



8 Future Prospects and Recommendations

8. Future Prospects & Recommendations

This chapter looks to the future, it identifies the areas where employment is likely to grow and also where it is likely to decline. This sets the context for making recommendations on how to stimulate innovation in the BMW Region. It then proposes a framework for stimulating innovation in the BMW Region, makes recommendations based on this framework and concludes with four suggested pilot actions for the BMW Regional Assembly to pursue.

8.1 Future growth prospects

As already noted from an economic point of view, the BMW Region is a grouping of very different areas with widely divergent potentials and growth prospects. The more prosperous areas, as they continue to grow, will help the less prosperous areas. Thus, the focus should be on seeking to improve all regions, while recognizing the reality of varying potential growth prospects. In terms of potential growth prospects:

- *Highly populated areas within the BMW Region have the prospect of growing at a rate equivalent to the mid-east region – Galway, Louth, NSS gateways & hubs etc.*
- *Other areas will grow less quickly, probably on a par with 1990s growth*
- *Some rural areas will continue to decline*

If there were adequate national funds available all areas could be simultaneously tackled in proportion to their needs. But there are not. Choices have to be made and priorities have to be set. The State has set its priorities based on its spatial strategy, i.e. the gateways and hubs. And this is where the BMW Region should also focus its efforts. But the other areas should not be neglected, and they are not. Special programmes of rural development, LEADER, the County Enterprise Boards, Udarás, EI and the WDC are actively assisting development in these other areas.

8.1.1 General Industrial Trends

There are many opportunities for businesses in the BMW Region including:

- 1) **Outsourcing:** The growth in outsourcing of services is only at an early stage in Ireland. Out-sourcing IT has been growing despite concerns over security and loss of control. Outsourcing has been more prevalent than many people have realised. For example, Accenture is assisting Revenue on-Line, Excel has outsourced its whole Dublin financial administration and Bank of Ireland is outsourcing its IT management to HP (a contract worth an estimated €80m. over 4 years). HP has a 20-30% share of this market in Ireland and it has seen its services in this area grow by 400% in the last year. But the market is still immature compared to the UK market so it should have significant growth opportunities over the next few years. This business is dominated by MNEs, but they are employing Irish people.

- 2) **Indigenous ICT Support for MNEs:** In 2002, the ICT Committee of IBEC stated that better trade between the multinationals and indigenous SMEs could double the number of people employed in indigenous SMEs from the current level of 30,000 to 60,000. The ICT committee also called on the Government to commit 20% of its expenditure to indigenous SMEs⁴⁵. Ireland is the top European location for ICT companies and is well positioned for the next growth phase in the ICT sector. In addition, the wider application of broadband could result in up to 85,000 additional jobs nationally within ten years⁴⁶.
- 3) **Food Industry:** In the food sector there is continuous growth in demand for convenience and speciality foods – a development path being successfully followed by both the private food companies and the State agencies, particularly Bord Bia, and with new start-ups the County Enterprise Boards. A new trend is to control the supply chain so that producers can negotiate better with the large food retailers and have the capability of surviving cyclical downturns in prices and the ability to source product from cheaper producers should the need arise.
- 4) **Eco-Tourism and Organic Foods:** New opportunities are opening up in the eco-tourism and organic food areas, both ideally suited to a number of locations within the BMW Region. The eco-tourism ‘green box’ based on most of Leitrim and Fermanagh, and parts of counties north Sligo, west Cavan, south Donegal and north Roscommon is part of the BMW Region’s response to this. The Western Development Commission is actively assisting initiatives in the organic food area and Údarás na Gaeltachta has assisted such developments in the salmon farming sector.
- 5) **Increased Productivity and Value Chains:** Most companies have the opportunity to move up the productivity and value added chains in their own sectors. Such moves would make them more competitive internationally and less susceptible to ‘lower wage cost’ competition. For example, in one specialised subsector under ‘lower wage cost’ threat, the best Irish company is nearly 30% less productive than its German and Swiss competition, and the other Irish companies in that subsector are even less competitive.
- 6) **North West Innovation Strategy:** The North West Innovation Strategy when complete should help stimulate investment in the three border counties (Donegal, Sligo and Leitrim) and a similar type of investigation in the North East has led to a major focus on multimedia and knowledge businesses. Already the Monaghan – Armagh technology corridor has contributed to 500 jobs in the area.
- 7) **Gateways and Hubs:** The new Gateways and Hubs of the NSS also present new opportunities, e.g. the Midland Region could develop a new momentum around the Athlone-Mullingar-Tullamore (linked gateway) and the West Region could capitalise on the Ballina-Castlebar (linked hub).
- 8) **Development of an International Cluster:** There are many potential sub-sectors, existing plans and strong locations to build on. However, to create an internationally recognised cluster is a different task. One needs a critical mass of businesses, a level of vertical integration and sub-supply services and the presence of both in-company and Third Level research and development capacity. The BMW Region does not have such a cluster yet. However it has the potential to create an international cluster in medical devices in the Galway-Mayo-Sligo area. This will require careful development and the

⁴⁵ Irish Independent (2003), Digital Ireland, Dublin.

⁴⁶ Information Society Commission (Dec 2003), Irelands Broadband Future, Dublin.

co-operation of all elements of the State sector and the private sector. It could be promoted by the IDA and IBEC's Galway Office.

Interestingly, all these opportunities require companies to be innovative in new product development, process development and improvement, new market entry or changing organisational structures to suit today's demands, which is why this innovation audit is fundamental to the development of the BMW Region and points the way for the development of an innovation policy and plan.

On the other hand there are four major trends that are currently adversely affecting the industrial environment in Ireland:

- 1) **Irish Sub-Supply to MNEs:** During the 1980s and 1990s a major source of new Irish industry start-ups was sub-supply to MNEs located in Ireland. This was initially based on import substitution studies and then driven by just-in-time considerations. As a consequence many companies were established in the BMW Region, particularly in the more remote areas. As MNEs improved their supply chain management and sought to reduce their number of sub-suppliers and became more proficient at managing their supply chain, purchasing personnel began to source components and other inputs on the basis of price rather than nearness to the plant. Consequently Irish business is now being lost to Central European businesses. Many Irish companies are themselves moving production or at least part of their production to Central Europe in an attempt to remain competitive.
- 2) **ICT and the DotCom Collapse:** The dot.com collapse and its impact on the ICT sector worldwide have significantly reduced the demand for electronic components, software and general telecoms products. This has had a high adverse impact on ICT firms in Ireland, both MNEs and indigenous companies. Until demand picks up internationally the Irish industry, like its competitors, can only cut costs and staff and survive the recession in this sub-sector. The financially better structured companies and those that can raise additional venture capital can continue to develop new products, secure market share and grow in new product niches.
- 3) **Increasing Competition from Emerging and Transition Economies:** There is growing competition from 'lower wage cost' countries, such as:
 - *Central Europe – in engineering sub-supply, furniture*
 - *South Africa – English speaking call centres*
 - *India – software development, research and development, English speaking call centres (technical support, sales, back office functions)*
 - *China – manufacturing products (e.g., wages in McDonalds in China are less than 5% of the Irish minimum wage)*

For example, DELL recently capped its Irish workforce in favour of expansion in India, and Etel moved its Dublin based business to Central Europe. This competition is particularly severe in the high labour cost traditional areas such as textiles and clothing, and furniture. These sectors continue to be important to the BMW Region.

- 4) **Radical Change in Structure of Retailing:** A radical shift in retailing will also adversely affect many existing BMW Region retail businesses, for example:

COMING IN.....
<ul style="list-style-type: none"> • Online retailing • Hard discounters • Retail parks • Themed pubs • Forecourt retailing • Factory outlets

GOING OUT.....
<ul style="list-style-type: none"> • Drapery shops • Butcher shops • Small independent grocers • Bar with grocery • Doorstep sales • Independently owned pharmacies

8.1.2 Future Employment Trends and Opportunities to 2015

Looking further into the future helps determine broad employment opportunities and trends. While precise long-term forecasting is extremely difficult, the identification of labour market trends can indicate broad changes in occupations and identify emerging new directions. Three broad trends are extremely important: globalisation, the move to a knowledge-based economy⁴⁷ and the Internet.

