



*Border, Midland & Western*  
Regional Assembly  
*Shaping the Region*



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**Briefing Paper for Meeting between the  
BMW Regional Assembly &  
The Chief Science Adviser to the Government**

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## 1. Introduction

The Border Midland and Western (BMW) Regional Assembly welcomes this opportunity to meet with the Chief Science Adviser to the Government to discuss the relationship between science, research and development (R&D) and innovation policy and balanced regional development in Ireland. This paper sets out an overview of R&D in the BMW Region and also discusses a number of key issues in relation to Science, Technology and Innovation policy for the region.

## 2. Background to the Border, Midland and West (BMW) Region

The BMW Regional Assembly was established in 1999 in order to give effect to the designation of two regions in Ireland for structural funds purposes. The Regional Assembly acts as the Managing Authority for the BMW Regional Operational Programme under the NDP 2007-2013, and also monitors the expenditure and impact of NDP and EU funds in the region and seeks to ensure that national programmes take regional issues into account.

The BMW Region covers thirteen counties which represents 47% of the land mass of Ireland, 27% of the population and produces 19% of GDP. The region is predominantly rural with the exception of Galway City and has a lower percentage of high-value added economic activities than the Southern and Eastern (S&E) Region. A comparison of unemployment rates signifies a convergence between the regions however most of the growth in employment in the BMW Region has taken place in low value-added industries. The economic gap between the regions is highlighted by disparities that exist in disposable income and, particularly Gross Value Added (GVA) per person.

The principal regional socio-economic indicators are shown below in Table 1.

**Table 1: Regional Socio-Economic Indicators**

	Year	State	BMW	S&E
<b>Population (000s )</b>	2006	4,239.8	1,134.3	3,105.5
<b>Labour Force (000s)</b>	2007*	2,166.7	558.9	1607.8
<b>Unemployment Rate</b>	2007*	4.2%	4.4%	4.2%
<b>Disposable Income per Capita (state = 100)</b>	2004	100	93.2	102.5
<b>GVA per Person (state =100)</b>	2004	100	72.7	109.9
<b>% of Labour Force with a Third Level Qualification</b>	2007*	33.0%	27.5%	35.0%
<b>No. of Universities</b>	2007	7	1	6
<b>No. of Institutes of Technology</b>	2007	14	5	9

\*Q1 2007

## 2. Economic Context and R&D

A low skills equilibrium (LSEq) is defined as a situation where an economy becomes trapped in a vicious circle of low value added, low skills and low wages<sup>1</sup>. The BMW Region's combination of relatively low wages but high employment in low-value added occupations closely fits the criteria of an LSEq economy. The vicious circle is created by the fact on the one hand, there is no incentive for individuals or firms to up-skill and on the other there is no innovation or imperative to move up the value-chain. In order to raise the skill level of the BMW Region both supply and demand-side measures are required.

The BMW Region (56.1%) has the highest admission rate of students to higher education surpassing both the S&E Region (53.1%) and those from Dublin (45.4%)<sup>2</sup>. However when these figures are compared to the levels of educational attainment for those in employment a clear picture emerges of the 'brain drain' from the BMW Region. Recent figures show that 41.7% of those employed in Dublin have a third level qualification compared to just 27.5% in the BMW Region, the equivalent figure for the S&E Region was 35%<sup>3</sup>. This loss of highly qualified human capital experienced by the region is likely to persist without significant deepening and widening of the labour market.

In the context of strong economic performance of the Irish economy since the 1990s, one of the key challenges for the BMW Region is to develop a successful innovation-led knowledge-based economy to respond to the effect of global forces on production. In order for the BMW Region to succeed in its transition to a knowledge-based economy, a focused R&D policy is required to stimulate innovation and support economic development. The economic geography literature on spill-overs from university research suggests that spill-overs are quite limited in distance. In the Irish context, this implies that most of the benefits of the increased public investment in HERD<sup>4</sup> will accrue to the university cities, and particularly Dublin.

