university spin-outs have been shown to poorly perform; a worrying statistic in light of the quite large amounts of public funds allocated for their creation. Research on the number of spin-outs from the best universities in the US and the UK shows an average of only 5.4 spin-outs per year from the top 59 research universities in the US, while UK data spin-out data (www.spinoutuk.co.uk) presents an average of less than one spin-out per year between 2000-2010 for 150 HEIs. Focusing on a more elite group of 12 universities (led by Imperial College London with 59 spin-outs between 2000-2010, followed by Oxford, Edinburgh, Cambridge, Warwick, Strathclyde), the average increases to 3.4 per year. Looking at the extent to which spin-outs survive and grow Nightingale (2009) shows, using an admittedly atypical sample, that the performance of spin-outs was significantly negative. Reid and Nightingale (2011) argue that finding the right balance between spin-outs and licensing of technology in TTOs could be a key issue to maximising returns from research commercialisation.

A review of worldwide literature on venture capital by Reid and Nightingale (Eds.) shows firstly that the problem in the EU is not one of a lack of start-ups but a lack of growth in enterprises. Thus, policy needs to re-direct to quality over quantity and focus on a small select group of companies who can push job creation and growth. Venture capital is only a part of an interconnected system. The needs of enterprises depend on their stage of growth. Business angels and loan guarantees have a role to play. Another finding is that the key policy guidelines for instruments such as Innovation Fund Ireland are simplicity, clarity and aligning incentives. Finally, policy should incentivise private venture capital funds by investing long-term in professionally managed schemes, scaling up hybrid funds and closing ineffective investments, ensuring the early reallocation of funds to winners.
2. Innovation Policy Governance

2.1 Degree of institutional autonomy

The BMW Regional Assembly, an administrative appointee of the national government, was designated as the Managing Authority for the BMW Regional OP 2000-06 and 2007-13 and is responsible for its “preparation and management and implementation”. There is also a government agency – the Western Development Commission - established to promote the economic and social development of seven counties of the Western region. Its roles include contributing to balanced regional development, promoting the benefits of living, working and doing business in the region, supporting sustainable socio-economic development of the rural economy, providing risk capital to enterprises and publishing research on regional and rural issues.

However, the Irish Government, as set out in the National Strategic Reference Framework (NSRF), decides on how Cohesion Policy will be delivered and the strategy (including policy measures) for allocating the available funding under the selected OPs. The design and funding of regional innovation policy follows a centralised, strong top-down approach and the regional innovation system is public funding driven.

Innovation policy measures at regional level are national measures designed and managed by national authorities such as Enterprise Ireland (EI), the Higher Education Authority (HEA) and Science Foundation Ireland (SFI).

During the preparation of the NSRF, the BMW Regional Assembly is consulted to ensure policy consistency. Thus, the Regional Assembly is more policy advocate than policy-maker. The OP, fully consistent with the NSRF, is prepared following consultation with national, regional and local authorities, intermediary bodies, the European Commission services, higher education institutions, economic and social partner representatives, on-governmental organisations, and the general public, building on the Irish social partnership process also applied to the previous programming periods.

2.2 Institutional-set up, co-ordination and implementation mechanisms

The BMW Regional Assembly was established in 1999 by the Irish Government to give effect to the division of the country into two regions for Structural Funds purposes. The Assembly comprises of 29 elected members nominated by 14 constituent local authorities within the region. The main activities of the Assembly (www bmwassembly ie) are to: (i) manage the BMW Regional Operational Programmes 2000-2006 and 2007-13, having been designated as the Managing Authority responsible for programme preparation and delivery; (ii) monitor the general impact of all EU and Irish exchequer-funded programmes in the region; (iii) promote the co-ordination of the provision of public services in the region; and (iv) ensure that national policies take regional issues into account. OP management is under the control of the OP Monitoring Committee.

The Assembly employs 14 staff to undertake its various executive and corporate functions in relation to financial management and control, programme monitoring, information and publicity, policy development, promotion and participation of (island of Ireland) North-South actions, promotion of Interreg programmes and the administration of Regional Programmes of Innovative Actions. The Assembly is the national contact point and first level control authority for the Interreg IVB Atlantic Area programme, regional contact point for the Northern Periphery Programme which promotes transnational cooperation with Scottish, Nordic and Scandinavian countries, promotes and participates in the Interreg IVC programme and is a project partner in the Atlant-KIS programme.
For the OP 2007-13, the Assembly has established two joint sub-committees: (i) National Development Plan and, (ii) Regional and Rural Affairs to, *inter alia*, review programme implementation, be briefed on Monitoring Committee outcomes and advise and inform the Assembly in relation to policy issues and to prepare and discuss draft policy documents for consideration.

In order to strengthen the Assembly’s role in relation to North-South cooperation, and to provide a forum where north-south cooperation issues can be discussed in greater detail, the Assembly established a North-South Committee in 2002 comprising of nine elected members (three from each Regional Authority area) and chaired by the Chairperson of the Assembly. The role of the committee is to review the implementation of the PEACE Operational Programme and the Interreg Community Initiative, review the implementation of the north-south cooperation aspect of the measures in the BMW Regional Operational Programme, advise and inform the Assembly in relation to north-south cooperation issues, promote greater cross-border links and identify areas of potential co-operation on an ongoing basis advantageous to the economic and social life of the Border region and the BMW Region as a whole.

In the identification of priorities for the OP, the Assembly undertakes consultations with the relevant Government Departments and agencies, the Regional OP Monitoring Committee (which includes representatives of the social partners), Assembly members, local authority heads and bodies, and heads of the higher education institutions in the region.

Following preparation of the draft OP notices are placed in the national press advising the public of the document, the consultation process and the availability of the document on the Assembly website. The draft OP is also circulated widely to all the relevant stakeholders at both national and regional level.

Horizontal inter-departmental coordination mechanisms between the national stakeholders are not very well developed. Inter-regional coordination between the BMW and S&E Regional Assemblies and vertical coordination mechanisms between local, regional, national and European authorities are somewhat developed. Senior management of the BMW and S&E Regional Assemblies regularly meet.

The Department of Finance ensures coherence between national investment strategies, budgetary processes and EU expenditure priorities.

The BMW Assembly, as the Managing Authority, is not directly involved in budgetary allocations, project selection and payments. It is the designated Government Departments and Agencies (e.g. Enterprise Ireland, Science Foundation Ireland, Higher Education Authority) at national level who are responsible for the administration of the relevant EU co-financed innovation measures (see Appendix F for a list of measures and responsible organisations). The exceptions to this are the management by the BMW Assembly of the Regional Programme of Innovative Actions and the Gateway Fund.

There have been no significant institutional developments since 2000. Over the years government departments have changed names and responsibilities have been transferred within and across Departments but the Department of Finance still holds firm control. With the new coalition government in March 2011, the previous Department of Enterprise, Trade and Employment is now the Department of Jobs, Enterprise and Innovation, and the Department of Education and Science is now the Department of Education and Skills. Noteworthy is the transfer of the largest research-funding programme, the PRTLI, from the Department of Education and Skills to the Department of Jobs, Enterprise and Innovation. A new junior ministerial post was also created in the Department of Jobs, Enterprise and Innovation, the Minister for Research and Innovation.
2.3 Availability and use of policy intelligence tools

Intelligence tools are routinely used in policy-making, both at regional and national level.

Over the years, external experts have undertaken innovation audits, a foresight exercise and ex-ante, mid-term and ex-post evaluations, such as:

- Audit of the Innovation System in the BMW Region, 2011;
- Audit of Innovation in the BMW Region, 2004;
- BMW Regional OP; ex-ante evaluation, 2007;
- Mid-term evaluation of the BMW Regional OP, 2010; and
- Evaluation of the BMW Regional Programme of Innovative Actions, 2009.

Separately, relevant national authorities regularly undertake evaluations of programmes, policy measures and foresight exercises. These include, for example:

- Forfas, 2011; Analysis of Ireland's innovation performance, March; R&D funding and performance in the state sector 2009-2010, August;

Most evaluations are published but some evaluations of Enterprise Ireland and Science Foundation Ireland administered measures are not disseminated.

Currently Forfas is finalising a research prioritisation exercise to identify priority areas for the allocation of public R&D funding over the next five years. The exercise involves major stakeholder involvement activities and takes into account national and international experience in the private and public sectors. While a report has yet to be issued it is understood that 14 priority areas have been identified.

Results of such now routine evidence based policy and practice exercises feed into revision of policy measures and future programmes.
2.4 Key challenges and opportunities

In a submission to national government authorities in relation to the future of Cohesion Policy, the BMW and S&E Assemblies (2008) noted the weak territorial dimension of various national policies and the limited acknowledgement of a regional dimension in national competitiveness. Thus, a concern of the two regions is the possible adverse consequences of a re-nationalised regional policy on both national and regional interests leading to a dissolution of the two NUTS II Assemblies, downgrading of the NUTS III Authorities and a diminishing of regional governance in the country.

The Assemblies propose an alternative framework to be introduced post 2013. Under the proposal national authorities would still agree priorities at central level but the two Managing Authorities (i.e. the Assemblies) would become responsible for programme design, making allocations, project selection and payments, similar to the ongoing arrangements for the PEACE and INTERREG programmes. Perceived advantages of the new arrangements include: greater degree of financial control and simpler financial cascade; greater continuity and strategic focus for mainstreaming of regional priorities; better structure for addressing specific needs and potential of each region; and acting as a catalyst for regional partnership. Number of complementary measures is also proposed by the Assemblies. These include implementation of the National Development Plan and future plans to be consistent with implementation of the National Spatial Strategy (NSS), viewed as not being the case to date, establishment of a regional policy coordination unit within a central government Department, and a move away from narrow-based cost-benefit analysis for investment decisions that only reinforces regional disparities in infrastructure.

The BMW Assembly submission to the Innovation Taskforce (2009), pointing out why regions matter for research and innovation, state the need to focus on: (i) the strength of regional research capacities, (ii) sector specific innovation/technology dissemination to all firms; and (iii) rates of incremental innovation and the adoption/absorption of transferable knowledge by all firms.

However, despite worthy proposals, it’s hard to envisage a change to the existing administrative frameworks in the current economic situation, which only reinforces the priority financial management and control over strategic programme management processes outlined in the Assemblies submission document. Austerity measures and public expenditure reviews are now the order of the day with the trend towards a centralist approach and aggregation of power in the Department of Finance.
3. Innovation Policy Instruments and Orientations

3.1 The regional innovation policy mix

Recognising the importance of innovation to sustainable economic development, Ireland - with 75% of research investment from the government (CM international et al., 2011) - has an array of research and innovation policy measures; national measures implemented at regional level (Appendix F).

Figure 3 shows that the main categories of support measures are research and technologies, and promoting and sustaining growth of innovative enterprises. With the government cutbacks in funding for R&D, a clear outcome is a renewed focus on getting a return from investment in research and innovation. Commercialisation, close-to-market and overall enterprise development initiatives are now the focus of research and innovation policy and instruments. The emphasis on close to market measures can be seen through initiatives such as the Competence Centres and the Industry-Led Research Programmes. The Innovation Voucher scheme, the subject of the good practice case below, has been successful in linking small firms and public knowledge providers.

Figure 3 broad shares of available budgets by main categories of research and innovation measures

<table>
<thead>
<tr>
<th>Broad category of research and innovation policy measure</th>
<th>Approximate total annual budget for 2010 (in euro)</th>
<th>Commentary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Governance &amp; horizontal research and innovation policies</td>
<td>€2.2m (STI evaluation and awareness promotion activities)</td>
<td>· Budgeted expenditure for 2010; decline on 2009 levels</td>
</tr>
<tr>
<td>2. Research and Technologies</td>
<td>€183m (Enterprise Ireland: grants €103m and IDA Ireland: grants €79m)</td>
<td>· Actual expenditure in 2010; mainly exchequer only funding · STI expenditure by both agencies is up on 2009 figures</td>
</tr>
<tr>
<td>3. Human Resources (education and skills)</td>
<td>€2.6m (Enterprise Ireland: Funding for Innovation Management initiative: (2009 estimate))</td>
<td>· Estimated expenditure for 2009; small increase on 2008 expenditure</td>
</tr>
<tr>
<td>4. Promote and sustain the creation and growth of innovative enterprises</td>
<td>€15m (Enterprise Ireland: Contribution to Seed and Venture Capital Funds and funding towards capacity and capability building)</td>
<td>· Actual expenditure in 2010; mainly exchequer funding; · Small increase on 2009 expenditure levels</td>
</tr>
<tr>
<td>5. Markets and innovation culture</td>
<td>€0.6m (InterTradeIreland: Acumen programme)</td>
<td>· Decrease in budget of €0.1m</td>
</tr>
</tbody>
</table>


The Strategy for Science, Technology and Innovation (SSTI) 2006-13 is a key policy document at national level, which in conjunction with other policies outlined in, for example, the National Development Plan (NDP) 2007-13, guides research and innovation funding. Although the SSTI acknowledges that companies in regional locations are at a disadvantage when it comes to accessing support for innovation due to the large concentrations of scientific and technological resources in the major cities, spatial expression in the SSTI is weak (Fitzpatrick Associates, 2009a).