Globalisation: The impact of globalisation is to increase competition on a worldwide basis because of increased mobility of capital, goods, people and knowledge. The implications are:

- Advantages based on traditional locations or proximity to markets will be reduced
- Companies are more willing to move to cost-effective locations world-wide
- Companies are willing to locate different business functions in different locations, for example corporate strategy and R&D in the US, manufacturing in Ireland, marketing and sales in the UK and service near the final customers
- Many services have become internationally traded and their functions in turn are being located in multiple sites, in the same way as for manufacturing companies

The traditional sectors in Ireland have already experienced this change, including textiles and clothing, footwear, basic plastics and furniture.

As the international trade agreements focus more on the removal of tariffs, subsidies and quotas, different quality and safety standards and the elimination of protected public monopolies, the net effect, in the future, will be to intensify international competition. Markets and products are increasingly more global. Products such as Nike, Microsoft and Virgin are known the world over. Today, even outsourcing is becoming global. Thus many companies outsource manufacturing and software development to distant locations. Business operations, in both the manufacturing and service sectors, which can be traded and have low value added relative to international norms, will move from Ireland to lower cost locations. Irish businesses will only be competitive in the high value added products and sectors.

Knowledge: Various management writers have for several years highlighted the role of knowledge or intellectual capital in business. The value of high-tech companies, such as software and biotechnology, is not in physical assets as measured by accountants, but in intangibles such

⁴⁷ Fás, (2002), Towards The Knowledge Economy: High Skills High Wages, Dublin.

as knowledge and patents. Companies are very expert at managing and maximising the use of physical assets, e.g. in the mid-1980s between 20-30% of Caterpillar capitalisation was comprised of intangible assets (including intellectual property); today it is 70-80%. But many companies still have significant proportions of intellectual assets lying dormant in company archives. Only a fraction of R&D results are ever commercialised. For example, Proctor & Gamble spends more than \$1.7 billion on R&D each year, yet only about 10% of the resulting technology is used in its products. The reality is that the majority of innovation gathers dust on corporate shelves. Some companies have achieved notable success in licensing their innovations. For example in 2000 licensing contributed over 20% of IBM's profits, i.e. \$1.7 billion of profits (at a margin of 98%) compared with total profits of \$8.1 billion. Knowledge enhanced products or services can command price premiums over comparable products with low embedded knowledge or knowledge intensity. It is argued that economic development policy should focus not on 'jobs created' but rather on infrastructure for sustainable 'knowledge enhancement' that acts as a magnet for knowledge-based companies, e.g., Sophia Antipolis in France is a hub for many knowledge-based businesses.

Growth of the knowledge economy so far - Robert Huggins Associates (Cardiff) constructed a knowledge-based index for Europe and its predictions for the future suggest that Sweden will be the driver of the knowledge economy in Europe (its index will grow by 15%), followed by Ireland (9%) and Finland (8%). Austria and Denmark will see double-digit falls. Germany will experience a low fall and France and the U.K. will increase by 2% and 6% respectively. The index is based on knowledge-based sector activity such as employment, patents, R&D expenditure and property rents. Further exploration of his approach may suggest ways of assessing progress and stimulating required change.

Internet: Developments such as the Internet bring the 'global village' ever nearer. The net result is that goods and services can be developed, bought, sold, and in many cases even delivered over electronic networks worldwide, 24/7. Electronic commerce offers many advantages in terms of costs savings, efficiencies and market reach over traditional physical methods. It is only beginning to have an impact on business and competition.

Thus, the key drivers for developing new companies are: ideas, knowledge, innovation and most importantly, skilled qualified people.

8.1.3 Irish Forecasts to 2015

Over the next decade, FÁS /ESRI estimate that four sectors (high-tech manufacturing, other market services and health / education) will account for some 75% of total employment growth⁴⁸. The high tech jobs will include electronics, ICT, biotechnology and pharmachem.

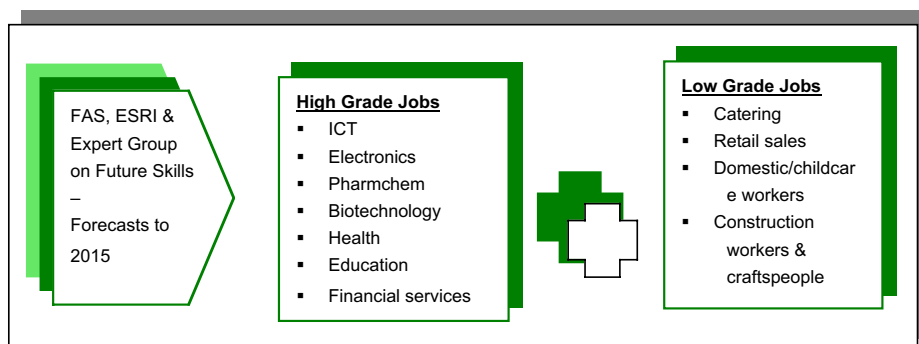
It is interesting to note that there are not expected to be any net job gains in manufacturing over the 2000-2015 period. Job losses in the traditional manufacturing areas will offset gains in high technology areas.

Increasing the quality of the workforce will also tend to improve employment stability and, by extension, the sustainability of higher employment rates. Similarly, increasing the level of innovation will assist companies to move up the value added curve and become more competitive. By 2015, 71% of employment will be in services (compared to 63% in 2000 and 57% in 1990). This shows the importance of encouraging and supporting service jobs in the BMW Region.

⁴⁸ FÁS / ESRI, (2002) Report No. 10.

The same FÁS / ESRI forecasts to 2015 projected the fastest increases in employment for professionals (graduates) and associate professionals (certificates / diplomas), and decreases in labourers and unskilled workers. The four major growth occupations will be those with engineering / science qualifications, business / financial and health professionals.

Figure 60. FAS, ESRI & Expert Group Forecasts to 2015



Some low grade (and low pay) local occupations will also grow because of the rapid rise in demand for some services (due to increased incomes), and the absence of international competition, such as catering, retail sales and domestic / child care workers. Generally these are the areas where the majority of work permits have been granted, in services (37% of all permits), catering (26%) and agriculture and fisheries (15%) in 2002. It may be necessary to continue to attract foreign workers in these areas in the long term.

Overall, the FÁS / ESRI report suggests that by 2015, 45% of all jobs will be for third level graduates, compared with less than 30% in 1997. Over three in four net new jobs over the period will be for graduates.