The need to innovate is critical in order to offset mounting international competition which brings with it an increasing pressure for improved levels of productivity, quality and efficiency. Empirical evidence shows that a strong link exists between investment in the research and innovation base of an economy and sustainable economic growth. It also shows that the sustainability and therefore the longevity of enterprises are positively correlated to those enterprises that engage in R&D. These enterprises also provide higher quality and better paid employment<sup>5</sup>. Therefore a successful innovation culture is critical for the future growth and prosperity of the BMW Region.

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<sup>1</sup> Wilson, R. and Hogarth, T. with Bosworth, D., Dickerson, A., Green, A., Jacobs, C., Keep, E., Mayhew, K. and Watson, S. (2003). Tackling the Low Skills Equilibrium: A Review of Issues and Some New Evidence. DTI, London.

<sup>2</sup> Figures compiled from data supplied in the Higher Education Authority Report: A Review of Higher Education Participation in 2003 compiled by Fitzpatrick Associates and Philip O'Connell, ESRI p.33

<sup>3</sup> CSO. Quarterly National Household Survey. 2007 Quarter 1. May 2007.

<sup>4</sup> Higher Education Research and Development Spending.

<sup>5</sup> Kearns, A. and Ruane, F. (1999). 'The Tangible Contribution of R&D Spending Foreign-Owned Plants to a Host Region: a Plant Level Study of the Irish Manufacturing Sector (1980-1996)' Economic Papers 997, Trinity College Dublin, Department of Economics.

### **3. Research, Technology Development & Innovation (RTDI) Policy**

#### **3.1 National Policy**

**The National Development Plan (NDP) 2007-2013** sets out national development goals and investment strategies. One of these goals is to greatly enhance science, technology and innovation in Ireland. This will be achieved through **The Strategy for Science, Technology and Innovation (SSTI) 2006-2013**. This sets out a vision for Ireland in 2013 which will be *'internationally renowned for the excellence of its research, and will be at the forefront in generating and using new knowledge for economic and social progress, within an innovation driven culture'*. The SSTI recognises the potential role of Institutes of Technology as an important regional resource and the need to build their research strength and capacity in order to effect real industrial impact in the regions. It acknowledges that companies in regional locations are at a disadvantage when it comes to accessing support for innovation as a result of the large concentration of scientific and technological resources in the major cities.

The **National Strategic Reference Framework for Ireland 2007-2013 (NSRF)** identifies that interventions are required to support the implementation of the SSTI. These measures should complement the NDP 2007-2013 and should focus on improving the capacity of higher education institutes to undertake research, and to develop incubation centres. It states that a successful regional strategy for Ireland can be achieved by investing in RTDI, entrepreneurship, applied research and technology transfer infrastructure, and by ensuring that this investment meets the economic development needs of the regions.

An action plan for investment in R&D was published in July 2004 "**Building Ireland's Knowledge Economy - the Irish Action Plan for Promoting Investment in R&D to 2010**". This report sets out the action plan for Ireland to increase R&D expenditure to 2.5% of GNP by 2010<sup>6</sup>. It is a matter of concern however that this report is not set out in the context of the **National Spatial Strategy 2002-2020** and therefore does not purport to develop R&D spending on the basis of balanced regional development.

**The OECD Review of Higher Education** which was conducted in 2004 sets out an agenda of significant structural, institutional and strategic changes for the higher education sector. It argues that the Institutes of Technology should have a greater role in applied research and innovation and that education be more centrally placed in the economic development of the BMW Region.

**The BMW Regional Operational Programme 2007-2013** identifies the enhancement of research capacity, technology transfer and innovation networks as priorities for investment. The Innovation, ICT and the Knowledge Economy Priority of this Operational Programme will build regional research, innovation and ICT infrastructure and capacity and increase the BMW Region's contribution to Ireland's R&D objectives as set out under the SSTI.

