ADVANCING INNOVATION
AND KNOWLEDGE TRANSFER

Final Report

PROTTEC Work Package One:

Regional Strategies, Partnership Capabilities and Tech Transfer State of the Art

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March 2010

European Regional
Development Fund
The European Union
Investing in Your Future

Report compiled and coordinated by:

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Intelligence Observatory,

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PROTTEC PARTNERS

PROTTEC is an INTERREG IVA project that brings together partners from the Channel coasts of France and England in exploring the transfer of knowledge and innovation generated by publicly funded research.

In Europe, knowledge transfer from academia to industry, particularly SMEs, falls behind the levels and quality achieved in the United States and Japan. Whilst academia has strong links with enterprises in education and research, technology transfer remains weak. Europe is usually considered among the best world performers in terms of research capacity, but this potential is too rarely transformed into innovative products and ideas, and the potential contribution to economic growth is lost.

This is the situation PROTTEC seeks to address.

bretagne valorisation
innover/transmettre/entreprendre

marine south east

University of Exeter

Marine Institute
University of Plymouth

Ifremer

Executive Summary

Introduction

PROTTEC (Public Research Organisation Technology Transfer through Regional Economic Clusters) was officially granted funding by an INTERREG steering committee in February 2009. The PROTTEC project partnership consists of French organisations Bretagne Valorisation and Ifremer, working alongside the UK's University of Plymouth, the University of Exeter and Marine South East. PROTTEC will investigate knowledge transfer between European academic institutions and industry, in particular SMEs, with a view to establishing some best practice routines.

This report focuses on PROTTEC Work Package One, 'Regional Strategies, Partnership Capability and Tech Transfer State of the Art', led by the University of Plymouth. The Work Package focuses on the European and national contexts within which regional developments can be understood as well as the actual regional economic strategies, and any related innovation and knowledge transfer approaches, developed by the four regions. The Work Package specifically explores how innovation and knowledge transfer are considered as economic development factors, and identifies the innovation and knowledge transfer activities selected by the regions to support economic development. With an aim to increase the efficiency of knowledge transfer and innovation, opportunities for cross-border collaboration and sharing of knowledge and best practice are also highlighted.

The European Level

In the context of modern globalisation, with the rapid economic growth of China and India, the EU has no choice but to become a vibrant knowledge driven economy. This will supply the EU with its unique selling point provided that innovation, the process by which this knowledge is transferred between academia, research organisations and the business and/or wider community and converted into marketable new products and processes, is at the heart of its agenda.

The collection of innovation data allows for a better understanding of innovation and its relationship with economic growth and enables countries to benchmark their national performance against other nations. A number of indicators are used to measure innovation, some of which are outlined below.

- The OECD Main Science and Technology Indicators provide a set of 149 indicators that reflect efforts undertaken by the thirty OECD member countries, and eight selected non-member economies, in the field of Science and Technology.

- The Global Innovation Scoreboard (GIS) compares the innovation performance of R&D spending countries worldwide to the EU27 member states. The GIS (2008) includes nine indicators of innovation and technological capabilities, which are grouped within three main 'pillars'.

- The European Innovation Scoreboard (EIS) is a tool developed under the Lisbon Strategy to provide a comparative assessment of the innovation performance of EU member states. The EIS utilises the most recent statistical data available from Eurostat, along with other internally recognised sources.

- At a regional level innovation performance is measured through the Regional Innovation Scoreboard (RIS), which attempts to use the same methodology as the EIS, but with significantly reduced data availability.

The cornerstone of innovation in the EU is the Lisbon Strategy for Growth and Jobs (2000), which set the target for Europe to become the most competitive and dynamic knowledge based economy in the world. In 2005 the Lisbon Strategy was re-launched, singling out innovation and knowledge as key areas upon which action must be orientated. In addition the Strategy included the crucial objective set by the 2002 Barcelona European Council of increasing R&D spending in the Union to 3% of GDP by 2010 and increasing the private funding proportion from 55% to two-thirds.

The EC adopted a broad based innovation strategy for Europe to further assist the EU in becoming an innovation-based society. This strategy presented a framework to take innovation forward by promoting all types of innovation. It aimed to engage all parties, business, public sector and consumers, to create a virtuous circle where the supply of new ideas and demand for new solutions both push and pull innovation, and encourage the development of innovation-friendly led markets.