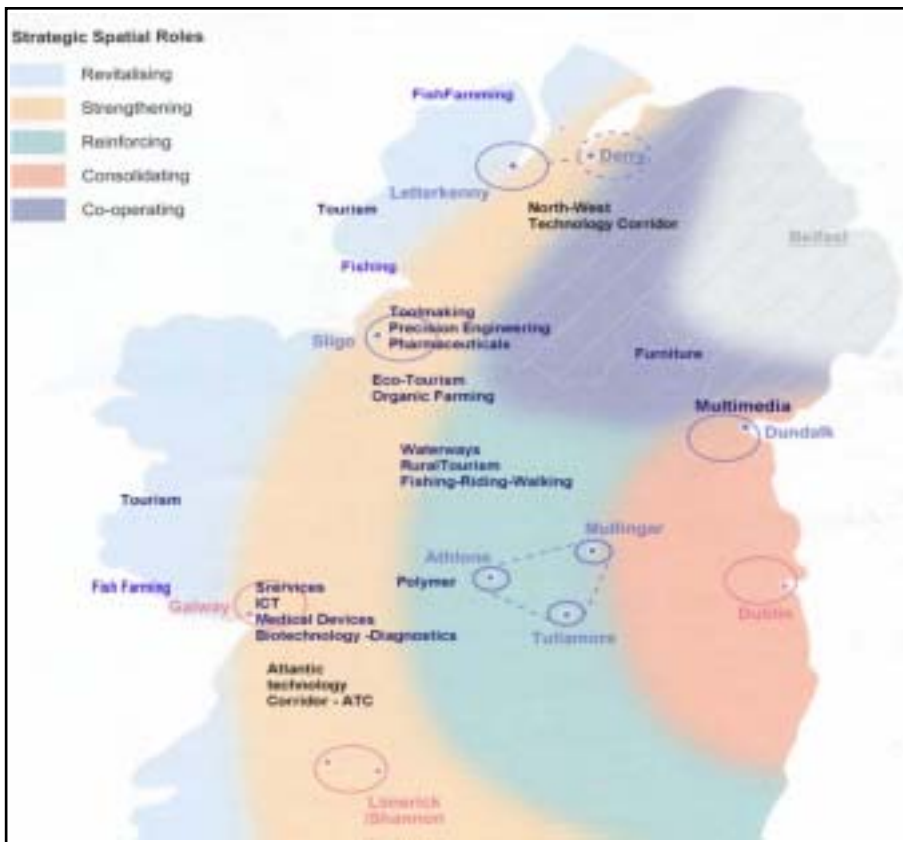
This implies a need to:

- Increase the number of highly skilled people to match future opportunities, i.e. increase the number of new entrants to Third Level in these specialisations and at Post-Graduate level – including young people, life long learning and second chance education
- Develop methods of promoting new high-tech company start-ups (Medical devices, ICT, Electronics and Biotechnology) and their growth thereafter
- Develop methods of promoting new international service companies in the BMW Region
- Increase upskilling levels of people already in work

8.1.4 Building on BMW Regional Strengths

In addition, any plans for the future should focus on the existing strengths or planned strengths in the BMW Region. The next map is based on the National Spatial Strategy and shows the different broad areas that need revitalizing, strengthening, reinforcing, consolidating and co-operating.

Figure 61. BMW Region - NSS and Development Strategy



But in addition, it shows the potential growth areas in the BMW Region, such as the

- 1) North-West Technology Corridor;
- 2) The North West Innovation Strategy currently being completed;
- 3) Multimedia and knowledge businesses in the Dundalk-cross border area;

- 4) The Monaghan – Armagh Technology Corridor;
- 5) Atlantic Technology Corridor from Galway to Limerick/Shannon (covering ICT, Services, Medical Devices, and Biotechnology);
- 6) The gateways and hubs – Galway, Athlone-Mullingar-Tullamore, Sligo, Cavan, Tuam, Castlebar-Ballina;
- 7) Sligo, covering in particular Toolmaking, Precision Engineering and Pharmaceuticals;
- 8) Tourism in most counties – coastal, rural (need to differentiate), eco-tourism (Sligo/Leitrim), and waterways; and
- 9) Natural resources: fishing and fish farming in Donegal and Galway, fish farming in Mayo, small food companies in Roscommon and Leitrim.

More recently the Midland Regional Authority decided to prioritise the pharmachem sector and the IDA announced its intention to bring plans to the Government for a major technology centre in the midlands, at a cost of €70-80m. It would involve five Third Level institutions and would include an R&D facility servicing the pharmaceutical and bio-chemical industries. This centre would attract both indigenous companies and MNEs to locate in the midlands. Equivalent type of initiatives are essential to attract MNEs to other parts of the BMW Region, e.g., there are plans for a science and technology park on two sites in Galway.

In addition, it will be necessary to build up a database of opportunities and provide easy access to market information to encourage both new start-ups and new product development. This would cover high-tech, food and drink and traditional sectors as well as service sectors. For example, traditional and tourism sectors could include:

- **In agribusiness** – the focus could on development of value-added products and control of the supply chain, such as organic foods or the Flevo Herbs success. Foster the high-quality artisan products, such as cheeses, honey, homemade jams. Growers and producers should at least have informalformal associations or networks, if not actually set up as Co-ops
- **In seafood processing** – more diversification from primary processing to higher value added products for home, but more importantly mainland European markets
- **In clothing and textiles** – capitalise on the large bank of skilled workers, native raw materials and reputation to develop high value added high quality clothing and knitwear
- **In tourism** - develop further ranges of special interest/activity holiday products

8.2 Recommendations

The recommendations in this chapter are based on the research and conclusions in Chapters 2 to 7 and on the future assessment in the first section of this chapter. They are set out under the following areas:

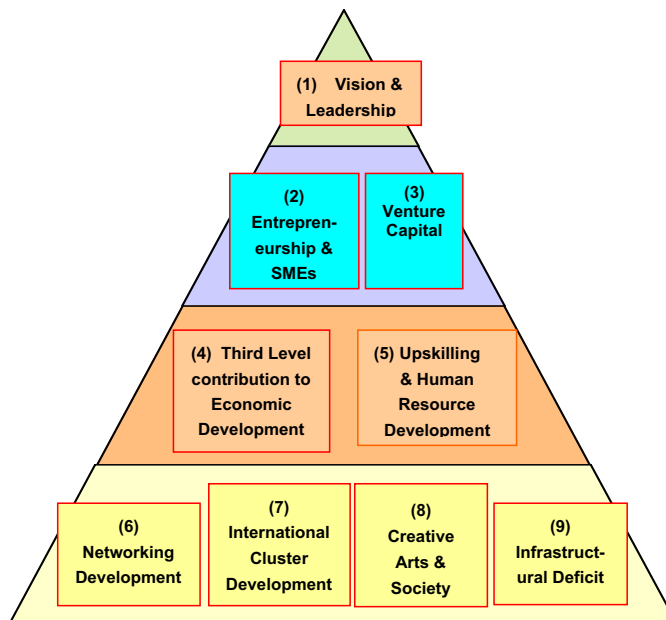
- 1) **A Framework for Regional Development drawing on international current knowledge and ‘best practice’.**
- 2) **Specific recommendations to increase innovation in the BMW Region under the headings adopted as part of the Framework.**
- 3) **Four pilot actions to begin the implementation of the priority recommendations.**

The three areas are elaborated in the remainder of this chapter.

8.3 A Framework for Regional Innovation Development

Improving company innovation at the regional level is a complex task and any detailed recommendations should be set in the context of a more complete picture. Based on earlier analysis and discussions, a model encompassing nine different factors is proposed. Shown in Figure 62, these factors are interrelated. Excelling in one at the expense of the others will not work. All need to be undertaken at the same time, although some may require more effort than others.

Figure 62. Building Blocks to create an Innovation Region in the BMW Region



The following sections explain what these building blocks are.

1) **Vision and Leadership**

As a recently created region, the BMW Region does not have a cohesive natural constituency so it has to develop the vision and leadership that will allow it function as a region. Experience suggests that leadership comes from undertaking activities and that regional leaders as distinct from organisational leaders often come from unexpected places and positions. Ideally business should take the leadership role. This is a proven success path in other regions, such as Macedonia in Greece, so activities should be designed in order to allow a business leader to emerge. Once established the leadership should assist in co-ordinating, monitoring and assist in directing funding within the BMW Region.

2) **Entrepreneurship & SME Support Systems**

Analysis has already shown that the level of entrepreneurship is too low and the growth of larger companies is slow. Both problems need to be tackled. EI and the CEBs have extensive experience in this area – one that needs to be reviewed, with new programmes designed and monitored. The answers will not be static and should be flexible in the face of new challenges and environments.

3) **Venture Capital**

The availability of capital for all stages of company growth is essential for economic development. The entrepreneur and his or her family finance most start-ups. Banks provide only about 10% of capital. As the business expands however, bank borrowings and retained cash become more important. Many businesses use BES funding from friends and family for the next expansion. High-tech start-ups tend to seek venture capital at an early stage. The lack of familiarity with venture capital and venture capitalists has an impact on business attitudes. The region needs to have more financing available from ‘business angels’ (high worth people who invest in companies), more use of BES and local capital schemes from CEBs, EI, the WDC, IFI and other cross border funds.