The NSRF outlines that strategies should be developed to support implementation of the SSTI to implement measures to strengthen the capacity of the HEIs to undertake research and develop incubation centres. Additionally regional strategies should invest in research, training and development, innovation and entrepreneurship, applied research and technology transfer infrastructure. Interventions should also focus on microenterprise innovation and entrepreneurship using the existing County and City Enterprise Boards.
The Innovation Taskforce, established in 2009 to advise the government in making Ireland a smart economy and positioning Ireland, as an international innovation development hub, sets an ambitious vision of Ireland (Innovation Ireland, 2010) to become the best place in Europe to, *inter alia*, start and grow an innovative company, for research-intensive multinationals to locate and collaborate with indigenous enterprises, to turn research and innovation into products and services. Recommendations include focusing on transformation of the finance for innovation environment (i.e. business angel networks, venture capital), transform the intellectual property arrangements, develop flagship projects, better connect the education system to enterprise needs and attract foreign direct investment. Noteworthy is the fact that there are no region specific targets.

The National Spatial Strategy (NSS) 2002-2020, the government framework policy document for regional development in Ireland, has the objective of more balanced and sustainable regional development. All authorities and agencies with responsibilities for planning and infrastructure are required to build NSS requirements into relevant planning, strategies and regulations. Within the NSS five (of nine national) Gateways and four Hubs are identified to stimulate growth in the region and within specific catchment areas. The BMW Regional OP contains the objective to focus investment in the identified gateways and Hubs in order to strengthen attractiveness, accessibility and competitiveness.

Priority 1 of the BMW Regional OP 2007-13 focuses on enhancement of the research, innovation and ICT infrastructure and capacity, the promotion of entrepreneurship and enterprise development, and technology transfer between research institutions and the business sector.

Supported BMW Region OP 2007-13 interventions include:

1. applied research enhancement (ARE), incubation facilities and related collaboration initiatives;
2. building research capacity (PRTLI, technological sector research, facilities enhancement, equipment renewal, marine research, SFI awards);
3. building world-class human capital in research through Science Foundation Ireland awards (programmes such as Centres for Science, Engineering and Technology programme, CSETs; Strategic Research Clusters, SRC; and Principal Investigator awards, PI);
4. microenterprise innovation and entrepreneurship;
5. experimental innovative actions; and
6. broadband provision and demand stimulation.

Interventions funded the Priority and indicative allocated expenditure are outlined in Table 1 below. Considering the financial and economic crisis modifications to the OP were agreed in late 2009. The only change under Priority 1 was the inclusion of SFI research awards. The co-financing rate was increased from 40% to 50%.
Table 1 BMW Regional OP Priority 1: Interventions and indicative expenditure (millions euro)

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Indicative expenditure</th>
<th>Expenditure to end December 2009</th>
<th>Total expected expenditure</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Research Enhancement</td>
<td>24</td>
<td>5.3</td>
<td>16.7</td>
<td>-7.3</td>
</tr>
<tr>
<td>Building Research Capacity</td>
<td>99</td>
<td>44.9</td>
<td>144.9</td>
<td>+45.9</td>
</tr>
<tr>
<td>Micro enterprise, innovation and entrepreneurship</td>
<td>40</td>
<td>19.5</td>
<td>40.8</td>
<td>+0.8</td>
</tr>
<tr>
<td>Broadband provision and demand stimulation</td>
<td>37</td>
<td>20.4</td>
<td>46</td>
<td>+9.0</td>
</tr>
</tbody>
</table>

Source: Adapted from Department for Finance (2010).

Ireland has introduced a number of new measures including the establishment of the Innovation Fund Ireland (€500m, of which 50% is expected to come from the private sector) to provide seed and venture capital to the enterprise sector.

The new government through its Programme for Government (Irish Government, 2011) has outlined a number of initiatives including:

- develop a National Intellectual Property (IP) protocol to give predictability about the terms on which business can access IP created in HEIs and the wider digital sector;
- promote and support investment in technology research, development and commercialisation beyond basic research supported by SFI, as well as removing barriers to innovation and accelerate exploitation of new technologies;
- target key technology areas and sectors where innovation can be applied including but not limited to high value manufacturing, advanced materials, nanotechnology, bioscience, electronics, photonics, electrical systems and ICT;
- establish a network of Technology Research Centres focused on applied technological research in specific areas, to be linked to appropriate higher education institutions, to bridge the critical gap between basic research promoted and funded by Science Foundation Ireland and third level institutions and its subsequent development into commercial opportunity for investors;
- support the development of an International Content Services Centre to make Ireland world leader in managing intellectual property; and
- amend the R&D tax credit regime to make it more attractive and accessible to smaller businesses.
Additionally, SFI/EI has jointly developed a new support measure, the Technology Innovation Development Award Feasibility Study (SFI, 2011), which allows researchers to test the potential viability of a technique or technology.

An ongoing national research prioritisation exercise, expected to report in winter 2011, has reportedly identified 14 sectors, which will form the basis for future research and innovation interventions.

3.2 Appraisal of regional innovation policies

A Department of Finance mid-term evaluation of the BMW Regional OP has found progress, in terms to results to end 2009, mostly on schedule (see Tables 2 and 3 below) with the Priority performing reasonably good. Not surprisingly, the number of jobs created in microenterprises has fallen. Also, the number of researchers engaged in approved projects is below target. As per Table 1 above Department of Finance (2010) estimates that €48m more than the allocated €200m may be spent. The mid-term evaluation found that the interventions are well aligned with national and EU priorities.

Table 2 BMW Regional OP: Performance indicators Research, Innovation and ICT Priority

<table>
<thead>
<tr>
<th>Output</th>
<th>Baseline</th>
<th>Achievement at end 2010</th>
<th>Final target (2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Incubation Centres</td>
<td>5</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>No. of collaborative research projects approved</td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>No. Principal Investigator Awards</td>
<td>10</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>No. of Research centres (SRC and CSET)</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>No. of training days provided to microenterprises</td>
<td>35,572</td>
<td>105,784</td>
<td>119,572</td>
</tr>
<tr>
<td>No. of microenterprises supported</td>
<td>2,511</td>
<td>3,675</td>
<td>5,011</td>
</tr>
</tbody>
</table>

**Results**

<table>
<thead>
<tr>
<th>Output</th>
<th>Baseline</th>
<th>Achievement at end 2010</th>
<th>Final target (2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total employed in incubation centres</td>
<td>168</td>
<td>189</td>
<td>218</td>
</tr>
<tr>
<td>No. of researchers engaged in approved projects</td>
<td>47</td>
<td>98</td>
<td>170*</td>
</tr>
<tr>
<td>No. of enterprises collaborating with SRCs</td>
<td>0</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>No. of enterprises in Incubation Centres</td>
<td>52</td>
<td>67</td>
<td>68</td>
</tr>
<tr>
<td>No. of recipients in training</td>
<td>26,550</td>
<td>53,013</td>
<td>61,530</td>
</tr>
<tr>
<td>No. of jobs created in assisted enterprises</td>
<td>16,684</td>
<td>14,919</td>
<td>20,884</td>
</tr>
</tbody>
</table>

* of which: 100 – PRTLI, 70- SFI; ** of which: 24,841 – male; 28,172 – female.

Table 3 Performance indicators and expenditure by BMW Regional OP Priority I interventions

<table>
<thead>
<tr>
<th></th>
<th>Baseline (eur)</th>
<th>Achievemen t at end 2010</th>
<th>Final target (2013)</th>
<th>2009 expenditure (eur)</th>
<th>2010 expenditure (eur)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Results</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARE Centres</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No of ARE centres in place/extended</td>
<td>5</td>
<td>4</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of industrially focused projects</td>
<td>2</td>
<td>22</td>
<td>30*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incubation facilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No of business centres in place/extended</td>
<td>5</td>
<td>6</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of companies in centres</td>
<td>55</td>
<td>67</td>
<td>68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of employees in centres</td>
<td>187</td>
<td>189</td>
<td>230</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaboration Initiatives (Commercialisation Fund)</td>
<td>1,032,949</td>
<td>17,500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of approvals</td>
<td>0</td>
<td>11</td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Licenses achieved</td>
<td>0</td>
<td>11</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start-up enterprises</td>
<td>0</td>
<td>6</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRTLI</td>
<td>6,377,759</td>
<td>5,861,323</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of national collaborations</td>
<td>52</td>
<td>193</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of international collaborations</td>
<td>0</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of north/South collaborations</td>
<td>4</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Facilities Enhancement Scheme</td>
<td>5,011,455</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of HEIs that benefited from funding</td>
<td>382</td>
<td>385**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of researcher places supported</td>
<td>6</td>
<td>6**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFI Actions</td>
<td>4,299,325</td>
<td>4,061,787</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of researchers engaged</td>
<td>47</td>
<td>98</td>
<td>70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of enterprises engaged</td>
<td>9</td>
<td>11</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of invention disclosures</td>
<td>-</td>
<td>15</td>
<td>35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of patents filed</td>
<td>-</td>
<td>8</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Micro-enterprise innovation and entrepreneurship</td>
<td>6,684,883</td>
<td>6,165,180</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of jobs created in assisted micro-enterprise</td>
<td>16,684</td>
<td>14,919</td>
<td>20,884</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of training recipients</td>
<td>26,550</td>
<td>53,296</td>
<td>61,550</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(of which companies, partnership, other)</td>
<td>252</td>
<td>283</td>
<td>300</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*To be confirmed following completion of a review in 2011.

**Also final target.

A brief assessment of some of the main research and innovation instruments is provided below.

**PRTLI**, the Programme for Research in Third Level Institutions supports the development of third-level institution research capabilities, enhances the quality and relevance of graduate output and skills and encourages cooperation between researchers within and between institutions. Research in a wide range of areas is eligible for support including humanities, science, technology and the social sciences. PRTLI Cycle 5 for the period 2007-12/13 totals €347.7m (previous four cycles totalled €865.7m). As the PRTLI continues to evolve, Cycle 5 is more focused on graduate programmes and key infrastructure and support for new and emerging research areas.

PRTLI has been instrumental to the rapid development of R&D in HEIs and the transformation to an innovation driven economy (“Banda Report, 2004; Evidence, 2009a, b). It has led to, inter alia, a range of world class research facilities, high quality research, an institutional strategic emphasis on research, a significant build-up in research capacity (both Irish and international researchers) and made Ireland an attractive place to pursue a research career. Published output of the Irish research base has grown rapidly, more than doubling between 1998-2007, much faster than comparator countries. The share of world citations is greater than the share of world papers. International collaboration is rising, more for Asia/Pacific than Europe, more mainland Europe than the UK, and although good for the USA it’s less than some comparator countries. Generally, the collaboration within Ireland and with Northern Ireland needs to be improved.

Nonetheless, Ireland is still playing "catch-up": the total research capacity is still small with the research base dominated by three universities (none of which are in the BMW region). Ireland is also not building from the strong platform into higher levels of excellence.