Based on the recommendations of the broad based innovation strategy, the Competitiveness Council of December 2006 concluded that the following nine strategic priorities for innovation action at EU level should be pursued as a matter of priority:

- Create an intellectual property rights (IPR) framework;

- Create a pro-active and standard-setting policy;

- Make public procurement work for innovation;

- Launch Joint Technology Initiatives (JTIs);
- Boost innovation and growth in lead markets;
- Enhance closer cooperation between higher education, research and business through the establishment of the European Institute of Innovation and Technology (EIT);
- Help innovation in regions;
- Develop a policy approach to innovation in services and to non-technical innovation; and,
- Risk capital markets.

Evidence suggests that good progress has been made regarding these strategic priorities. Building on these developments, the EC planned to conduct an assessment of the broad-based innovation strategy in June 2009, which will provide input into future innovation policy development. The EC aim to present the new European Plan for Innovation towards the end of 2009.

There are a number of support measures and funding programmes which aim to instigate, support and enhance innovation in Europe including:

- The 7th Research Framework Programme;
- Competitiveness and Innovation Framework Programme (CIP);
- Education and Training: policy cooperation and funding programmes; and,
- Structural Cohesion Funds.

While progress has been made in numerous respects regarding innovation in the EU evidence suggests that a continued focus and effort is still required to make Europe the most innovative economy in the world. According to the EIS the USA and Japan are performing at levels of 28% and 38% respectively above the EU, however results indicate that there has been a continued improvement of the EU's performance in comparison to the USA, and recent improvements in comparison to Japan.

The French Context

Innovation policy in France is set within the context of the State's transition from centralisation to decentralisation. The turn of the century has seen a redirection in French innovation policy from a focus on knowledge transfer within large technological companies to a softer knowledge transfer focusing on the exchange of research and results between universities, public scientific and technological research organisations, industrial and commercial research organisations and SMEs.

Within this context, the Ministry for Higher Education and Research and the Ministry Delegate for Industry share responsibility for research and innovation policy. In response to the Innovation Plan, presented by the Ministry in Charge of Research in 2003, the French government prepared the Pact for Research which included an action programme aiming to adapt the French research system in order to face current and future challenges; namely, to reorganise the public research system; to raise private investment in research; and, to reinforce the links between the public and the private sector. Overall, the framework outlines the government's objective to increase private investment in research in order to reach the Barcelona Target of 3% of GDP on R&D by 2010.

In addition, French innovation policy has become more 'bottom-up' in recent years, and links between the different players in the research and innovation system have been strengthened, especially between public and private research, to help boost innovation and competitiveness. Examples of this include; Competitive Clusters which were introduced in 2005 to increase public/private partnerships and to promote and develop key elements of France's industrial competitiveness; and, the Carnot Award which is an award for public research institutes who support partnerships with socio-economic actors.

More recently, in 2009 France launched a programme of work to establish a national strategy for research and innovation that will bring together the overall challenges and priorities for research and innovation and ground future budgetary decisions for the first time.

The responsibilities for the implementation of aspects of the innovation policies are increasingly falling upon the national agencies, such as: the National Research Agency (*L'Agence nationale de la recherche - ANR*), which distributes research funds based on grant proposals according to research priorities identified by the government and promotes partnerships between public and private companies; and, OSEO innovation which provides R&D and innovation support to SMEs. Research activities are also carried out by higher education institutions, who are the most important research performers in terms of funds, PROs and private companies, all of which have a national presence.

French regions have also been increasingly involved with research, science and technology since the first Decentralisation Act in 1982. Regions are administered by Regional Councils (*Conseils Régionaux*) whose responsibilities include policy design and planning in matters of research, with the key objective of economic development. This is achieved through the development of a Regional Economic Development Strategy (*Stratégie Régionale de Développement Economique – SRDE*). More recently, the EC has required that all the regions of France develop a Regional Innovation Strategy *(Strategie Regionale Innovation - SRI)* to determine the use of ERDF funds over the period 2007-2013, some of which is managed by the Regional Council under the authority of the State management.

At the regional level the state is represented by: the Regional Delegation for Research and Technology (*Délégation Régionale de la Recherche et de Technologie - DRRT*) which informs regional partners of national policy programmes and measures, coordinates activities undertaken by public organisations in the region, develops and organises technology transfer activities, and tries to bring together research and business in the region; and, the Regional Division for Industry, Research and Environment (*la Division Régionale de l'Industrie, la Recherche et de l'Environnement - DRIRE*) which has the key objective of promoting industrial development. In addition the Regional Innovation and Technology Transfer Centres (Centres Regionaux d'Innovation et de Transfert de Technologie - CRITT) act as an interface structure between public research organisations and regional firms.