4) **Third Level commitment to Economic Development**

Evidence suggests the Third Level education sector could be more closely linked to the economic and social development of the region, and that plans are required to ensure its contribution to the knowledge economy. Critical objectives are to ensure NUIG becomes the University of Twente of Ireland (i.e. that it creates the highest number of spin-out companies in the regions), that the incubators in the IoTs are equally productive and there is more collaboration between NUIG and the IoTs.

5) **Upskilling and Human Resource Development**

While the audit did not include a systematic human resource development audit, the assignment did provide a number of important insights. At the operator level there is a need for upskilling to replace the jobs that are and will be lost in the more traditional parts of manufacturing industry. Analysis revealed that the general efficiency in manufacturing, supply chain management and international marketing are key areas of

weaknesses. In addition, focus groups identified a lack of professional management training in the BMW Region. Finally, the Third Level sector analysis revealed a low level of post-graduate (Masters and PhD) training in the BMW Region, due primarily to the presence of only one university in the region.

6) Networking Development

Networking and collaboration within Ireland are ways of building critical mass in business operations, R&D, purchasing, product line completeness, marketing and sales, and human resource development. They also facilitate learning from one's peers, sharing insights and the transferring of technology. Evidence suggests companies that network and collaborate tend to have better results. Networking at the international level is the economic way of developing markets, sharing technology and R&D costs.

7) Cluster Development

A cluster is a critical mass of companies able to benefit from advantages arising from pools of skilled personnel, knowledge and specialised support. Two key factors identify the working cluster:

- Interdependencies will have arisen between the actors in the cluster
- The cluster is self-aware and able to undertake activities to benefit itself

There are no working clusters in the BMW Region. There are two potential international clusters - ICT and Medical Devices (see maps in Chapter 3), both of which are centred in Galway. They are 'latent clusters', i.e. they have the potential to become international clusters but this will require further work. There is a potential for a number of smaller national and regional clusters as well, e.g. toolmaking and pharmaceuticals around Sligo, polymers around Athlone, organic food in Leitrim, salmon farming in Connemara (Kilkieran) and timber houses and furniture around Monaghan. New technology corridors, such as Galway-Limerick and Monaghan-Armagh, and the North East creative media industries are pursuing cluster strategies. Successful clusters greatly increase the level and rate of innovation and improve linkages with the Third Level sector.

8) Creative Arts and Society

Many regional development plans neglect the contribution of creativity whilst emphasising the linkage of knowledge to development. But some of the best innovation arises from areas where creativity and the arts are vibrant. These factors are essential to attract and retain young people in the region and their active presence usually implies a higher rate of creativity in all social and business fields. They also result in more open, flexible and less rigid communities and people.

9) Infrastructural Deficit

The BMW Region suffers from an infrastructural deficit and this deficit has impacts on businesses by raising the cost of operating from the region. These deficits need to be rectified to create a more level 'playing field' nationally. While businesses operating from remote locations will always suffer the disadvantage of distance, they have

advantages that help equalise their position such as lower insurance and security costs, lower building and rental costs and a more loyal workforce. The deficit also makes many parts of the region less attractive to new investment by MNEs.

For these reasons the consultants strongly advocate that these nine building blocks become the basis for regional planning in the BMW Region.

8.4 Specific recommendations to increase innovation in the BMW Region

In making these recommendations under the nine building blocks, one must bear in mind that private companies are the implementers of innovation. They should be the core partners in increasing innovation with the State sector and ideally private companies should play the lead role. However, the State Development Agencies play a vital role in stimulating and part-funding new innovations thus helping to reduce the financial cost and the risks involved in company innovation. The Third Level sector provides skilled people with knowledge and learning, as well as technical assistance and research capability to the companies. The local authorities and communities must also play their role in allowing, supporting and, where necessary, participating in acceptable innovative changes and developments. Dialogue and genuine partnership of all these parties/stakeholders is essential to increase the level of innovation in the BMW Region. The recommendations, while based on the outcomes of this study and the experience of the consultants, will need to evolve, change and be further developed over time as all the parties involved gain more experience of the needs of companies and the actual contribution of the recommendations. The critical success factor in this approach is the rapid, detailed feedback of outcomes to the stakeholders so that any necessary corrections/improvements can be agreed and made.

1) Vision and Leadership

Chapter six outlined the multitude of organizations, cultures and values that make up the BMW Region. This is reflected in a lack of any coherent image, no real brand attributes, low level of political cohesion and a difficulty in securing support at the national level. Without leadership, active support and the commitment of enough stakeholders, the BMW Region will not overcome the challenges facing it. One has to bear in mind that developing the region will take 10-15 years of continuous effort, learning from every action and being flexible enough to change ideas and activities to achieve the improvements necessary. If this is not achieved, the consequence will be that the BMW Region will fall further behind the S&E Region.

Recommendations:

The main recommendations are:

- 1) To take local ownership and responsibility for increasing innovation in the BMW Region by establishing **Innovation Committees** in each of the three NUTS III Regional Authority areas, or alternatively in each EI region, representing all the stakeholders (public and private). The BMW Regional Assembly should facilitate this development. These committees should be responsible for ensuring the

implementation of the main recommendations in this report, monitoring progress and making any necessary adjustments. In addition, the committees should assist in advising and directing existing relevant development in the regions. The committee members should represent all stakeholders, particularly private sector companies which are the implementers and their representative organisations (IBEC, Chambers of Commerce etc.). The main State Development Agencies need to commit to these committees, particularly EI and the CEBs. These committees are essential to focus on and increase the level of company innovation within each region. They will need to influence government policy to regionalise R&D and innovation policy, where appropriate.

Where necessary, the committees should form temporary working groups to implement specific groups of recommendations, e.g., human resource development.

The three main committees should come together periodically to learn from each others' experiences; and to secure additional national funding or propose new methods of supporting/stimulating more innovation. These joint meetings could be organized by the BMW Regional Assembly as part of its regional role

2) To undertake a regional foresight exercise to identify the main themes for regional development over the next 20 years in the BMW Region. This will involve all interested parties and relevant stakeholders in the BMW Region and nationally. It will involve:

- *Selection of the main themes for investigation – one of these themes will include influencing the future direction of R&D policy*
- *Involvement of all stakeholders*
- *Use of scenario building and other predictive techniques to 'look forward' 20 years*
- *The need to secure the political backing and the necessary finances to implement the results*
- *Agreement of an implementation programme by both local and national stakeholders*
- *Setting up a Monitoring and Evaluation System (MES) for assessing progress and providing directional changes for the foresight plan*

3) To build an image and brand for the BMW Region that emphasises its positive attributes for both individuals and companies (see box for suggestions). This should be developed by the BMW Regional Assembly and the three Regional Authorities.

BMW Region 'image' ideas:

- The best region in Ireland to live, work and play in
- Safer living environment
- Workforce loyalty, less staff turnover
- Lower costs - security, rental and building costs
- More accessible leisure activities
- Main centres provide entertainment and shopping variety

2) Entrepreneurship & SME Support Systems

Companies in the BMW Region are not growing or improving their performance as well as companies in the S&E Region (Chapter 3). One recognises that the State system is doing its best in continuously developing and trying new approaches to assist indigenous industry, but it is not working well enough. Businesses in the BMW Region continue to fall further behind those in the S&E Region. *Thus the objective of these recommendations is to increase the number of new Company Start-ups and Growth Companies in the BMW Region.*

This will require close co-operation between the CEBs, EI, Shannon Development, U.na G, and IDA other development bodies and private companies. It will also require the timely production and sharing of input and outcome data to monitor and assess progress. In its current areas of operations, the CEBs and WESTBIC could act as a 'one-stop-shops' in relation to their new start-ups.

Recommendations:

The main recommendations are outlined below.