Lessons learned include the following:

- seek to integrate various features into a single funding scheme including an emphasis on research investments, the creation of a more competitive critical mass of research effort and strengthening linkages between teaching and research;
- ensure the funding scheme addresses issues related to: its exact positioning within the national system of innovation; linkages between R&D and enterprise and industrial policy; sustainability of funded centres including the need for business planning and adequate overhead provision; stability of funding; training in IPR protection and management; the need for a strong teaching and learning connection; and the relationship between new centres and traditional departmental structures; and
- beware that a focus on research excellence and existing centres of excellence, invariably found in more prosperous regions, can result in sub-optimal outcomes for regions away from large concentrations of scientific and technological resources in major cities. Consider incentivising collaboration with less established institutions and undertake separate calls for proposals for institutions with reduced research capability.

The **Applied Research Enhancement (ARE) programme** provides for the establishment and operation of applied research centres in the IoTs allowing the Institutes to assist companies in the region to develop new products, services and market opportunities through research and innovation. No centres were approved in 2009 and 2010 in BMW but fresh funding support is envisaged in 2012.
Lessons learned include:

• recognise that HEIs can be at different starting points and some may need more assistance and time than others to get research activities to a level sufficient to work with industry;
• recognise that it takes time to build high research capacity in institutions with relatively low levels of research capacity (IoTs), deriving from a historical background as teaching institutions focusing on technical disciplines;
• focus on a few priority technology clusters, endeavouring to build centres of excellence;
• reward demonstrated success;
• ensure that the measure programme team works closely with the applicant Institute, also involving experts from other relevant regional and national development agencies;
• agree an appropriate research agenda for the region between the relevant programme authorities and other development agencies and the Institution; and
• look to achieve a sectoral balance and try to avoid/accentuate disparities within the region.

SFI (Science Foundation Ireland) funds a number of actions to develop research excellence in strategic economic areas: i.e. biotechnology, ICT and sustainable energy/energy efficient technologies. The aim is to promote enterprise development and support collaboration and technology transfer between the research and business communities. The SFI co-funded programmes - Centres for Science, Engineering & Technology (CSET), Strategic Research Clusters (SRC) and PI - Principal Investigator teams - were only formally approved in 2009 for co-funding under the BMW 2007-13 OP. Eleven awards were previously co-funded under the 2000-06 OP, with the university in Galway being the sole regional recipient. In 2009 five new awards were made totalling €8.42m, with the university receiving four awards. The scientific areas receiving funds included optical imaging, ICT, immunology, cell biology, cancer and DNA related research. This research is part responsible for the vibrant national medical devices sector, a core element of which is the cluster around NIUG and the local Galway-Mayo IoT. One new award was made in 2010 - in the area of regenerative medicine (€7.4m in direct costs and €2m in overheads to 2015).

The SFI funded actions have had a significant affect on human capital, collaborative, research and commercial outputs: nationally 28% of research staff in HEIs and 26% of overall public sector research staff have been supported; they have been successful in attracting overseas researchers (28% of group leader awards); publication rates have increased significantly and SFI-funded researchers had higher citation rates than non-SFI funded researchers; extensive collaboration activity, both in Ireland and overseas involving academic and business sectors; and a significant increase in number of patents. The CSETS and SRCs, key selling points in generating research led FDI by multinationals, have engaged a wide range of industrial and other partners but more linkages are needed, particularly with multinationals.
Lessons learned include:

- have a strategic focus on funding research excellence within a targeted number of sectors and disciplinary areas of research;
- design programmes to ensure maximum leverage of other funding sources;
- operate a "portfolio" approach to funding, offering a range of different programmes which attract different types of researchers and research activities;
- to increase research commercialisation align collaborations and measures with industry requirements;
- ensure effective linkages with bodies responsible for attracting FDI and engage new client companies with programme funded research teams;
- ensure rigorous peer review procedures;
- undertake regular bibliometric analysis of programme funded research outputs; and
- introduce measures to enhance the likelihood of top-ranking overseas researchers remaining in the country.

The Commercialisation Fund, re-designed over time, aims to convert the outputs of public funded research into innovative new products, services and companies. The objective is to foster a dynamic and commercially aware research community and create an environment that promotes entrepreneurship. In 2010, the proof of concept programme and technology development programme were combined into one support - the Commercialisation Fund support. The funding provides support for the development of technologies from early in the commercial pipeline to the point where the technology can be commercialised. Due to budgetary constraints, there was only one call for proposals in 2010. Twelve proposals were submitted by Principal Investigators in the BMW region, of which four were approved for funding.

In response to negative assessment in the 2004 Technopolis Group evaluation report and lessons learned over time Enterprise Ireland (EI) has taken a number of initiatives to re-structure the CF, e.g. in the latest 2010 CF, the proof of concept and technology development programmes are being brought together into a single programme. The number of commercialised projects has increased from 5 in 2004 to 33 in 2009 and the percentage of non-performing projects has decreased from 70% in 2004 to 20% in 2008. Issues and responses that have impacted on success are: existence of weak technology transfer in HEIs (thus the Technology Transfer Strengthening Initiative was introduced); academic led versus industry led agenda (introduced the Industry Led Research Programme); difficulty bridging the gap from laboratory to market (introduced the C+ and business partners programmes); administrative burden vs. commercialisation activity (undertook internal EI reorganisation); and under-performing/non-performing projects (introduced a new system to cancel projects and divert funding).

Lessons learned include:

- be prepared to re-design the measure over time: be flexible and adaptable to needs and introduce new sub-measures if necessary (focus on "what works"); and
- focus on industrial needs, responding to the market and aligning research with industry requirements.
The microenterprise, innovation and entrepreneurship support measure aims to increase the rate of business start-ups and expansion and lead to increased competitiveness, innovation and technological adaptation by micro-enterprises (enterprises employing less than 10 people). The measure is delivered through the 13 County and City Enterprise Boards (CEBs) located in the BMW region. A suite of "soft" business supports and services (e.g. Start-Your-Own-Business programmes, financial grants, innovation and effective ICT usage, owner/manager training programmes) are made available to start-up and existing enterprises to increase their capability, raise productivity, to adapt ICT applications and to raise employment. As of November 2009 new financial instruments consisting of a priming grant, a business expansion/development grant and a feasibility/innovation grant came into effect. In the region, 30% of direct aid given to beneficiary firms is in the form of revolving loans. In the period 2007-09 in BMW, 3,370 micro-enterprises and 14,743 jobs were assisted. From the 2008, 2004 and 2003 reviews of the national network of CEBs (over the 1993-2007 period), client satisfaction was high, agreed physical and financial targets were met, and per-job cost was highly economic. Due to the economic crisis the number of companies supported fell in 2009, a decrease comparable to the unemployment in client companies supported by other agencies. Based on the need to address BMW enterprise weaknesses and market failure there is strong justification for continued targeted subsidy state support to micro-enterprise, promoting an enterprise culture and boosting growth, productivity, innovation and employment. Location or sector-specific impacts where niche investments, while small at an overall macro scale, will be sizeable in the context of their immediate locations or beneficiaries.

Lessons learned include:

• offer a wide range of complementary supports in a "First Stop Shop" designed to assist businesses to establish and grow by the provision of targeted and appropriate assistance at each stage of their development. Supports can range from advice on the steps involved in setting up a business, to the provision of financial supports for feasibility studies, for the establishment of new businesses or the expansion of existing ones, and the provision of a range of soft supports such as training and mentoring;

• offer a mix of grants and repayable financing so that the never completely unavoidable "deadweight" and "displacement" concerns are reduced. Focus more than business advice, information, training;

• agree detailed physical and financial targets;

• undertake regular reviews on agreed targets, cost per-job, survival rates, etc; and

• include enterprise education/entrepreneurship measures and communication products for primary, secondary and university students and women in business.

The BMW Regional Programme for Innovative Actions, managed by the BMW Assembly, provided funding (€1.8m) to seven pilot actions (research and intelligence briefings, knowledge transfer partnerships, innovation management training, research voucher scheme, food technology transfer programme, business mentoring for winners programme and resourcing innovation and technology transfer). Overall the programme has had a positive impact, recognising some actions have more successful than others (Fitzpatrick Associates, 2009). The development of networks and linkages is a particular feature, which would not otherwise have occurred.

Key findings include SME difficulties in gaining access to expertise within institutions, and knowing where to start looking for assistance and what capabilities are available. Although there are many key stakeholders in the region, each may not be aware of the other's existence and a single coordinated approach may be lacking.
Lessons to be learned include:

- the need to explore non-technological innovation;
- continue to address the cultural gap between knowledge institutions and the business community;
- mainstream successful measures to national level; and
- find ways to involve more knowledge institutions.

Overall, monitoring and evaluation exercises over the years have shown that the innovation policy measures have made a very positive contribution to the region. Corrective actions have been taken based on lessons learned.

### 3.3 Good practice case

A noteworthy good practice case mentioned by a cross-section of interviewees is the Enterprise Ireland Innovation Voucher scheme.

Arising from a recommendation from a Small Business Forum in 2006, Enterprise Ireland launched the scheme in March 2007 to allow small enterprises to contract designated public knowledge providers such as third level institutions or research bodies to support them in solving a particular business related issue ([www.innovationvouchers.ie](http://www.innovationvouchers.ie)).

The overall objective is to create links between public knowledge providers and small firms (less than 50 employees) and engender a shift in small enterprise approach to innovation.

An individual voucher, worth €5,000, can be redeemed for a knowledge transfer project such as product/process development, business model development, service delivery and customer interface, service development, tailored training in innovation management and innovation/technology audit that is new to the small enterprise. There is also the possibility for up to ten other companies to create a larger fund to a maximum of €50,000 (10 vouchers x €5,000) to address an issue of common concern. Applications for support where solutions already exist in the marketplace are likely to be rejected.

The scheme, efficiently run by one person, has had more than 1,000 vouchers redeemed to date, of which there were 489 in 2010 totalling €2.4m (Martin, 2011).

Technopolis Group Belgium recently completed a policy brief on innovation voucher schemes for an OECD publication (OECD, 2011). Over the past few years the number of innovation voucher schemes operating in Europe has increased significantly and whilst in 2005 only a small number of schemes existed, there are now many publically supported schemes which have been launched with the aim of stimulating innovation through encouraging innovation to thrive from academia, private consultancy companies and SMEs.

Even though the monetary value of support offered through such schemes is invariably small, the actual impact of such funding on innovative small companies is substantial. Innovation Voucher schemes are particularly effective in encouraging innovation in SMEs and are responsible, in many cases, for being the catalyst to introduce the first phase of outside innovation intervention.

Technopolis research indicates there are two “generations” of voucher schemes and 25 different schemes in operation in the EU Member States, of which 11 do not require any form of co-financing and values of vouchers range widely from €500 in Belgium to €25,000 in Portugal. Vouchers are, in most cases, handled by either regional or national bodies.
Following the European Commission 2009 study (EC, 2009), knowledge providers are likely to be either public or public-private innovation knowledge institutions rather than private sector providers, which were not included in any of the 23 schemes investigated. However, there are now also examples of private service providers. Examples of potential knowledge providers can be obtained from KVoucher (http://www.kvoucher.eu/906/zoekresultaat.html) - a European project set up by seven European regions with contributions of the European Commission. It aims at implementing a trans-regional Knowledge Voucher System that will facilitate contact making and initiating first projects between SMEs and Knowledge Institutions (e.g. Universities) throughout Europe.

Drawing on the Riga Declaration from September 2010 (EC, 2010) general guidelines for the design of innovation voucher programmes are as follows:

- The primary objective of innovation vouchers is strengthening the innovation capacity of SMEs.
- Innovation vouchers should support all forms of innovation. This calls for providing access to innovation experts from diverse fields of expertise.
- Administrative costs should be kept as low as possible. Administrative procedures and control mechanisms should be proportionate to size and be continuously benchmarked against “best in class”.
- Schemes should be the subject of regular impact assessment. The main impact indicator should be an increase of SME innovation capacity.
- Schemes should be implemented at local, regional and national levels.
- New and better approaches to innovation support should be piloted and rolled out at local, regional and national level. New forms of policy coordination between the different levels could be considered.
- EC, EU MS and regions are invited to consider the wider use of or promotion of innovation vouchers wherever possible.