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<sup>6</sup> The 2002 Barcelona European Council, which reviewed progress towards the Lisbon goal, concluded that Europe should aim to reach a target of spending 3% of GDP on R&D by 2010, up from 1.9 % in 2000. GNP is used as the appropriate instrument of measure of national output due to the transfers within multinational companies in Ireland.

### 3.2 European Research Policy

In March 2000, the Lisbon European Council highlighted the importance of R&D and innovation for economic growth, employment and cohesion of the European Union. It recommended that Member States take the necessary steps toward the establishment of a real 'European Research Area' with the objective, among others, of establishing conditions for a territorialisation of R&D and innovation policies.

The European Commission examined the role of Europe's regions in the development of the European Research Area (ERA) in its communication 'The Regional Dimension of European Research'<sup>7</sup>. The key message from this communication is the critical need to recognise and prioritise research policy which will in turn enable regions to create the conditions to facilitate their transition to a knowledge-based economy. The European Council's objective is to improve the competitiveness of regional economies of the EU as a whole, by means of a coherent approach to R&D and innovation at regional and national levels.

### 4. RTDI in the BMW Region

The total expenditure in the BMW Region of just under €300m represents just 15% of RTDI expenditure nationally under the **National Development Plan (NDP) 2000-2006**<sup>8</sup>. Given the importance of RTDI as a driver of regional development, the low levels of expenditure that currently exist will have a significant negative impact on the competitiveness of the region.

Current government R&D expenditure does not reflect the strategic aims of the NSS and is in fact reinforcing the imbalance between regions. This reflects the outcome of a study from the European Spatial Planning Observation Network (ESPON)<sup>9</sup> which found that EU R&D policy was adversely impacting on spatial balance by reinforce existing concentrations of activity.

**The Programme for Research in Third Level Institutions (PRTLTI)** which is operated by the Higher Education Authority (HEA) has at its core the development of research infrastructures and research programmes for third level institutions. The first three cycles of PRTLTI represented a €605m investment in research in Ireland. However, just 12% of this fund was invested in third level institutions in the BMW Region. It is also notable that NUI Galway (NUIG) received 93% of the total investment for the region. Of the BMW Region's five Institutes of Technology - Athlone Institute of Technology (AIT), Dundalk Institute of Technology (DKIT), Galway Mayo Institute of Technology (GMIT), Letterkenny Institute of Technology (LYIT) and the Institute of Technology Sligo (IT Sligo) - only AIT and IT Sligo benefited from direct funding under this programme.

The recent announcement of funding awarded under the fourth cycle of PRTLTI has once again proven very disappointing for the BMW Region. NUIG represents the only third level institution in BMW Region to be awarded funding in the latest cycle of this programme which is valued at almost €230m. This is also reflected in the first

<sup>7</sup>Communication from the Commission, 'The Regional Dimension of the European Research Area', COM (2001) 549 final, 03 October 2001.

<sup>8</sup> Department of Enterprise, Trade and Employment. Annual Implementation Report 2006 for the Productive Sector Operational Programme 2000-2006.

<sup>9</sup> ESPON. The Territorial Impact of EU Research and Development Policies. December 2005.

findings of the 2006 Forfás Higher Education R&D Survey<sup>10</sup> which found that only one BMW institution (NUIG) featured in the top ten in terms of research income.

**The Technological Sector Research Initiative (TSRI)** is a research fund available on a competitive basis to the fourteen Institutes of Technology for the purpose of supporting and strengthening the research capacity of the sector by enabling research projects. The total funding awarded under the 2000-2006 NDP of €38.9m was administered by the Council of Directors of Institutes of Technology. Due to the limited budget available the Institutes of Technology cannot significantly improve their research infrastructure. Given the crucial role of the five Institutes of Technology in the development of the BMW Region and the lack of funding received under the PRTLTI Programme it is extremely disappointing to note that just 19.4% of the TSRI funding has been awarded to these institutions.

**Science Foundation Ireland (SFI)** was established in 2000 to administer research grants to support scientists and engineers working in biotechnology and information and communications technology development. Since its inception SFI has allocated €24.8m in grants, only 9.3% of which went to researchers in the BMW Region.