1) To develop a comprehensive promotion and support programme **to increase the number of new company start-ups**. The Innovation Committees (as described under Vision and Leadership) should co-ordinate stimulate new start-ups and grow successful companies (this covers recommendations 1 and 2 in this section). They should:

- *Design and develop a promotional campaigns to be comprehensive and incorporate all existing programmes, including entrepreneurial programmes at second and third levels and evening start-your-own-business programmes, EI and CEB promotions, bringing together all promotional efforts in periodic major synchronized campaigns (thereby maximizing the return on existing efforts). The programmes should also incorporate new features aimed at attitude and behavioural change in favour of starting and growing businesses, early internationalisation, moving up the value added curve at the outset and assisting in identifying new opportunities and promoting them as examples. EI and the CEBs should co-ordinate these campaigns and existing budgets would fund most of these activities*
- *The Innovation Committees should run each these campaigns at a regional level, with reporting and monitoring occurring monthly on a county basis. The campaigns should be carefully monitored with the agencies reporting to the committees, and they should be refined/adjusted as necessary, and repeated periodically*
- *A special bi-annual campaign (in October and March) should be run within each Third Level institution to generate more spin-outs, link interested staff with the companies in the incubator units, promote research and industry linkages and interest graduates in setting up new businesses*

2) **To Promote and support company expansion** in the region by:

- *Eliminating gaps identified in the Innovation Audit in the services offered by the development agencies, e.g., particularly those with 5-10 employees and 10-40 employees. The Innovation Committees should run special campaigns to ensure no gaps occur in service provision*
- *Setting up a new developmental scheme in the three regions to prepare companies to become client companies of EI and maximise the number of companies capable of using this growth path. Companies in the BMW Region require additional resources to match the pace of development in the S&E Region. The details of the scheme should be developed with industry involvement and then piloted*

- *Running periodic skills programmes to assist companies grow – use the programmes to better identify key drivers and supports needed to expand*
- *Periodically reviewing the potential of all companies in the regions and support those that could have growth potential for further attention (a task for the development agencies)*
- *Run periodic information campaigns on why companies should grow and provide case studies on how others have done it*

Typical life cycle stages are start-up, first supervisor, first manager, entry to export markets, starting R&D, technology acquisition, building a management team, seeking external Board members and seeking venture capital at different stages (seed, early growth, expansion, acquisition etc). Most companies require assistance or advice at one or more of these stages.

3) Increase the number of companies undertaking R&D by:

- *Intensifying the R&D awareness campaign – the numbers to date are too low – with a focus on new product development (NPD), related feasibility studies, and joint HE research. This will appeal to the companies with some interest in development*
- *Introducing a research voucher scheme for companies with less than 50 employees and particularly those with 10-20 employees. This would allow a company secure up to 3 or 4 days of technical consultancy to assist with a developmental problem, typically from staff in the Third Level sector*
- *Supporting more/new R&D in SMEs through wider promotion and use of existing schemes – RTI and Third Level–industry joint research*
- *Increasing the absorptive capacity of SMEs by assisting companies employ the necessary expertise, e.g. the placement of graduates in SMEs and the employment of technically experienced managers in larger companies. Where possible, link these new employees with a Third Level college or institution*
- *Providing a new R&D grant scheme similar to the UK scheme which allows 150% of costs against taxes for SMEs and even if the company is losing money, the potential exists for tax refunds to be made*
- *Developing a special series of awareness/training seminars to inform manufacturing companies how to manage product lines (NPD processes, product and customer range management, IPR and technology transfer). The seminars should include a range of programmes varying from short evening introductory sessions to workshops to detailed training sessions on specific topics and covering the range of topics*
- *Developing the same series for the services sector and for specific service subsectors.*
- *Setting up research networks and associations between companies, and between companies and the Third Level sector. This could become a vital channel for increasing company innovation as well as linking companies to the Third Level sector*

4) **Attract more multinational enterprises:** The IDA, local communities, IBEC and the Chambers of Commerce should work together to develop/identify reasons why MNEs should locate in a BMW Regional town.

5) The State Development agencies and Local Authorities should be more innovative in their approach to private enterprise and entrepreneurs.

- 6) **Undertake a strategic study** of the evolution of service companies in the BMW Region, focusing in particular on software development, international business services and international financial services and make recommendations on stimulating and supporting internationally traded service companies. This would build on the EI's internationally traded services (ITS) programme 2000-2007. This study should be undertaken or sponsored by the State Development agencies.

Note: recent estimates indicate that good quality telecoms could result in up to 23,000 new jobs in the BMW Region⁴⁹.

These last two recommendations are aimed at IDA and EI respectively.

3) Venture Capital

The availability of venture and risk capital in the BMW Region is the key to growing companies. The general attitude to venture capitalists is fairly negative due partly to lack of familiarity with such people and partly because of strong traditional attitudes towards ownership, i.e., an unwillingness to share ownership. Generally companies are overly dependent on bank loans and retained earnings to generate capital for expansion and innovation. The capital funding system needs to be built-up from the ground up in the BMW Region. It is important to appreciate that most of the venture capital is provided by private sources and a few prominent companies complained that such funds were not available outside of Dublin. The new structure should include business angels (organised and highly visible), regular organised meetings between capital providers and companies (similar to the monthly Tuesday lunches in Dublin), wider use of BES, a process for linking experienced business people with investment with companies, and a range of venture capital funds should be available in the region.

- 1) Establish a **Business Venture Capital Committee** by bringing together relevant people in the BMW Region to stimulate and support the level of innovation. The BMW Regional Assembly should assist the initial meetings and use the advice of InterTradeIreland. EI should be a key driver in this initiative. All stakeholders should be represented, both public and private. The Committee should:
 - **Improve the availability of working and investment capital** in the region by developing a network of 'visible' business angels, local investors, State capital funds, the banks and local venture capitalists
 - Increase companies' **awareness** of venture capital, how to optimise one's use of it, and when and how best to access it

4) Third Level commitment to Economic Development

There is a growing commitment in the Third Level sector to play a more central role in the social and economic development of the region. However, the rate of change is too slow to meet current needs and further effort is required to speed up the process. This will require more investment in generating knowledge and real commitment and effort in transferring this knowledge to the companies and people in the region. Many factors are already in place:

⁴⁹ Recent Information Society report, January 2004

- There is a strong Third Level educational base to build on
- TecNet and the Technology Transfer Initiative to sell technology
- A network (Líonra) bringing together the Institutes of Technology, St. Angela's and NUIG; and a good base of physical facilities for providing learning programmes
- Also Líonra has a strong management committee, with the Directors of the IoTs and St. Angela's and the President of NUIG as members

There are examples of excellent practice in all of the existing colleges and institutions, but the range of activities in each case is too narrow. The BMW Region's Third Level colleges and institutions have the opportunity to take the lead in developing the knowledge economy first in the BMW Region.

Recommendations:

1) Líonra should undertake a key role in fostering innovation and creating the knowledge economy in the BMW Region. The institutional members (NUIG and the IoTs) should put a greater emphasises on Líonra and its activities through raising its profile at their internal top management, policy and staff meetings and reporting its activities regularly at these meetings. Its role needs to be strengthened and enhanced to develop greater integration of effort between the institutions in the Third Level sector in the BMW Region and provide a wider range of services. In addition:

- *At a policy level, Líonra should form a partnership with the private and public sectors and agree a process and plan to develop a knowledge-based regional economy and to stimulate innovation. This plan should include objectives for future plans based on education outputs (including lifelong learning), increasing levels of research (more PhDs more patents, spin-out companies) and college-industry links (joint research, services and consultancy). One proposal is to target Third Level institutional effort as follows:*

<u>Third Level Activity</u>	<u>Percentage Effort</u>
Education and learning	65%
Research (basic, strategic & research training – Masters and PhD students)	20%
Regional and industrial development	15%

- *The individual Third Level colleges and institutions should then develop internal information and change programmes to change attitudes and behaviour; begin the actual change process; and develop individual strategies for longer term change*
- *The change process should be designed to encourage industrial linkages through appropriate recognition and overcome any barriers, such as limited time for research in the IoTs*
- *The Third Level institutions should be more community based and user friendly and should become a focus within the community for availability of training services, access to distance learning, reference libraries, meeting facilities etc.*

- *The options for developing a new university of the North West should be explored, (e.g., based perhaps on a combination of Sligo and Letterkenny IoTs. It could also include Magee College in Derry) or some collaboration model that increases the number of Ph. Ds. and masters students in the North West. Otherwise the North West will not be able contribute adequately to the emerging knowledge economy*

This is a long-term task, five to ten years. The BMW Executive should play a very active role in this change process through its membership of *Líonra* and its ability to bridge the gap between the Third Level sector, increased innovation and regional development.