OECD (2011) points to some success factors as follows:

- services should be clearly defined and linked to clear objectives;
- need highly qualified and reputable service providers – the definition of eligible service providers and mechanisms to avoid fraudulent behaviour of SMEs should be based on commonly agreed criteria that promote competition;
- find a good threshold for the maximum support to be granted and a good co-financing rate in order to get the most interesting projects to be financed by a voucher;
- ensure target group representativeness in the voucher scheme - voucher users should be representative of the SME population;
- voucher quota: a relevant question is the fact whether a maximum number of vouchers in each round should be used in order to reinforce the incentive of realising a permanent behaviour change for SMEs, enabling a sustainable cooperation between SMEs and RTOs;
- when considering marketing of the scheme, it is important for RTOs to proactively stimulate the use of vouchers. The actual impact that such schemes may have is likely to depend on the implementation mode e.g. how the vouchers are publicised or what supporting guidance and brokerage is put in place to help firms find knowledge providers; and
- broaden success assessment to secondary effects: the success of the scheme should be assessed from a broad perspective.
3.4 Portfolio of innovation support measures

As outlined support to research, technological development and innovation in the BMW region is provided through a number of national measures at regional level (see Appendix F). Grants predominate although, with the introduction of the Innovation Fund Initiative, there is now more of a focus on public-private partnership.

As evidenced in Table 2 above, the EU Structural Funds, while much reduced, play an important role in 50% funding research and innovation interventions under the BMW Regional OP.

Martin (2011) outlines a number of recent demand-side policy initiatives to promote innovation (Figure 4). Emphasis has been placed on public procurement and market-led initiatives over regulation or standardisation.

**Figure 4 Key demand-side policy measures**

<table>
<thead>
<tr>
<th>Measure name (duration)</th>
<th>Short description of objectives, main activities or types of funding support, etc.</th>
<th>Key implementation details</th>
</tr>
</thead>
</table>
| **Procurement Innovation Group** | • Publication of a report outlining how public procurement can be used to stimulate innovation  
• Publication of best practice guide, “Buying Innovation – The 10 Step Guide”  
• Note: The economic crisis has impacted on the implementation of the report’s recommendations | • No budget has been allocated for this report  
• Organisation: Department of Jobs, Enterprise and Innovation  
• Target groups: public sector bodies, enterprises  
• Web: [www.djei.ie](http://www.djei.ie) |
| **Exemplar Communications Test Bed** | • Provision of next generation broadband test facilities  
• Seeks to stimulate the development of new web-based products and services | • Budget for 2010 is estimated at €5m  
• Responsible organisation: Department of Communications, Energy and Natural Resources  
• Target group: enterprises in the broadband sector  
• Web: [www.dcenr.ie](http://www.dcenr.ie) |

Source: adapted from Martin (2011) INNO Policy Trendchart - Ireland mini country report.

With an annual public procurement market for goods, services and works of about €15bn, the government can play a significant role in driving the demand for innovative products and services.

The Innovation Taskforce report, *Innovation Ireland*, recommended the development of a number of flagship public procurement initiatives that would act as demonstration models in international markets. There are a small number of what might be termed flagship/lead market initiatives to encourage the development of new products and services. One such initiative is the Exemplar Communications Test-Bed project in which the Department of Communications, Energy and Natural Resources provides funding (estimated at €5m in 2010) to promote the development and use of next generation broadband based on technologies developed by Irish high technology companies. The first phase of the project, which is 100% owned by the State, was opened in July 2010 and provides a laboratory environment, open to companies and researchers to develop, test and demonstrate products and services of the future. Current industry partners include BT, Ericsson, Openet, Amartus, HEAnet, Cybercom, Imagine, ESB Telecom, Sensecom and Digiweb. A Phase II – the Test and Trial Network - was announced in May 2011.

The R&D tax credit, used to encourage enterprises to engage in R&D and innovation, and in attracting mobile foreign R&D, more particularly in a time of economic crisis, is due to be amended to make it more attractive to SMEs. To date the instrument has not been used to guide demand towards specific products or services.
3.5 Towards smart specialisation policies

Smart specialisation is about understanding regional context, placing greater emphasis on research and innovation, and focusing scarce human and financial resources in a few competitive areas in order to boost economic growth and prosperity. It provides a bespoke strategy and a role for every regional economy, regardless of their background and drivers for economic growth. Without smart specialisation, there would be duplication of effort and less imagination and creativity in setting R&D and innovation priorities.

By developing a pragmatic, flexible strategic vision, understanding own endowments, concentrating on strengths, seeking exploitation of economies of scale and exploring market niches, there will be more efficient and effective use of resources, emergence of world class, specialised clusters achieving agglomeration effects, potentially larger amounts of private investment leveraged and a greater potential for faster results from the market.

While the government has a strong desire for Ireland to become a “smart economy” smart specialisation strategies have yet to be drafted for the BMW (and S&E) region.

Like successful companies, successful regions have core competences or distinctive technological capabilities, cumulatively and collectively developed across enterprises over time, that provide it with competitive and organisational advantage (Best et al., 2010). Regional technological capabilities are noticeable in distinctive industrial sectors or technology-based clusters.

Best et al. (2010) show that the BMW region has strengths in six technology based clusters – (i) medical devices, (ii) processed chemical and materials, (iii) computer and communication hardware, (iv) biopharmaceuticals, (v) software and communication services and (vi) diversified manufacturing and processing – of eleven key technology-based clusters2 (with principally eight in manufacturing) that the Centre for Innovation Structural Change, NUIG study, using the Lucerna database, determined to have relative comparative advantage for Ireland. The Lucerna database shows that these technology clusters employ almost 46,500 people in the region with a majority employed in processed chemicals and materials, which provides material to most of the other technology sectors, particularly the biopharmaceutical and medical devices sectors. Employment per sector is as follows: medical devices (almost 9,000), computer and communications hardware (6,505), pharmaceuticals (6,089) and software and communication services (5,290).

Ireland’s recent economic growth pattern has been driven by FDI in high-tech industries with the medical device industry, mostly located around Galway, a particular BMW success story, attracting most of the world’s largest medical device companies (Das and Ryan, 2010; Tulum, 2010). Early-stage establishment in the 1970s of low value-added branch plant manufacturing sites by foreign multi-nationals and the positive impact of these international firms in increased numbers of indigenous start-ups from the mid 1990s leading to the development of soft and hard skills, the convergence of technodiverse medical, electronic and pharmaceutical technologies and the upgrading to world-class manufacturing capabilities has resulted in the evolution of this important regional cluster (Tulum, 2010; Das and Ryan 2010). Affiliates of fast growing high-tech companies were attracted by the availability of world-class production and remote-management capabilities for routine activities (Best et al., 2010). SFI funded actions also played a key role bringing together the research and business communities to undertake leading-edge research, and NUIG and the Galway-Mayo IoT responded to medical technology sector labour skills requirements by establishing associated degree programmes.

2 computer and communication hardware; software and communication devices medical devices; pharmaceuticals; test, measurement and instrumentation; processed chemicals and materials; diversified manufacturing and processing; renewable energy; scientific, technical, engineering and consultancy services; business and management services; and finance and insurance services
This led to the establishment of a critical mass of affiliates in growing sectors such as computers, software, bio-pharma, medical devices and internationally traded services and development of national competences in production facilities and management capabilities in areas such as marketing, sales and logistics. However, on the other hand, growth was concentrated in production and management activities that can be imitated by other regions and Ireland’s success has not been accompanied by indigenous “industrial districts” of networked groups of differentiated and specialised small firms (Best et al., 2010).

Best (2006) has shown how regions such as Massachusetts differ from other less successful regions in sectors such as medial devices. Parts of the answer lies in Massachusetts’ long history of precision engineering and instrument making, which has gone through numerous design iterations with the transitions from defence to minicomputer to information-communication and now to life-science based industries (the integration of devices and drugs, of physics and biologies). Technodiversity has been a key element in the transition to a new, regional system of innovation.

Best et al. (2010) state the interplay of industry, technology and innovation crucially emerges from a review of the industrial development literature over the past 20 years. Nanotechnology and renewable energy could be emerging technologies operating at the junctions of two or more already existing technology based clusters.

The renewable energy sector is a sector of major potential with Ireland having large wind, wave and tidal energy resources (Best et al., 2010; Das et al., 2010). There is scope to utilise the capacities of multinationals currently operating in Ireland in areas such as materials, machining, engineering, hardware and software and electronics. Best et al. argue that organisational failure has been a main reason why the sector has not developed to date. Other constraints on sector development include national grid designed around centralised fossil fuel and nuclear technologies and structural links between the grid and fossil fuels has unintentionally erected a barrier to the emergence of a renewable energy industry. To develop the sector, government leadership is required to develop three inter-related infrastructures: (i) a smart grid has public good characteristics and building it requires government funding, (ii) close partnering between technology-driven enterprises and scientific and technological research in independent, university departments and laboratories is required; and (iii) the emergence of a critical mass of rapidly growing, technology-driven companies will depend upon a business organisation development infrastructure in place (e.g. financial institutions).

Building upon earlier Western Development Commission (WDC) research CISC (2011) and Collins and Fahy (2010) have shown the real potential of the creative sector in the West of Ireland. From an economic perspective, developing creative industries (encompassing the three broad categories of creative expression, creative application and creative technology) deserves merit with the sector growing at four times the rate of manufacturing and twice the growth rate of service industries in the ten years to 2005 in the OECD countries. Taking a conservative economic assessment and a modest multiplier of 1.26 by international standards CISC predictions of direct employment in the sector of almost 30,000 within a ten years period point to large economic, social and cultural impacts.

The soon-to-be-completed national research prioritisation exercise is expected to inform on national sectors for the future with 14 reportedly identified.
3.6 Possible future orientations and opportunities

Public funding in R&D has declined since 2008 and the number of PhD and non-PhD researchers has also fallen in 2010 (Forfas, 2011b). There has been a re-allocation of funding resources away from basic research to closer-to-market research/innovation support measures. Funding has increased for innovation support measures to facilitate industry-higher education research collaboration. Since 2009, there have been decreases in funding for research in the health, marine, environment and agri-food sectors while there has been an increase in research funding in the energy sector.

In November 2011, the Government published its infrastructure and capital investment policy to 2016 (Department of Public Expenditure and Reform, 2011). While resource allocations will be lower in the medium-term, the creation of jobs remains a top priority. **Supports to industry will be maintained in excess of pre-recession levels, while there will be some reduction in funding to research and development.**

It is envisaged that the recently established NewERA, the Government’s New Economy and Recovery Agency and the Strategic Investment Fund will complement the public-private partnerships as alternative sources of funding. The investment framework for jobs, enterprise and innovation between 2012-16 totals €2,334 bn (€514m per year from 2013). The corresponding amounts for education and skills are €2,210 bn, €430m in 2012 and averaging about €445m per year from 2013. In the period to 2016, the Government will also invest €860m in the agriculture, food and marine sectors. **Along with national funding, it is imperative that the EU co-financed BMW Regional OP post-2013 continue to prioritise research and innovation and ICT.**

Ireland’s competitiveness performance in 2011 is mixed. On the one side a strong export performance, a lower cost base for companies, improvements in productivity and lower unit labour costs in 2010, while, on the other hand, there are ongoing concerns in relation to the cost of doing business, the need to enhance productivity levels which are still below the OECD average, the poor performance in infrastructure such as energy and telecommunications and the major funding challenges in higher education (National Competitiveness Council, 2011).

The need for innovation – noting big opportunities to bring many more new/improved products and services to implementation and/or commercialisation stages and for much greater impact from non-technological innovation - across all sectors of the economy has been consistently stated by government as a priority in sustaining both competitiveness and growth. Due to the presence of multinationals, Ireland has absorbed various technological, manufacturing and managerial capabilities (Best et al., 2010). **Prospects are promising in the BMW region in areas such as IT, pharmaceuticals, medical technology, the creative industries and nanotechnology. The renewable energy sector has vast potential but much foundational work needs to be undertaken.** Best et al. state the skills and capabilities built up over time can be leveraged to make the transition to the much-needed next-generation level in indigenous enterprise establishment (e.g. for the medical technology sector).

Success factors for the transition include encouraging skills transformation processes, creating new indigenous enterprises to exploit the new skills, attracting more FDI and exploiting the existing FDI stock, and most critically promoting the convergence of technologies for the development of the new technologies and products. An issue for start-ups in the BMW region is how to incentivise skilled personnel in multinationals who wish to start up a new venture.