**The Audit of Innovation in the BMW Region**, published in 2004 concluded that the region had an innovation deficit and found that it was less entrepreneurial than the S&E Region. It showed that the volume of new start-up businesses in the BMW Region was only half that in the S&E Region on a pro-rata basis. It also illustrated that the link between industry and third level institutions in the BMW Region was very weak. This reflects the story nationally; Jordon and O'Leary (2005) found that the majority of businesses never or rarely interacted with Third level Institutions<sup>11</sup>.

The Irish Council for Science, Technology and Innovation (ICSTI)<sup>12</sup> found that the gap in the availability of applied research capability that enterprises can readily access and the low absorptive capacity of enterprises for research were the two key constraints to enterprise-higher education research collaborations. These are in part being addressed by **Applied Research Enhancement (ARE) Programme** targeted at the Institutes of Technology and administered by Enterprise Ireland. This programme has been introduced to develop research capacity in areas of strategic importance to the individual colleges and of relevance to industry both regionally and nationally. This programme aims to facilitate a maximum of three centres of excellence in each of the Institutes of Technology. The funding available for each project is €1.25m and so far four centres have benefited from this programme in the BMW Region. The scale of this programme which is of potential benefit to enterprises compares very unfavourably with the main programmes such as PRTLTI and SFI.

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<sup>10</sup> Forfás. 2007. The Higher Education R&D Survey 2006 (HERD): First Findings. August 2007.

<sup>11</sup> Jordan, D. & O'Leary E. (2005). The Roles of Interaction and Proximity for Innovation by Irish High-Technology Businesses: Policy Implications. ESRI Quarterly Economic Commentary. Summer, p.86-100.

<sup>12</sup> ICSTI. Promoting Enterprise-Higher Education Relationships. Forfás. March 2007.

## **5. Recommended Policy Responses**

### **1. Establishment of a Research and Development Fund for the BMW Region**

This fund should have two strategic aims:

- (i) To build the research capacity of the higher education institutes in the region and in particular the region's Institutes of Technology
- (ii) To develop research linkages between industry and higher education which impact on the regional economy

The BMW Region must significantly raise its research and commercialisation capacity by investing in focused, market-led applied research infrastructure and facilities that address the specific needs of enterprise development. This can only be achieved through a substantial increase in the level of investment currently experienced in the BMW Region. Both targets have been partially addressed by the TSRI and the ARE programmes however these initiatives will continue to have a limited impact as they both remain severely under-funded. Lónra, the regional higher education network, is already in place in the BMW Region and could act as a strategic partner to progress this initiative.

### **2. Completion of a Territorial Impact Analysis on R&D Programmes in Ireland**

As this paper has outlined the allocation of research funding has not reflected or taken due consideration of the National Spatial Strategy and has further reinforced imbalanced regional development by providing additional support to existing clusters of activity. By conducting *A Territorial Impact Analysis of Research Funding In Ireland* the impact of research investment from a multi-criteria regional perspective could be examined as well as the benefits of applying multiple-criteria to the decision-making process for the allocation of research funding.

### **3. Development of Improved Synergies between National R&D Policy and Regional Policy**

The development of improved synergies between national R&D policy and regional policy does not involve separating regional and national policies but rather implies taking into account the social and economic realities and needs of different regions when policy is being developed. Improving these synergies would facilitate more strategic and effective use of current and future instruments in the field of research which would ultimately benefit balanced regional development in Ireland. Improved national competitiveness hinges on competitive regional locations however national R&D policy does not reflect this currently.

### **4. Incentivising Collaboration with Weaker Institutions**

The almost exclusive emphasis on research "excellence" has consistently delivered sub-optimal outcomes from a BMW Region perspective. A possible solution would be the awarding of higher points to proposals which engage the "weaker" institutions as partners in collaboration proposals. The present regime favours the inclusion of stronger partners thus widening the research capacity gap further.