2) Increase the Third Level – Industry supports by

- *Setting up a teaching company scheme⁵⁰ to assist companies with less than 100 employees and to better link the Third Level expertise with indigenous companies*
- *Increasing the number of post-graduate students (Masters and PhDs) trained in the BMW Region Third Level sector and encourage in-company PhDs*

3) The State should play its role in assisting and underpinning this change. EI has many of the necessary support schemes already in place (e.g. Innovation Partnership programme, Incubator facilities, Applied Research Enhancement scheme and the Campus Company programme), the problem is to build these supports into the daily management and research system within the Third Level sector so that they are fully utilised.

- *NUIG should be targeted to be the equivalent of the University of Twente (NL), i.e. to be a very good source of company spin-outs. The IoTs should also be encouraged to develop more company spin-outs*
- *The Department of Education and Science (DES) should establish a programme to build more facilities and capability in the Institutes of Technology (IoT); and promote it strongly in the BMW Region*
- *The IoTs need to be given more independence and autonomy by the DES if they are to attract more private companies and, in time, raise investment from private sources*
- *NUIG and the IoTs should recognise any achievements within their new objectives as equally important for the purposes of individual recognition, promotion and support. This should be biased towards the new objectives in the initial stages.*

4) A review of the current internships operated by the Third Level sector should be undertaken to assess their impact on graduates, diploma and certificate holders staying in the BMW Region and their impact on company absorption capacity and innovation

⁵⁰ A teaching company project involves the temporary placement of one or two graduates in a private company to undertake a specific development project with the active support and back-up of academic specialists. It can cover quite large projects (up to €250,000) and it is part funded by the company and the State.

5) Human Resource Development relevant to Innovation

The research and the focus groups identified a number of areas where human resource development is an important response to the current situation including operative upskilling, management skills (SCM - supply chain management, productivity, technology management etc.) and growing companies. This requires a mixed public (VECs, FAS, Skillnets, IDA etc), private and Third Level sector response. Companies should be encouraged to use existing systems, such as FAS, IDA and EI, for their human resource development.

Recommendations:

1) The establishment of a special Committee on Human Resource Development to underpin and enhance the level of innovation in the BMW Region. This should be facilitated by the BMW Regional Assembly and led by FAS and the employers (IBEC). All stakeholders should be represented on the committee.

- *Initial development of an appropriate framework for Human Resource Development relevant to Innovation in BMW Regional companies covering:*
- *Upskilling programmes for current employees, particularly in the more traditional manufacturing sectors*
- *Specific learning programmes to increase the number and level of high technology new start-ups*
- *Specific practical programmes to assist owner managers to manage and expand their businesses*
- *Identified areas of weakness in the BMW companies including competitiveness (world class manufacturing, total quality management, just in time delivery etc.), SCM – supply chain management and technology management*

These improvements will require both consultancy inputs, learning and mentoring inputs. Some of the learning elements can be based on existing courses, use of outreach etc. There are existing courses in technology management, MBA etc. available from NUIG, LYIT, DKIT and the Open University. There is now an EI programme to support improving competitiveness and the National Institute of Transport and Logistics runs specific courses, seminars and workshops on SCM. The National Institute of Technology Management provides technology management programmes.

- *Increase availability of training services on a Just in Time rather than Just in Case basis. These services to be customised to specific industry/business needs and mainly delivered through outreach*
- *The establishment of PLATO groups in the BMW Region should be encouraged for the smaller ambitious companies. This approach would particularly suit the companies with 5 to 20 employees.*
- *NUIG should be assisted by public and private investment to implement its plans to establish a Business School as soon as possible and provide practical programmes for industry as well as learning for undergraduates and post-graduates.*

All these activities should be co-ordinated by the regional Committee on Human Resources.

6) Networks Development

Co-operation through a network is a practical way of learning from others, achieving scale for purchasing, marketing, training and innovation. There are a number of existing networks that are successful. The question is how to generate more and how to sustain them. This could be an effective way of overcoming the disadvantages of small size affecting many companies in the BMW Region.

Recommendations:

- 1) A special scheme should be established to assist the initial development and operation of **company-led networks**. This should be part funded for a minimum of two years with a possible extension of one year where the network could be sustained. This could be a pilot action initially.

This recommendation would be an initiative of the Innovation Committees, implemented by the State Development Agencies and monitored by the committees.

7) Cluster Development

There are a number of existing international clusters in Europe and other developed economies that are successful. There are none in Ireland. The question is how best to set one up and how to sustain and develop it.

- 1) Development of an international cluster is a major challenge for the BMW Region, indeed for Ireland. The BMW Regional Assembly, in partnership with the IDA, should organise a workshop on how to develop an **international cluster** with appropriate international specialists leading the workshop. The invitations should include representatives of the industry, IBEC, EI and the Third Level sector. The purpose of the workshop is to develop a strategy and establish an 'interim' implementation committee. The committee should then develop a plan, identify the necessary staffing and resources, and implement the plan.
- 2) A cluster approach should also be used to develop a regional strength in ICT, particularly in the Galway and Dundalk counties.
- 3) The strengthening of other more local clusters, such as organic food, eco-tourism, Irish culture, toolmaking, pharmaceuticals should also be explored.

These latter two recommendations would fall under the responsibilities of the three regional Innovation Committees, implemented by the State Development Agencies and monitored by the committees.

8) Creative Arts and Society

Future knowledge based industries are dependent on being able to recruit and retain highly intelligent creative young people to access the latest research and ideas. These people are attracted to locations that provide for longer term promotional prospects as well as having a young vibrant culture and creativity. Usually this ongoing creativity is reflected in their workplace. Galway already has most of the necessary attributes and they could be enhanced.

- 1) Encourage a range of creative businesses and leisure activities to Galway and other BMW 'gateways' aiming at the 25-40 age group. This would include design, advertising, multimedia, theatre, TV etc. These organisations would need to be of a very high quality and of international standing.
- 2) Establish the BMW Region (primarily Connemara and Donegal) as the centre of Irish culture, music, learning, drama and entertainment' using the latest technologies for delivery, such as, TV, video, DVD, multimedia, broadband etc. (this could be both an industry and a creative regional driver).

9) Infrastructure Deficit

Nobody disputes that the BMW Region is suffering from inadequate infrastructure that increases the cost of doing business in many parts of the Region. Essential improvements are underway, particularly in telecommunications, as are some road improvements, but the pace is too slow and it is costing the Region jobs and lost opportunities. The overall implication is that the cost of doing business from the BMW Region is often higher than in the S&E Region. Improving and highlighting this situation is the responsibility of the BMW Regional Assembly, working closely with the other regional and national stakeholders.

The February 2004 Ministerial announcement on road investment⁵¹ ensures that the BMW Region will receive significantly more resources for the second half of the National Development Plan (2000-2006) than it received during the first half. But longer term decisions should also take into account the development of the gateways and hubs in the BMW Region planned in the National Spatial Strategy.