The idea of a “one-stop-shop” in the region providing information on all aspects of available professional services would provide an opportunity to efficiently and effectively deal with specific business needs.
With an annual public procurement market for goods, services and works of about €15bn there are a number of opportunities to be grasped from demand-side innovation policies. There have been little or no sectoral specificities in existing demand-side innovation support measures with the possible exception of the Exemplar Communications Test Bed — a lead market/flagship initiative. The R&D tax credit, used to encourage enterprises to engage in R&D and innovation, and in attracting mobile foreign R&D, more particularly in a time of economic crisis, is due to be amended to make it more attractive to SMEs. To date the instrument has not been used to guide demand towards specific products or services.

While NUIG plays a vital role in building sectoral capabilities and especially endogenously based capabilities, much more attention has to be given to the five IoTs in the region. The almost exclusive focus on existing Centres of Excellence has proved detrimental to the IoTs. There is an opportunity to incentivise collaboration with these less established research institutions by giving more weight to competitive funding proposals, which engage the IoTs. As outlined earlier, there are many opportunities to increase collaboration between the research and business communities. Proposals to promote greater levels of collaboration and interaction include providing financial incentives, support sector specific technology transfer arrangements where appropriate (e.g. medical devices, creative industries, renewable energy), fund knowledge intermediaries and support the development of researcher career paths in industry.

Nations differ in political and economic systems and, likewise, regions (regional authorities) have different prerogatives and autonomy to take necessary decisions. The degree of regional autonomy can have an impact on implementation of innovation strategies, for example, as regards the competencies to make financial allocations as well as define and respect specific institutional arrangements. Territorial cohesion has been explained as a harmonious spatial development but it also incorporates governance arrangements needed to improve cooperation between regions. The Barca report in 2009 provides a set of proposals on how to reform the cohesion policy post 2013. Given the current economic situation in Ireland with a focus on public expenditure cuts, it’s unlikely that the proposals for the administration of future Cohesion policy submitted by the BMW and S&E Assemblies will be accepted by the government.

However, notwithstanding the likelihood of few changes in governance, the development of a mandatory smart specialisation strategy should help in bringing all the actors together in the development of a common vision to develop the research and innovation base in the region. The concept of smart specialisation strategies (Foray and van Ark, 2007) subsequently adopted in the Barca report, can help to concentrate resources on a few key priorities/the most promising areas of comparative advantage (e.g. clusters, existing sectors and cross-sectoral activities, eco-innovation, high value-added markets or specific research areas), and be a key element in developing multi-level governance for integrated innovation policies, ensuring more effective use of public and stimulate private investment. The strategy should help provide explicit answers to questions such as: “What are the links between the key economic sectors/potentials of the region and the potential application of a new generic technology (ies)?”, “What are the failures in the present innovation system?”, “Which are the actors in the triple-helix and others?”, Which areas are they active and how should they supported?”, and “Is there a gap between the emerging areas of specialisation and the assets and infrastructure in the region and how should this be filled, if feasible?”

Establishment of innovation and knowledge economy indicators for the regions would also provide for a better understanding of innovation performance.
Appendix A Bibliography


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Nightingale, P. et al. (2009) “From funding gaps to thin markets UK Government support for early-stage venture capital, NESTA”.


Reid A., Nightingale P. (Eds.) (2011): The Role of Different Funding Models in Stimulating the Creation of Innovative New Companies. What is the most appropriate model for Europe? A report to the European Research Area Board. Study funded by the European Commission, Directorate-General Research.


Appendix B Stakeholders consulted

1. Mr. Aidan Hodson, Principal Officer, Office of Science, Technology and Innovation, Department of Jobs, Enterprise and Innovation, 16 November 2011
2. Mr. Martin Lyes, Division Manager, Research and Innovation, Enterprise Ireland, 11 November 2011
3. Mr. Adrian O’Donoghue, Policy and Research Officer, BMW Regional Assembly, 1 November 2011
4. Dr. Paul Ryan, Centre for Innovation and Structural Change, J.E. Cairnes School of Business & Economics, National University of Ireland, Galway, 16 November 2011
Appendix C RIM Repository information
Baseline regional profile

- IRELAND
- IRELAND
- Region Border, Midland and Western Region
- NUTS Code IE01

Regional Profile

Introduction

BMW covers 13 counties mainly along the western Atlantic seaboard, 1.16m people and 47% of territory. The 2008 economic recession has resulted in a major downturn. It has an innovation deficit, is less entrepreneurial than the S&E region and has weak linkages between industry and third level institutions. There is only one university, and five Institutes of Technology with relatively low research capacity.

Repository

Support measures

- Programme of Research in Third Level Institutions (PRTLI)
- Micro-enterprise, innovation and entrepreneurship supports
- Applied Research Enhancement programme (ARE)
- Science Foundation Ireland (SFI) actions
- Research Facilities Enhancement Scheme
- Commercialisation Fund (CF)

Policy documents

- Mid-term evaluation of the BMW 2007-2013 OP
- Audit of the Innovation System in the BMW region
- BMW Regional Foresight Exercise 2005-2025
- BMW Regional Operational Programme 2007-2013
- Audit of innovation in the BMW region

Organisations

- Higher Education Authority
- Border, Midland and Western Regional Assembly
- Enterprise Ireland
- Science Foundation Ireland (SFI)
- Western Development Commission

Economy
BMW covers thirteen counties and includes three regional authority NUTS III areas. It's eligible for assistance under the Competitiveness and Employment Objective (phasing in).

This peripheral region with a small open economy accounts for 47% of the national territory, about 26.8% of the population (estimated at 1.16 million people in 2007) and 19% of Ireland's GDP. Despite the regional economy undergoing significant change over the past years, moving from agriculture and traditional manufacturing, there is relatively low employment in the knowledge sectors (e.g. financial and international services).

Ireland's economy is driven largely by the Dublin and South-West regions, contributing about 58% to national output. BMW's economy continues to demonstrate low levels of "value-added", exemplified by the region contributing just 18.5% of national output despite employing 25.9% of Ireland's workers (Q1 2010). The region continues to lag behind the Southern & Eastern (S&E) region in terms of levels of disposable income, employment, productivity, inward investment, product innovation and company start-ups and expansion. Despite this, it has key advantages especially in the quality of its living environment.

Over the 2000-06 period, BMW output grew by 15.2% compared to 12.1% for the S&E region, recognising that it grew from a much lower base. BMW contributed 18.9% of GVA in 2000, remaining static at 19% in 2007, the latest figures for regional accounts based on activity in 2007. With the Irish economy experiencing a dramatic contraction since 2008, there has been a severe economic downturn in the region. In the 4th quarter of 2009, unemployment reached 13.2% in BMW compared to 12.1% in the S&E region. These regional gaps can be expected to widen in the medium-term. The majority of new graduates find employment outside the region. Major employment challenges ahead include: adjusting to the decline of the construction sector, return of emigration (brain drain) and delivery of (re)education and training.

Research, Development & Innovation

Evidence from the 2004 regional audit of innovation concluded that the region had an innovation deficit, was less entrepreneurial than S&E and found the linkages between industry and third level institutions to be very weak. The volume of start-ups was only half of that in the S&E region, the number of innovative companies (53%) was well below the national level (63%) and S&E region (79%), there were fewer internationally traded companies particularly in financial services, R&D was only undertaken as a part-time activity, 85% of innovative companies undertook R&D, 32% of companies were involved in some form of partnership, joint venture or network and the most important innovation results were new product development (62%) and patent applications (20%). There is no regional innovation strategy.

There is only one university, and five Institutes of Technology (IoT) with relatively low levels of research capacity deriving from their historic background as teaching
institutions focusing on technical disciplines. There is a relatively low level of internet connection.

The region is well below the national average in terms of R&D expenditure from all sources and considerably below the EU average. R&D investment has been overwhelmingly directed towards existing centres of excellence which are invariably found in more prosperous regions thus reinforcing the gap between underperforming and prosperous regions, i.e. between the BMW and S&E regions. The national Strategy for Science Technology and Innovation (SSTI) 2006-2013 acknowledges that companies in regional locations are at a disadvantage when it comes to accessing support for innovation due to the large concentrations of scientific and technological resources in the major cities.

Under Cycle 4 (2007-2011) of the national initiative "Programme for Research in Third Level Institutions (PRTLI), the sole university in Galway was the only recipient. This maintained the pattern of the previous cycles whereby regional institutions received just 12% of the €605m, with the university obtaining 93% of the total. Of the region's IoTs, only two benefited from the programme. A key challenge is to develop the IoTs as applied research and innovation centres, improve the quality of graduates and develop clusters of activity around each.

Governance

The Irish Government, as set out in the National Strategic Reference Framework (NSRF), decides on how Cohesion Policy will be delivered and the strategy (including policy measures) for allocating the available funding under the selected OP. The design and funding of regional innovation policy follows a centralised, strong top-down approach and the regional innovation system is public-driven. Innovation policy measures at regional level are national measures designed and managed by national authorities such as Enterprise Ireland, the Higher Education Authority and Science Foundation Ireland.

The BMW Regional Assembly, an administrative appointee of the national government, was designated as the Managing Authority for the BMW Regional OP 2007-13 (and previously the 2000-06) and is responsible for its preparation and management and implementation. There is also a government agency - the Western Development Commission - established to promote the economic and social development of seven counties of the Western region. Its roles include contributing to balanced regional development, promoting the benefits of living, working and doing business in the region, supporting sustainable socio-economic development of the rural economy, providing risk capital to enterprises and publishing research on regional and rural issues.

During the preparation of the NSRF, the Regional Assembly was consulted to ensure policy consistency. Thus, the Regional Assembly is more policy advocate than policy-maker and/or implementer. The OP, fully consistent with the NSRF,
was prepared following consultation with national, regional and local authorities, intermediary bodies, European Commission services, higher education institutions, economic and social partner representatives, on-governmental organisations, and the general public, building on the Irish social partnership process also applied to the previous programming periods.

Horizontal inter-departmental coordination mechanisms between the national stakeholders require further development. Inter-regional coordination between the BMW and S&E Regional Assemblies and vertical coordination mechanisms between local, regional, national and European authorities are also somewhat developed.

**Policy**

RTDI policy is heavily supply-side driven where the budgets of higher education institutions for primary research funding dwarfs funding for business interaction. However, with the OP 2007-13 priorities to enhance research, innovation and ICT infrastructure and capacity, promote entrepreneurship and enterprise development, and support collaboration and technology transfer between research institutions and the business sector, a change in emphasis can be noted (e.g. BMW Technology Transfer Strengthening Initiative).

Supported 2007-13 OP interventions include: (i) applied research enhancement, incubation facilities and related collaboration initiatives; (ii) building research capacity (PRTLI, technological sector research, facilities enhancement, equipment renewal, marine research, SFI awards); (iii) microenterprise innovation and entrepreneurship; (iv) broadband provision and demand stimulation; (v) building world-class human capital in research through Science Foundation Ireland awards (programmes such as Centres for Science, Engineering and Technology programme, CSET; strategic research clusters, SRC; and principal investigator, PI; and (vi) experimental innovative actions. Enhancing IT capability of small firms is a new measure. The aim now should be to move to the next stages of promotion of broader diffusion/dissemination, generation of wider user demand and absorption capacity and finally to a more systemic innovation policy.

Hot BMW innovation/RTDI policy topics include: policies to incentivise collaboration with less established institutions; support collaborative research in the region at national level; higher education institutions to continue to re-focus RTDI policy towards diffusion of knowledge (i.e. dissemination and business engagement); provide for postgraduate research within a company setting; innovation in services; focus on untapped industries in the region such as the creative and wood industries; cluster policies; install mechanisms such as intermediary organisations and knowledge networks to achieve knowledge diffusion for utilisation and develop sector specific technology transfer arrangements (e.g. medical devices sector in BMW).
Support measure

- IRELAND
- IRELAND
- Region Border, Midland and Western
- NUTS Code IE01

Support Measure

Title of measure
Programme of Research in Third Level Institutions (PRTLI)

Full title
null

Duration

From: 1998
To: 2013

Policy objectives

- 3.1.3. Stimulation of PhDs
- 3.1.2. Relation between teaching and research
- 2.1.4. Research Infrastructures

Presentation of the measure

PRTLI aims to support the development of third-level institution research capabilities. It also seeks to enhance the quality and relevance of graduate output and skills and to encourage cooperation between researchers within and between institutions. Proposals are required to promote excellence in research and are made by institutions rather than by specific faculties or individuals. The emphasis is on assisting institutions to enhance and develop research capabilities. Research in a wide range of areas is eligible for support including humanities, science, technology and the social sciences. PRTLI Cycle 5 for Ireland for the period 2007-12/13 totals €347.7m (previous four cycles totalled €865.7m).