Recommendations:

The main recommendations are:

- 1) Given the importance of the roads in the BMW Region in comparison to the rail system, increased investment in roads is required.
 - *The roads are not all required to be to motorway standard, but should have improved surface quality and have bottlenecks removed*
 - *A particular focus should be on getting the roads into the region in order, such as: complete the Sligo route (N4), Castlebar (N5), and Galway–Shannon/Limerick (N17). New priorities in 2004 include the Dublin–Galway route (N6); the Ennis (N17), Dundalk, Loughrea (N5) and Cavan bypasses. While Strokestown-Longford (N5) and the N26 Ballina-Bohola are 2004 priorities.*
 - *Intermodal transport should be developed in the Western Region to allow containerised traffic into and out of the Region without the necessity of going through Dublin.*

⁵¹ Minister Brennan, (February, 2004), Major acceleration of roads programme as a result of guaranteed investment of €8 billion, Department of Enterprise, Trade and Employment, Dublin.

- 2) Establish the planned telecoms system as quickly as possible, ensure the last mile is opened up, get costs down and services equivalent to Central Dublin. Then review progress.

- 3) Incrementally improve the rail services on existing lines giving a better and more reliable service for passengers and freight
 - *Open a rail connection between Galway and Sligo based on existing lines for both freight and passengers, subject to a satisfactory economic assessment and on re-opening the connection from Dublin via Navan to Kingscourt. Commuter trains should also be considered between Athlone and Tullamore and Athlone and Mullingar using existing track*
 - *The existing line between Galway and Limerick Junction should be upgraded. This will entail relatively modest costs and will provide onward connections to Limerick, Mallow, Cork, Waterford and Rosslare. This development should be planned in parallel with motorway construction near Athenry*
 - *More investment is required in all main lines in the Region in terms of new rolling stock, track and signalling equipment*

- 4) Strengthen the public electricity transmission and distribution grids both to provide enhanced supplies in terms of capacity, quality and reliability to consumers and to enable local producers to export. Small-scale electricity generation initiatives should be fostered.

8.5 Four Pilot Actions

The innovation audit was designed to better understand issues of competitiveness, research and technological adaptation and organisational change in the BMW Region. The data reveals no quick solutions, but rather a very complex picture with equally complex answers, a capacity to be better when compared to 'best practice' in the Region and the S&E Region, and an interest in and commitment to doing better.

The following four pilot actions are designed to kick-start the process of growing the innovative capacity of industry and services in the BMW Region.

AI – Regional Foresight

Rationale

Regional Foresight is the term used to describe “systematic, participatory, future-oriented strategic planning processes used at regional level”⁵². Many of the key elements of foresight planning processes are already widely used in Irish strategic planning processes, e.g., formation of expert panels, wide consultation, brainstorming, trend extrapolation, setting of strategic goals etc. The distinctive features that Foresight adds to these are its long term future orientation (goes beyond immediate issues and concerns) and the use of combinations of methodologies such as scenario building and predictive techniques (often referred to as gathering anticipatory intelligence).

⁵² European Commission 2002, Practical Guide to Regional Foresight in Ireland, DG Research, Brussels.

Foresight at a regional level can play a catalytic role in the establishment of initiatives and framework conditions conducive to innovation. Regional Foresight may be used to monitor performance and suggest improvements and changes in the course of implementation. It contributes to the strengthening of regional identity, not least in the transition to post-industrial, knowledge-based regional economies.

Regional Foresight has the following potential benefits for the BMW Region:

- 1) Long term scoping of both challenges and opportunities
- 2) Agreement on long-term investment priorities to aid present day decisions
- 3) Articulate a long-term strategic vision for the region
- 4) Buy-in and ownership and shared understanding of priorities by key players
- 5) Build on the Strategies of County Development Boards; Regional Socio-Economic Strategies (Regional Authorities); National Spatial Strategy; National Technology Foresight and the outcomes of the Audit of Innovation
- 6) Set the background for regional investment programmes in the region (national and EU) post 2006
- 7) Stimulate innovation and investment and promote regional competitiveness
- 8) Leadership on regional issues emerging from within the region
- 9) Sets direction, following a targeted analysis of region-specific issues
- 10) Enhances capabilities of all participants to engage in further foresight-type processes and increase capacity for change
- 11) Promote a stronger regional identity for the BMW region.

The approach to be used in the selection of themes should be based on:

- Building on existing priority themes
- Anticipating the thematic priorities of future investment programmes

In so far as is possible at this point, cognisance should be taken of the themes emerging as priority themes for the future of structural funding post 2006. These themes include:

- Regional innovation – esp. R&D
- Rural and urban regeneration
- Upskilling the labour force – creating learning/knowledge regions
- Access – Transport, Communications
- Equality of Opportunity

Some relevant reports:

- The IPTS Futures Project has generated several reports looking at key trends to 2010 (<http://futures.jrc.es>)
- Britain Towards 2010: The Changing Business Environment is a report prepared by the Economic and Social Research Council (ESRC) for the national Foresight Programme.
- Ten Challenges to Local Government as part of its Futureswork initiative
- Cambridge Econometrics produces European regional forecasts of value added and employment for over 250 NUTS 2 regions
- Regional 'observatories' and 'intelligence units' have been established by the RDAs
- futurefocus@dti is a creative thinking and decision support facility that aims to help groups to handle and shape the future. It consists of a creative lab at the DTI's headquarters in London (www.futurefocusdti.org.uk)

The final selection of themes should be made as part of the foresight process itself. An indicative list of 'generic' themes could be the following:

- A learning/knowledge region
- A research/innovating region
- A sustainable region
- A competitive region
- A 'quality of life' region

An alternative approach would be to select themes based on priority sectors such as manufacturing, services, tourism, food etc. This would be similar to the approach used in the National Technology Foresight exercise.

Objectives

The objectives of a BMW Regional Foresight are to mobilise key players in order to develop investment priorities for the BMW region that are based on long-term challenges and opportunities, expert input and inter-organisational collaboration that will position the Region for the long-term.

Description and Outputs

There are many varieties and nuances of Foresight: a first fundamental distinction is between Foresight activities that are more or less bottom-up or top-down. Another distinction is broad involvement of stakeholders or narrow involvement. A third is product orientation when the need is to inform specific decisions, and inputs such as reports and priority lists are required; process orientation when more networking is required between key actors. Finally, normative (e.g. recognised quantitative methods), or exploratory (e.g. scenario, future writing) methods can be used.

Two additional issues should be incorporated into the foresight process:

- Consideration of how the region can benefit from the globalisation process and integration of its economy in the global market
- Consideration of the regional knowledge economy and how it can better be progressed as part of the foresight exercise

The duration of an exercise is typically about 12 months. Costs will depend upon location of activities, scope of the exercise, number of people in the project management team, organisation of events, the approach selected, etc.

Outputs

- Awareness of the benefits of a technology foresight exercise build up among regional decision makers and other stakeholders
- A learning exercise in networking and working together
- Conclusions and recommendations and follow up activities for regional foresight programmes
- A monitoring system to ensure that the findings of the foresight exercise are implemented

Resources

The process should be organised by the BMW Executive in partnership with the three regional authorities and the main development agencies. The Regional Foresight exercise will be commissioned by the BMW Regional Assembly and funded out of its resources and part funded by the EU.

A2 – Improving SME Innovation Capacity and Third Level Linkages

Rationale

Two critical key factors in a firm's innovativeness are 'technological capability' and their 'absorptive capacity'. The ability of companies to learn depends on their internal capabilities, represented by the number and level of scientifically and technologically qualified staff they employ. R&D is largely financed and performed within the business sector and has two aspects – the first acquires and absorbs technology; and the second seeks and applies new knowledge. Firms must do enough development work to have the 'absorptive capacity' to conduct a professional dialogue with the state research institutions and other external sources of knowledge. Many of the SMEs in the BMW Region need strengthening of their 'technological capability' and their 'absorptive capacity'. This action also addresses the fact that the region loses a significant percentage of its graduates to other regions and to emigration.