As PRTLI continues to evolve, Cycle 5 is more focused on graduate programmes, key infrastructure and support for new and emerging research areas.

Of the various BMW performance indicators for Cycles 4 and 5, areas for focus include increasing the number of PhD students, the number of work stations, research area to be provided and the number of national, international and
North/South collaborations.

Keywords

- Research infrastructure
- Universities
- International co-operation

Budget, source and type of funding

Currency: EUR

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Form of funding provided

- Grants

Policy learning

Extent to which the measure can be considered as a success and worthy of policy learning

There is evidence of an impact of the measure based on verifiable indicators or an evaluation (e.g. sales generated from new products, jobs created, etc.)

Evaluation report links

- Research collaboration in Ireland’s HE system: a bibliometric study, November 2009
- Research strengths in Ireland: a bibliometric study of the public research base, November 2009

Evidence of outcomes based on evaluation and other evidence

- PRTLI has been central to the rapid development of R&D in HEIs and the transformation to an innovation driven economy. It has led to, inter alia, a range of world class research facilities, high quality research, an institutional strategic emphasis on research, a significant build-up in research capacity
(both Irish and international researchers) and made Ireland an attractive place to pursue a research career.

- Published output of the Irish research base has grown rapidly, more than doubling between 1998-2007, much faster than comparator countries. The share of world citations is greater than the share of world papers.
- International collaboration is rising, more for Asia/Pacific than Europe, more mainland Europe than the UK, and although good for the USA it's less than some comparator countries. Generally, poor collaboration within Ireland and with Northern Ireland.
- Nonetheless, Ireland is still playing "catch-up": the total research capacity is still small with the research base dominated by three universities. Ireland is also not building from the strong platform into higher levels of excellence. Need to foster more links with Asia, especially China.

**Do's and Don'ts**

- Seek to integrate various features into a single funding scheme including an emphasis on research investments, the creation of a more competitive critical mass of research effort and strengthening linkages between teaching and research.
- Ensure the funding scheme addresses issues related to: its exact positioning within the national system of innovation; linkages between R&D and enterprise and industrial policy; sustainability of funded centres including the need for business planning and adequate overhead provision; stability of funding; training in IPR protection and management; the need for a strong teaching and learning connection; and the relationship between new centres and traditional departmental structures.
- Beware that a focus on research excellence and existing centres of excellence, invariably found in more prosperous regions, can result in sub-optimal outcomes for regions away from large concentrations of scientific and technological resources in major cities. Consider incentivising collaboration with less established institutions and undertake separate calls for proposals for institutions with reduced research capability.

**This measure is recommended as an example of regional good practice to policy-makers from other regions:**

Yes

**Organisation(s) responsible**

- **Higher Education Authority**

**Support measure**
Support Measure

Title of measure
Micro-enterprise, innovation and entrepreneurship supports

Full title
null

Duration
From: 1993
To: 2013

Policy objectives
- 4.3.1. Support to innovative start ups incl Gazelles
- 5.1.1. Support to the creation of favourable innovation climate (e.g. awareness campaigns)
- 4.2.2. Support to organisational innovation incl e-business

Presentation of the measure

This long in existence measure aims to increase the rate of business start-ups and expansion and lead to increased competitiveness, innovation and technological adaptation by micro-enterprises (enterprises employing less than 10 people). The measure is delivered through the 13 County and City Enterprise Boards (CEBs) located in the region.

A suite of "soft" business supports and services (e.g. Start-Your-Own-Business programmes, financial grants, innovation and effective ICT usage, owner/manager training programmes) are made available to start-up and existing enterprises to increase their capability, raise productivity, to adapt ICT applications and to raise employment. As of November 2009 new financial instruments consisting of a priming grant, a business expansion/development grant and a feasibility/innovation grant came into effect. In the region, 30% of direct aid given to beneficiary firms is in the form of revolving loans.

Final targets (2013) include: 5,011 enterprises to be assisted; 119,572 training days to be provided; 20,884 jobs assisted; and 61,550 training recipients.
Keywords

- Innovation culture
- Start-ups/spin-offs
- Entrepreneurship

Budget, source and type of funding

Currency: **EUR**

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Form of funding provided

- Grants
- Subsidised loans (including interest allowances)

Policy learning

**Extent to which the measure can be considered as a success and worthy of policy learning**

There is evidence of an impact of the measure based on verifiable indicators or an evaluation (e.g. sales generated from new products, jobs created, etc.)

**Evaluation report links**

- Local Enterprise - A Decade of Support – a review of the city and county enterprise boards 1993 – 2003, 2004
- Review of the role of County and City Enterprise Boards in the development of micro-enterprises, 2003

**Evidence of outcomes based on evaluation and other evidence**

- Justification for continued targeted subsidy state support to micro-enterprise, promoting an enterprise culture and boosting growth, productivity, innovation and employment is based on the need to address BMW enterprise weaknesses and market failure.
● Location or sector-specific impacts where niche investments, while small at an overall macro scale, will be sizeable in the context of their immediate locations or beneficiaries.
● In the period 2007-09 in BMW, 3,370 micro-enterprises and 14,743 jobs were assisted.
● From the 2008, 2004 and 2003 reviews of the national network of CEBs (over the 1993-2007 period), client satisfaction was high, agreed physical and financial targets were met, and per-job cost was highly economic.
● Due to the economic crisis the number of companies supported fell in 2009, a decrease comparable to the unemployment in client companies supported by other agencies.
● When the OP was being drafted, the impact was likely to be "medium" in a then buoyant economy, as the scope for impact is more limited. Now in an economic crisis with dramatically rising enterprise mortality rates and unemployment, enterprise supports have a more important role.

Do's and Don'ts

● Offer a wide range of complementary supports in a "First Stop Shop" designed to assist businesses to establish and grow by the provision of targeted and appropriate assistance at each stage of their development. Supports can range from advice on the steps involved in setting up a business, to the provision of financial supports for feasibility studies, for the establishment of new businesses or the expansion of existing ones, and the provision of a range of soft supports such as training and mentoring.
● Offer a mix of grants and repayable financing so that the never completely unavoidable "deadweight" and "displacement" concerns are reduced. Focus more than business advice, information, training.
● Agree detailed physical and financial targets.
● Undertake regular reviews on agreed targets, cost per-job, survival rates, etc.
● Include enterprise education/entrepreneurship measures and communication products for primary, secondary and university students and women in business.

This measure is recommended as an example of regional good practice to policy-makers from other regions:

Yes

Organisation(s) responsible

● Enterprise Ireland

Support measure
Support Measure

Title of measure
Applied Research Enhancement programme (ARE)

Full title
null

Duration
From: 2005
To: 2013

Policy objectives
- 2.2.3. R&D cooperation
- 4.1.1. Support to sectoral innovation in manufacturing
- 4.1.2. Support to innovation in services
- 2.1.4. Research Infrastructures

Presentation of the measure

ARE provides an opportunity for the Institutes of Technology (IoT) to develop research capability in areas of interest to both regional and national industry. Objectives are: (i) to establish an applied research capability and a commercialisation focus; and (ii) build research competency to be able to compete for national and international funding.

Since Enterprise Ireland (EI) commenced the national ARE Programme in 2005, 17 applied research centres of excellence in 11 IoTs have been provided with seed funding of about €23m. The objectives of these centres are: (i) to enable regional development by introducing innovative technological solutions through collaboration with industrial partners; and (ii) to develop the next generation technology platforms for Irish based industry. The centres can be divided into three technology clusters: ICT & software, bio life sciences & pharmaceutical, and bio-medical devices & materials.

Under the 2000-06 OP, funding was awarded to seven applied research centres in the BMW region. Due to extension of the 2000-06 OP, the first allocation of 2007-13 funds was in 2009. One new centre (€1.82m) was approved in 2009. No new centres were approved in 2010. The ARE centres completed 22 collaborative
projects with industry in 2010.
A revised ARE will be launched in 2011.

Keywords

- Research infrastructure
- Science-industry cooperation
- Applied business research

Budget, source and type of funding

Currency: EUR

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<td></td>
</tr>
</tbody>
</table>

Form of funding provided

- Grants

Policy learning

Extent to which the measure can be considered as a success and worthy of policy learning

There has been a positive response by beneficiaries to the measure (e.g. over-subscribed in terms of requested versus available budget) but it is too early to judge results or impact.

Evidence of outcomes based on evaluation and other evidence

Allows Institutes of Technology to assist companies in the region to develop new products, services and market opportunities through research and innovation.

ARE was restructured in 2008 to increase effectiveness, widening its capacity to enhance IoT research capability and providing continued funding for those centres demonstrating capacity to work with industry. Rather than the previous centre establishment in a one-size-fits-all approach, a more strategic approach was agreed to establish centres on a phased basis. The restructured ARE now has three pillars: (i) ARE PIONEER: provides an opportunity for smaller and focused centres to be established around new and emerging research groups in the institute giving them the capacity to engage in R&D with local industry; (ii) ARE New Centre: up to €2m funding over four years for a new centre; and (iii) ARE+: supports existing high performing centres for an additional four years, dependent
on mid-term performance evaluation. No PIONEER or ARE+ centres were approved in 2009 and 2010 in BMW.

**Do's and Don'ts**

- Recognise that HEIs can be at different starting points and some may need more assistance and time than others to get research activities to a level sufficient to work with industry.
- Recognise that it takes time to build high research capacity in institutions with relatively low levels of research capacity (IoTs) deriving from a historical background as teaching institutions focusing on technical disciplines.
- Focus on a few priority technology clusters, endeavouring to build centres of excellence.
- Reward demonstrated success.
- Ensure that the measure programme team works closely with the applicant Institute, also involving experts from other relevant regional and national development agencies.
- Agree an appropriate research agenda for the region between the relevant programme authorities and other development agencies and the Institution.
- Look to achieve a sectoral balance and try to avoid/accentuate disparities within the region.

**This measure is recommended as an example of regional good practice to policy-makers from other regions:**

Yes

Organisation(s) responsible

- **Enterprise Ireland**

**Support measure**

- **IRELAND**
- **IRELAND**
- Region Border, Midland and Western
- NUTS Code IE01

---

**Support Measure**

Title of measure

Science Foundation Ireland (SFI) actions
Full title

null

Duration

From: 1999
To: 2013

Policy objectives

- 2.2.3. R&D cooperation
- 4.1.1. Support to sectoral innovation in manufacturing
- 4.1.2. Support to innovation in services
- 3.2.2. Career development (e.g. long-term contracts for university researchers)

Presentation of the measure

The objective is to develop research excellence in strategic economic areas: i.e. biotechnology, ICT and sustainable energy/energy efficient technologies. The aim is to promote enterprise development and support collaboration and technology transfer between the research and business communities.

The SFI co-funded programmes - Centres for Science, Engineering & Technology (CSET), strategic research clusters (SRC) and PI - Principal Investigator teams - were only formally approved in 2009 for co-funding under the BMW 2007-13 OP.

Eleven awards were previously co-funded under the 2000-06 OP, with the university in Galway being the sole regional recipient. In 2009 five new awards were made totalling €8.42m, with the university receiving four awards. The scientific areas receiving funds include optical imaging, ICT, immunology, cell biology, cancer and DNA related research. This research is part responsible for the vibrant national medical devices sector, a core element of which is the cluster around Galway university and the local Institute of Technology.

One new award was made in 2010 - in the area of regenerative medicine (€7.4m in direct costs and €2m in overheads to 2015).

Keywords

- Science-industry cooperation
- Applied business research
- New technology-based firms

Budget, source and type of funding

Currency: EUR

Source of funding 2009 2010
National public funds 2,149,663  2,030,893
Regional public funds
EU Structural funds  2,149,663  2,030,894
Private funds
Other
Form of funding provided
• Grants
Policy learning

**Extent to which the measure can be considered as a success and worthy of policy learning**

There is evidence of an impact of the measure based on verifiable indicators or an evaluation (e.g. sales generated from new products, jobs created, etc.)

**Evaluation report links**

• [Value for Money Review of Science Foundation Ireland, 2008](#)

**Evidence of outcomes based on evaluation and other evidence**

• Overall significant human capital, collaborative, research and commercial outputs: big contribution to the human capital base in Ireland (28% of research staff in HEIs and 26% of overall public sector research staff supported); successful in attracting overseas researchers (28% of group leader awards); publication rates have increased significantly; extensive collaboration activity, both in Ireland and overseas involving academic and business sectors; significant increase in number of patents.
• The highest quality research talent in Ireland and overseas was attracted and these researchers produced research outputs in the highest ranking journals. SFI-funded researchers had higher citation rates than non-SFI funded researchers.
• CSETS and SRCs have engaged a wide range of industrial and other partners but need more linkages particularly with multinationals. (Nationally 43% of private sector investment in 2008 was in R&D and 40% of new investment projects in 2007 were in R&D).
• CSETS and SRCs are key selling points in generating research led FDI by multinationals.
• Research commercialisation has to be increased.

**Do's and Don'ts**
● Have a strategic focus on funding research excellence within a targeted number of sectors and disciplinary areas of research.
● Design programmes to ensure maximum leverage of other funding sources.
● Operate a "portfolio" approach to funding, offering a range of different programmes which attract different types of researchers and research activities.
● To increase research commercialisation align collaborations and measures with industry requirements.
● Ensure effective linkages with bodies responsible for attracting FDI and engage new client companies with programme funded research teams.
● Ensure rigorous peer review procedures.
● Undertake regular bibliometric analysis of programme funded research outputs.
● Introduce measures to enhance the likelihood of top-ranking overseas researchers remaining in the country.

This measure is recommended as an example of regional good practice to policy-makers from other regions:

Yes

Organisation(s) responsible

● Science Foundation Ireland (SFI)

Support measure

● IRELAND
● IRELAND
● Region Border, Midland and Western
● NUTS Code IE01

Support Measure

Title of measure
Research Facilities Enhancement Scheme

Full title
null

Duration
From: 1998
To: 2013

Policy objectives

- 2.1.4. Research Infrastructures

Presentation of the measure

While world class research requires first class people and the supporting infrastructure within which to carry out that research reports have indicated a shortfall in the provision for buildings, equipment and support services and that research facilities that are in poor condition and not fit-for-purpose (e.g. Strategy for Science, Technology and Innovation and the HEA/Forfás Research Infrastructure Review).

The scheme targets the elimination of sub-standard research facilities. It allows research institutions to undertake the necessary refurbishment, conversion and/or upgrading of facilities so as to permit the conducting of high-quality research. The scope of the scheme extends both to existing facilities in use for research purposes as well as facilities planned to be adapted for exclusive use for existing research purposes. The scheme also extends to enabling institutions to acquire necessary equipment for the conducting of research.

Of the seven projects totaling €10.67 million awarded to HEI's in the BMW Region to date, €8.7 million has been allocated for buildings and €1.936 million for equipment and furniture.

Keywords

- Research infrastructure

Budget, source and type of funding

Currency: EUR

Source of funding 2008 2009 2010
National public funds 2,666,531 2,505,728-
Regional public funds
EU Structural funds 2,666,531 2,505,728-
Private funds
Other
Form of funding provided
- Grants

Policy learning
Extent to which the measure can be considered as a success and worthy of policy learning

There is evidence of an impact of the measure based on verifiable indicators or an evaluation (e.g. sales generated from new products, jobs created, etc.)

Evaluation report links

- Research Infrastructure in Ireland - Building for Tomorrow, 2007
- BMW Regional OP 2007-13 ex-ante evaluation

Evidence of outcomes based on evaluation and other evidence

- Investment in world-class infrastructure is a prerequisite for high quality R&D but investments must be properly supported and maintained.
- Needed public good to raise the applied research capacity of the HEIs by providing first class research space for the commercialisation of innovative ideas, embedding the HEIs as major supports for companies in the region and encouraging and supporting the commercialisation of R&D.
- Investments enabled other programmes (e.g. two-thirds of the Science Foundation Ireland CSETS and SRCs are hosted in supported infrastructure as are 70% of SFI funded researchers).
- Ireland still in "catch-up mode.
- Foundation infrastructure (IT systems, computing services, e-infrastructure) and administrative support found to be inadequate (2006 infrastructure review).

Do's and Don'ts

- Focus on areas of strategic interest to the economy and society and on institutions with a track record in R&D. Invest for rapid development in specific, high priority areas.
- Focus on quality over quantity (only the best research is good enough).
- Ensure detailed examination and evaluation of infrastructure requirements, encompassing interdisciplinary and inter-institutional collaboration. Consider site layout and use of new and old buildings and ensure appropriate space and space management.
- Ensure a systematic and periodic process for infrastructure reviews.
- Engender a culture of collaboration, favouring proposals which demonstrate exploitation of facilities and existence of national and international linkages.
- Investment levels to target competitors rather than EU/OECD averages.
- Ensure investments enable the funders of other programmes.
- Have parallel equipment and other support schemes also in place.
• Scheme to have open (calls for proposals) and closed (reserved for nominated infrastructure/disciplines) elements.

This measure is recommended as an example of regional good practice to policy-makers from other regions:

Yes

Organisation(s) responsible

• Higher Education Authority

Support measure

• IRELAND
• IRELAND
• Region Border, Midland and Western
• NUTS Code IE01

Support Measure

Title of measure

Commercialisation Fund (CF)

Full title

null

Duration

From: 2003
To: 2013

Policy objectives

• 2.2.3. R&D cooperation
• 4.3.1. Support to innovative start ups incl Gazelles
• 2.2.2. Knowledge Transfer

Presentation of the measure

The 10+ years old CF, re-designed over time, aims to convert the outputs of
public funded research into innovative new products, services and companies. The objective is to foster a dynamic and commercially aware research community and create an environment that promotes entrepreneurship.

In 2010, the proof of concept programme and technology development programme were combined into one support - the Commercialisation Fund support. The funding provides support for the development of technologies from early in the commercial pipeline to the point where the technology can be commercialised.

Due to budgetary constraints, there was only one call for proposals in 2010. Twelve proposals were submitted by Principal Investigators in the BMW region, of which four were approved for funding.

**Keywords**

- Applied business research
- Start-ups/spin-offs
- Entrepreneurship

**Budget, source and type of funding**

Currency: **EUR**

<table>
<thead>
<tr>
<th>Source of funding</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>National public funds</td>
<td>1,445,005</td>
<td>1,291,505</td>
</tr>
<tr>
<td>Regional public funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EU Structural funds</td>
<td>1,445,005</td>
<td>1,291,505</td>
</tr>
<tr>
<td>Private funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
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<td></td>
</tr>
</tbody>
</table>

Form of funding provided

- Grants

**Policy learning**

**Extent to which the measure can be considered as a success and worthy of policy learning**

There is evidence of an impact of the measure based on verifiable indicators or an evaluation (e.g. sales generated from new products, jobs created, etc.)

**Evaluation report links**

- [2009 Impact Assessment Study – Internal Enterprise Ireland assessment of the Commercialisation Fund](#)
- [2004 Technopolis Group evaluation report](#)
- [Productive sector operational programme 2000-06 - Final evaluation](#)
Evidence of outcomes based on evaluation and other evidence

In response to negative assessment in the 2004 Technopolis Group evaluation report and lessons learned over time Enterprise Ireland (EI) has taken a number of initiatives to re-structure the CF, e.g. in the latest 2010 CF, the proof of concept and technology development programmes are being brought together into a single programme.

The number of commercialised projects has increased from 5 in 2004 to 33 in 2009 and the percentage of non-performing projects has decreased from 70% in 2004 to 20% in 2008.

The lessons learned over the years and responses that have impacted on success are as follows: existence of weak tech transfer in HEIs (thus the tech transfer strengthening initiative was introduced); academic led versus industry led agenda (introduced the industry led research programme); difficulty bridging the gap from lab to market (introduced the C+ and business partners programmes); administrative burden vs. commercialisation activity (undertook internal EI reorganisation); and under-performing/non-performing projects (introduced a new system to cancel projects and divert funding).

Do's and Don'ts

• Be prepared to re-design the measure over time: be flexible and adaptable to needs and introduce new sub-measures if necessary (focus on "what works").
• Focus on industrial needs, responding to the market and aligning research with industry requirements.

This measure is recommended as an example of regional good practice to policy-makers from other regions:

Yes

Organisation(s) responsible

• Enterprise Ireland

Policy document

• IRELAND
• IRELAND
Policy Document

Mid-term evaluation of the BMW 2007-2013 OP

null

Organisation responsible

Department of Finance

Content

Interventions and indicative expenditure for the innovation priority totalling €200m over 2007-13 are: applied research enhancement (€24m), building research capacity (€99m); micro-enterprise (€40m) and broadband provision (€37m).

The regional economy underwent a significant economic downturn from 2008. While expenditure is running behind the front-loading profile due to the non-availability of exchequer funding and the competitive nature of research funding, the priority is performing well in terms of expenditure, outputs and results. Based on forecasts €48m more than the full allocation is envisaged to be spent. The overall conclusion is expenditure targets and level of planned outputs will be achieved, and there is the capability to absorb additional funding.

Recommendations include to increase the allocation by €5m; a strong programme of monitoring is required; performance indicators need to be developed and reporting could be improved.

Year of publication

2010

Link to website

Link: http://www.bmwalqustry.ie/publications/op.html
Policy Document

Audit of the Innovation System in the BMW region

Organisation responsible

Border, Midland and Western Regional Assembly

Content

The region has recently undergone a period of development and dramatic economic change. Key findings show that the region still lags behind the S&E region in terms of key economic indicators; the value of the knowledge intensive services (KIS) sector is almost €1bn; the region performs well in six technology-based clusters - Medical Devices, Processed Chemicals and Materials, Computer and Communications Hardware, BioPharmaceuticals, Software and Communication services and Diversified Manufacturing and Processing; and up-skilling and accessibility remain key challenges.

Key recommendations include: national innovation policy to take more explicit account of the region's needs and capabilities and have a more explicit regional dimension with continued prioritisation and investment in research, transport, education and telecomms in the region post 2013; improve availability of indicators; ensure more rigorous programmes of business development; sustain existing centres of excellence and review innovation centre needs; and provide incentives to increase collaboration between knowledge institutions, private suppliers and enterprises.

Year of publication

2011
Policy Document

BMW Regional Foresight Exercise 2005-2025

Organisation responsible

Border, Midland and Western Regional Assembly

Content

The foresight exercise involved input from four thematic working groups focusing on competitiveness, innovation, knowledge and quality of life attributes. The vision for the region that emerged - "an innovative, knowledge-based and competitive region, with a high quality environment, first class infrastructure, visionary leadership and a quality of life for its citizens that is among the best in the world" - centred on five components: (i) where entrepreneurship, learning and knowledge are cornerstones of prosperity; (ii) with internationally competitive businesses and a business environment conducive to investment; (iii) where infrastructure networks provide access to 21st century resources; (iv) sustainable communities enjoy a high quality environment; and (v) with visionary leaders.

Following on from these five components, a series of ten objectives were identified, each with corresponding measures, which require implementation over the course of the strategy. Objectives are: knowledge, innovation, clustering, spatial, leadership, skills, business support, community, and social and knowledge infrastructure.
BMW is expected to receive total funding of €458m over the period with 50% from ERDF: 200m for innovation related. OP objective is to facilitate innovation, ensure sustainable development, improve accessibility and enhance competitiveness. It focuses on three broad areas: (i) innovation, ICT and the knowledge economy; (ii) environment and risk prevention; and (iii) urban development and secondary transport networks.

The objective of the innovation and knowledge economy priority is to raise the HEI applied research capacity by enhancing infrastructure and capacity, promote entrepreneurship and enterprise development, and support collaboration and technology transfer between research and business. Interventions are: applied research enhancement, incubation facilities and related collaboration initiatives; building research capacities; microenterprise innovation and entrepreneurship; broadband provision and demand stimulation; and experimental innovative
actions. Enterprise Ireland will develop a closer relationship between the HEIs and enterprises focusing on applied research, collaboration and existing sectoral requirements.