Objectives

The objectives of this action are:

- To pilot a series of actions to increase the absorptive capacity of SMEs in the BMW Region – 10 companies per action
- To link these actions to the Third Level sector
- To measure the impact of these actions on the companies involved
- To determine a programme for the whole region

Structure and Participants

The BMW Executive would undertake this project in partnership with the Third Level colleges and institutes, the private sector (IBEC, Chambers of Commerce, industry associations, Venture capitalists and bankers) and the development agencies (CEBs, EI, IDA, Údarás and Shannon Development). A steering group would be established of these bodies that would monitor and advise as the project progresses. They would assist in identifying the companies that would participate in the programme.

All participating SMEs would be selected from within the BMW Region and the focus would be on both high tech and traditional companies operating in markets with a strong potential future.

Description and Outputs

The four pilot schemes proposed are:

- 1) TCS Teaching Company scheme: where a Third Level institute or college assists a company by providing one or two graduates to assist in a specific project with the support of the college or institute department over a period of 12 months. The graduate(s) are placed in the company for 6 to 12 months during the project.
- 2) Graduate Placement: where a company takes on a young graduate for development/quality/ productivity/technology transfer projects with support from the institute or college
- 3) Experienced Technical Manager: where a company takes on an experienced graduate/technical manager for product development/quality/ productivity/technology transfer projects.
- 4) R&D vouchers: that allow a company to use a Third Level college or institute for 2-4 days product or process development/improvement

Scope out and secure agreement on the 150% tax relief on R&D expenditure

The main outputs would be:

- A series of completed projects that improve the participating companies operations and verify the effectiveness of these approaches
- Improved company – third level college and institution linkage
- Improved company absorptive capacity

Participants and Resources

The State agencies involved will include CEBs, EI, IDA, Údarás and Shannon Development. The resources and staffing should come from their budgets. The pilot schemes should be independently evaluated during and post their completion. If successful they should be brought into the mainstream.

A3 - Building Clusters and Networks

Rationale

Clusters and networks are emerging as significant tools to promote regional development, foster SME growth, reduce spatial and social inequalities, and to activate, diffuse and expand locally generated knowledge.

Networks have been defined as a specific form of relationship between economic actors, which are neither markets nor hierarchies, but they are based on mutual dependence, trust and co-operation. They are not necessarily geographically concentrated, but some authors argue that they also work best when localised. The development and operation of networks is not easy, but there is considerable experience of successful networks in a number of organisations such as Skillnets Ltd, Plato Ireland and WESTBIC, and their knowledge could easily be applied to geographical areas or sectors within the BMW Region.

The networks could be based on any of the following or on any combination of:

- Joint supplies purchasing
- Joint marketing
- Collaborative research/product design, joint financing of innovation
- Technology transfer/acquisition
- Technology management, innovation assessment and planning
- Technical and management training
- Development of standards and quality assurance
- Technology scan and market developments
- Participation in European networks, e.g. Strengthening Academic Industrial Linkages (SAIL)
- Project management
- Purchase of equipment

Clusters are more complex arrangements than networks, and we do not have as much knowledge and experience of their development in Ireland as we have for networking. They usually consist of:

- A group of companies in the same/similar business
- The attraction or creation of various intermediate and subsidiary industries providing inputs to the localised firms, including specialised training companies
- The creation and growth of a pool of skilled and specialist labour

- The development and deployment of specialized machinery amongst local firms involved in different aspects of the industry in question
- The spillover of knowledge and technology between local firms
- The creation of an 'industrial atmosphere' that is a set of formal and informal customs, traditions and practices associated with the industry and institutionalised in the social and cultural fabric of the area concerned
- Build-up of Third Level industry linkages – joint research, training, consultancy, and networking
- The establishment of relevant basic R&D in the Third Level sector and industry relevant undergraduate and graduate programmes

Clusters lead to higher growth in three main ways:

- a) They raise productivity by allowing access to specialised inputs and employees, enhancing access to information, institutions and public goods and by facilitating complementarities.
- b) They increase firms' capacity for innovation by diffusing technological knowledge and innovations more rapidly and competitive pressure within each cluster increases firms' incentives to innovate. They have been described as types of 'learning' regions, showing higher rates of technological and organisation innovation with greater adaptability.
- c) Clusters stimulate higher rates of new business formation, as employees become entrepreneurs in spin-off ventures, since barriers to entry are lower than elsewhere.

Clusters need not be high-tech e.g. there are furniture clusters in Denmark.

Objectives

The overall objectives of this programme are to promote partnerships and synergies among groups of enterprises and between the business and scientific communities. It also aims to reinforce innovation dynamism within enterprises through supporting new forms of partnership that allow for the exchange of knowledge and the undertaking of joint actions (R&D, training and commercialisation), notably in terms of new product development and joint product marketing.

Description and Outputs

The action would involve setting up a number of **networks** to pilot the initiative. The network proposals would be company-led and from a group of companies and they would include: clearly defined objectives; an action plan aimed at improving the innovation dynamic in the partner firms; the establishment of mechanisms for consultation, co-ordination, management and financing; and an agreed programme of activities and monitoring.

The **cluster** will probably require an initial study under the guidance of a special steering group representing the development agencies, the BMW Regional Assembly and the firms, which would result in an action plan to develop the cluster. The proposed cluster is the medical devices sector. Other possible clusters (mini or early stage clusters) should also be explored. There are a number of highly relevant publications such as *Business Clusters in the UK – A First Assessment*, which was prepared by the DTI in 2001. It is being used as a base source of information by the Regional Development Authorities to inform their clusters development work.

The outputs would be:

- To pilot the network initiative in, at least, two areas
- To develop one cluster of firms with the attributes of a 'real' cluster and a number of mini-clusters throughout the region
- To develop methodologies that can be applied in other situations throughout the region

Resources

The BMW Regional Assembly should organise a 'invite only' workshop on how to develop an international cluster with appropriate international specialists leading the workshop. The invitations should include representatives of the industry, IBEC, IDA, EI and the Third Level sector. The purpose of the workshop is to develop a strategy and establish an 'interim' implementation committee. The committee should then develop a plan, identify the necessary staffing and resources (existing agency budgets), and implement the plan.

A4 – To Improve the Level of Appropriate Research in the Institutes of Technology in the BMW Region

Background

As already noted, the Third Level colleges and institutions 'win' considerably less than their share of the national competitive research funds. In addition, the level of R&D in the Institutes of Technology (IoTs) is significantly lower than in the universities and their R&D contribution in areas of interest to regional industry needs to be increased. The forecast decline in student numbers provides the opportunity to increase the level of research by freeing up some additional staff time.

EI has recently launched a scheme that will assist this situation by increasing the level of funds available for applied research in the IoTs in the BMW Region: the Applied Research Enhancement scheme.

Objectives

The objectives are:

- To increase the level of basic and applied research in the IoTs
- To increase the number of PhDs in the IoTs
- To increase the level of industry-institution applied and contract research

It would be important to link the R&D awareness programme and the activities of TECNET closely to these new initiatives.

Description

The scheme would build on the existing facilities and resources and seek to enhance the institutes' capacity and capabilities. This means it would fund both capital and current projects. These projects would have to fit within the strategic plans of the institutes and match local industry requirements, such that both undergraduate and post-graduate learning would better suit local and regional requirements. It would also lead to a build up of expertise and research capacity available to industry as required. Other services could be built on this base, such as training courses, consultancy and contract research.

The outputs would be:

- Enhanced research capability
- Relevant graduate and postgraduate training
- The provision of other services for industry

Resources

This action will involve all the non-university Third Level educational bodies in the region, EI and the Department of Education and Science (DES). Funding will be required from both EI and the DES.

The best approach would be to appoint a Research Manager in all IoTs (Sligo IoT has such a post). These managers could then help plan the research development of their institutions and inter-institutionally across the BMW Region. They could set targets for numbers of PhDs per institution, agree this with the DES and seek relaxation of the supervision rules to accommodate these numbers. A committee of the IoTs, NUIG, DES, EI and the BMW Executive could be set up under Lónra to develop and manage this pilot action.

This would be a key element in developing the knowledge economy. Lónra could be the driver of this action.