Year of publication

2006

Link to website


Policy document

- IRELAND
- IRELAND
- Region Border, Midland and Western
- NUTS Code IE01

Policy Document

Audit of innovation in the BMW region

null

Organisation responsible

Border, Midland and Western Regional Assembly

Content

Key findings showed that BMW faces challenges such as new technology and the change to a knowledge-based economy. The volume of start-up businesses is low, companies are less innovative, lack of finance is a major obstacle and the third-level education sector has to increase support to industrial R&D. Eight factors are proposed to improve regional innovation: (i) vision and leadership, (ii) entrepreneurship and SME support systems, (iii) venture capital, (iv) third level education sector commitment to economic development, (iv) human resource development, (v) networking, (vi) cluster development, (vii) creative arts and society and (viii) infrastructure.
Key recommendations include: taking local ownership and responsibility; develop various SME support schemes such as training programmes, research vouchers, business networks, business angels and local venture capitalists; attract more multinationals; educational institutions to expand services and integrate more with the private sector; develop international clusters such as medical devices and local clusters in eco-tourism, organic food and pharmaceuticals; and improve telecoms.

Year of publication

2004

Link to website

Link: [http://www.bmwassembly.ie/innovative_actions/Audit_Reports_2 ...](http://www.bmwassembly.ie/innovative_actions/Audit_Reports_2 ...)

Organisation

- [IRELAND](http://www.bmwassembly.ie/innovative_actions/Audit_Reports_2 ...)
- Region Border, Midland and Western
- NUTS Code IE01

Organisation

Higher Education Authority

Link: [www.hea.ie](http://www.hea.ie)

Brooklawn House, Crampton Ave., Shelbourne Road
Dublin,
Dublin 4

Mission

"To foster the development of a higher education sector which is accessible to all potential students and which is recognised internationally for the high quality of teaching, learning and research and which has the capacity to address the changing needs and challenges in our society".

Activities

The Higher Education Authority (HEA) is the statutory planning and policy development body for higher education and research in Ireland. Its main functions are: (i) to further the development of HE; (ii) maintain a continuous review of the
demand and need for HE; (iii) assist in the coordination of state investment in HE and to prepare proposals for such investment; (iv) allocate grants among universities (7), institutes of technology (14) and other designated institutions; and (v) promote the attainment of equality of opportunity in HE and democratisation of HE. Funding is in the form of recurrent grants, capital programmes, Strategic Innovation Fund, European programmes (e.g. HEA is the Irish contact point for a number of EU programmes, lifelong learning programme previously referred to as Socrates, Erasmus, and Tempus) and access programmes. The HEA also oversees the budgeting, accounting and financial reporting of universities. The Authority is now the most significant source of support for third level research in the country. Increasingly the higher education sector is becoming the key player underpinning the national innovation system.

The current portfolio of HEA administered research programmes are: (i) the Programme for Research in Third-Level Institutions (PRTLI), which offers third-level institutions an opportunity to build infrastructure, invest in capacity and facilitate institutional strategies and inter-institutional collaboration; (ii) Programme of Strategic Cooperation between Irish Aid and Higher Education and Research Institutes 2007-2011 funds innovative research activity across a range of thematic areas within institutes in Ireland and in partner countries in support of Irish Aid's mission to reduce poverty; (iii) European Funding for Research Infrastructures: the HEA is the Irish NCP and National Delegate for Research Infrastructures within the 'Capacities' programme of FP7; and (iv) Technological Sector Research (TSR) is a funding programme directed at the Institutes of Technology, which involves three strands: a postgraduate research and development skills programme; an enterprise platform programme; and a core research strengths enhancement programme.

Organisation

- **IRELAND**
  - **IRELAND**
- Region Border, Midland and Western
- **NUTS Code IE01**

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**Organisation**

Border, Midland and Western Regional Assembly

Link: [http://www.bmwassembly.ie](http://www.bmwassembly.ie)

The Square
Ballaghaderreen, County Roscommon,
n/a

Mission
Activities

The BMW Regional Assembly was established in 1999 by the Irish Government to give effect to the division of the country into two regions for Structural Funds purposes. The Assembly comprises of 29 elected members nominated by 14 constituent local authorities within the region of thirteen counties and three regional authority areas. The main activities of the Regional Assembly are to: (i) manage the BMW Regional Operational Programmes 2000-2006 and 2007-13, having been designated as the Managing Authority responsible for programme preparation and delivery; (ii) monitor the general impact of all EU and Irish exchequer-funded programmes in the region; (iii) promote the co-ordination of the provision of public services in the region; and (iv) ensure that national policies take regional issues into account. OP management is under the control of the OP Monitoring Committee.

The Regional Assembly employs 14 staff to undertake its various executive and corporate functions in relation to financial management and control, programme monitoring, information and publicity, policy development, promotion and participation of (island of Ireland) North-South actions, promotion of Interreg programmes and the administration of Regional Programmes of Innovative Actions. The Assembly is the national contact point and first level control authority for the Interreg IVB Atlantic Area programme, regional contact point for the Northern Periphery Programme which promotes transnational cooperation with Scottish, Nordic and Scandinavian countries, promotes and participates in the Interreg IVC programme and is a project partner in the Atlant-KIS programme.

For 2007-13, the Assembly has established two joint sub-committees: (i) National Development Plan and, (ii) Regional and Rural Affairs to, inter alia, review programme implementation, be briefed on Monitoring Committee outcomes and advise and inform the Assembly in relation to policy issues and to prepare and discuss draft policy documents for consideration. A North-South Committee was established in 2002 as a forum where north-south co-operation issues to be discussed in greater detail.

Organisation

- IRLAND
- IRLAND
- Region Border, Midland and Western
- NUTS Code IE01

Organisation

Enterprise Ireland
The Plaza, East Point Business Park
Dublin,
Dublin 3

Mission

To accelerate the development of world-class Irish companies to achieve strong positions in global markets resulting in increased national and regional prosperity.

Activities

Enterprise Ireland is the government agency responsible for the development and promotion of the indigenous business sector. Through an extensive network of national (and international) offices companies are supported in achieving export sales, investing in research and innovation, competing through productivity, starting-up & scaling-up and driving regional enterprise. It is responsible for a number of the main innovation policy measures at BMW and S&E regional level. Concerning research and innovation, both companies and researchers based in third level institutions and public research institutes are supported. The aim is to facilitate collaborative links between enterprise and the research community that leads to the practical application of research in business. Research commercialisation programmes to bring new technology and research outputs from higher education institutions to the marketplace include: the Commercialisation Fund, campus incubation centres, the Business Partners programme, commercialisation expertise, patent fund and advice, the Applied Research Enhancement programme and the technology transfer strengthening initiative. The aim of the Commercialisation Fund is to convert the outputs of state funded research into innovative new products, services and companies. In the revised Commercialisation Fund, the Proof of Concept and Technology Development Programmes are brought together into a single programme where projects will consist of one or more stages depending on the level of work and time needed to make the technology ready for licensing. The Business Partners Programme seeks to engage and support entrepreneurs to capitalise on this rich portfolio of research and create start-up companies. R&D funding supports market-led innovation in manufacturing and service companies through the use of innovation vouchers, technology acquisition, industry led research programmes and competence centres. Supports for industry representative groups include Enterprise Innovation Networks, designed to build collaborative links include R&D collaboration with researchers and other companies, international R&D collaboration and the Seventh EU Framework Programme (FP7).

Organisation

- IRELAND
- Region Border, Midland and Western
- NUTS Code IE01
Organisation

Science Foundation Ireland (SFI)

Link: www.sfi.ie

Wilton Park House, Wilton Place, Dublin 2
Dublin,
Dublin 2

Mission

To build and strengthen scientific and engineering research and its infrastructure in the areas of greatest strategic value to Ireland's long-term competitiveness and development.

Activities

SFI is the national foundation for investment in scientific and engineering research. It invests in academic researchers and research teams who are most likely to generate new knowledge, leading edge technologies and competitive enterprises in the three broad areas of: biotechnology, information & communications technology (ICT) and sustainable energy & energy efficient technologies. SFI also advances co-operative efforts among education, government and industry that support its fields of emphasis. Currently, over 30% of SFI funded researchers have established collaborations with industry. 2009 saw a dramatic increase in collaborative research with a 53% increase in the number of small-medium enterprises (SME) collaborating with SFI funded researchers (compared to 2008). Programmes with industry include: Centres for Science, Engineering & Technology (CSET), strategic research clusters (SRCs), technology & innovation development award (TIDA), conferences and workshops and short-term travel fellowship.

In addition, the Research Frontiers Programme supports the best research in a broad range of disciplines in science, mathematics and engineering.

Organisation

- IRELAND
  - Region Border, Midland and Western
  - NUTS Code IE01
Western Development Commission

Link: http://www.wdc.ie

Dillon House
Ballaghaderreen, County Roscommon, n/a

Mission

"A confident and ambitious Western Region where excellence, innovation and creativity are rewarded, and the rich quality of life, clean environment and unique heritage are valued and safeguarded."

Activities

The WDC is the Irish government agency established to promote the economic and social development of the Western region (the seven counties of Donegal, Sligo, Leitrim, Mayo, Roscommon, Galway and Clare). Its strategic focus is: contributing to balanced regional development by ensuring that the Western region maximises its full potential for economic and social development, making sure that public investment in the region is effective and that it brings both a regional and a national dividend, promoting the benefits of living, working and doing business in the region, supporting sustainable economic and social development of the rural economy, and providing risk capital to small and medium-sized enterprises and social enterprises.

It also undertakes and publishes research on regional and rural issues, responds to requests for policy submissions, provides a regional perspective to the work of public policy bodies and implements innovative and strategic regional development initiatives (e.g. lookwest.ie, renewable energy biomass programme, Creative West and organic products). Policy issues include: balanced regional development, identifying economic issues and analysing employment trends, emphasise connectivity and access to the region and highlight infrastructural, policy and regulatory issues as they affect energy infrastructure.

The WDC Investment Fund (WDIF), totalling €28 million over the 2007-13 period and supported by the Irish government through the National Development Plan 2007-2013, plays a unique role in funding businesses, community initiatives and 'flagship' projects in the region. The fund invests directly in sustainable projects looking for a financial return on investment. It provides seed and venture capital or loans to projects and businesses by way of ordinary share capital, preference share capital and loans, or a combination of these mechanisms. The WDC does not provide grant aid.
Appendix D Statistical data

<table>
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<tr>
<th>Indicator</th>
<th>Border, Midlands and Western (IE01)</th>
<th>Border, Midlands and Western (IE01)</th>
<th>Border, Midlands and Western (IE01)</th>
<th>EU27</th>
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<td></td>
<td>2000 or around</td>
<td>Previous year</td>
<td>Most recent</td>
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<tr>
<td>GDP per capita (PPP)</td>
<td></td>
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<tr>
<td></td>
<td>17600</td>
<td>25400</td>
<td>23300</td>
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<tr>
<td>Change in GDP per capita</td>
<td>6.47</td>
<td>6.18</td>
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<td>3.73</td>
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<td>2000-03</td>
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<td>Unemployment rate</td>
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<tr>
<td></td>
<td>2000</td>
<td>2009</td>
<td>2010</td>
<td>2010</td>
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<tr>
<td>Government R&amp;D expenditure</td>
<td>0.06</td>
<td>0.11</td>
<td>0.18</td>
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<td>Non-R&amp;D innovation exp.</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0.41</td>
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<td></td>
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<td>2006</td>
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<td>Patents per mln population</td>
<td>33.8</td>
<td>79.0</td>
<td>75.8</td>
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</tr>
<tr>
<td>Business R&amp;D expenditure</td>
<td>0.62</td>
<td>0.85</td>
<td>0.93</td>
<td>1.21</td>
</tr>
<tr>
<td>Higher education R&amp;D expenditure</td>
<td>0.15</td>
<td>0.29</td>
<td>0.29</td>
<td>0.44</td>
</tr>
</tbody>
</table>

Source: Eurostat and Community Innovation Survey