The UK Context

The UK government accepts that the UK economy must increase its investment in its knowledge base, and translate this knowledge more effectively into business and public service innovation in order to generate growth through productivity and employment. R&D capacity in the public and private sectors forms the core of the knowledge base, enabling it to create, absorb and deploy new ideas rapidly. As a result, Science & Technology policy has evolved into an innovation policy wherein S&T concerns are fully integrated into the broader national system of innovation. A great deal of the UK top level innovation policy is ultimately aimed at increasing either the intensity of research or its effectiveness for the economy.

This approach is made explicit in the Science and Innovation Investment Framework 2004-14 (SIIF), launched by the UK government in July 2004. Overall, the framework outlines the government's long-term objective for the UK economy to increase the level of knowledge intensity (expressed as R&D as a percentage of GDP) from its current level of around 1.9% to 2.5% by around 2014, which, incidentally, is still below the EU's Barcelona target of 3% of GDP on R&D by 2010.

The most recent major government statement on research and innovation in the UK is contained within the White Paper *'Innovation Nation'*, published in 2008. The aim of the strategy is to "build an Innovation Nation in which innovation thrives at all levels – individuals, communities and regions". In December 2008, the government published its first Annual Report on Innovation Nation detailing progress made and future challenges.

The key elements of the UK national system of innovation are: the government (responsible for policy setting, implementation and funding); the Science and Engineering Base, in the main consisting of the Higher Education sector but also including the remaining (i.e. non-privatised) government laboratories and the research council institutes, which undertake the majority of basic and strategic research in the UK; and, the Business Enterprise sector, which funds and undertakes the largest share of UK R&D.

The key player at the operational level is the recently formed Department for Business, Innovation and Skills (BIS). BIS has responsibility for enterprise, business relations, regional development and fair markets, along with responsibility for science and innovation, further and higher education and skills, and supporting evidence-based policy making across government. BIS works with a range of other organisations that promote UK innovation including: the 'new' Technology Strategy Board (TSB),which funds innovation through Collaborative R&D Programmes, Knowledge Transfer Partnerships, Knowledge Transfer Networks, the Small Business Research Initiative, Mico Nanotechnology Centres and International Programmes; UK Intellectual Property Office (UK-IPO); National Endowment for Science, Technology and the Arts (NESTA), which works across all stages of the innovation process to make the UK more innovative; and, the Research Councils.

The UK's academic research base is supported by a system of funding that provides funds to institutions in two streams; one as part of their core grants, provided by the Funding Councils; and the other commonly in the form of project grants, provided by Research Councils. The Funding Councils provide funding to support the research infrastructure enabling universities and colleges to undertake ground breaking research. Research Councils award the main grants in science and research within the framework aimed at advancing knowledge and the generation of new ideas which can be used to create wealth and drive improvements in the quality of life. The seven Research Councils fund research and training activities in seven different areas of research.

The UK has nine English Regions and three Devolved Administrations. The Regional Development Agencies (RDAs) are responsible for strengthening the regional innovation infrastructure, developing strategies, and bringing together partnerships to address local and regional innovation challenges. The RDAs provide their regions with a strategic framework for economic growth and regeneration, in which science and innovation plays an important role. The

frameworks are provided through Regional Economic Strategies (RES) and Regional Innovation Strategies (RIS).

The RDAs work with a wide range of partners including universities, colleges, local authorities, Research Councils, the Technology Strategy Board and BIS and are also responsible for the delivery of programmes through the European Regional Development Fund (ERDF). Each RDA has a business-led Science and Industry Council (SIC), which influences the innovation agenda both regionally and nationally.

Some aspects of government funding are now being managed at the regional level to ensure that relevant innovation support and expertise is tailored to meet the needs of local businesses. In addition, a number of government innovation support services are delivered at the regional level.

Comparative Innovation Performance

Both France and the UK's innovation performance is above the EU average, with the UK's overall level of innovation performance over the past five years placing it among the 'innovation leaders' group while France is placed amongst the 'innovation followers' group. However, the innovation growth performance of both countries falls below the EU average.

The EIS (2008) recognises Finance and Support as being the UK's main driver of improvement in innovation performance over the past five years, with the UK both performing and growing above the EU average for this dimension. Within this dimension the UK has experienced excellent growth in venture capital and broadband access by firms.

In comparison the areas of Human Resources, Finance and Support and Throughputs are recognised as being the main drivers of improvement in innovation performance in France over the past five years. Within these dimensions France has experienced high levels of performance in S&E and SSH graduates, EPO patents and broadband access by firms, France has also experienced good growth in broadband access.

France has a higher gross domestic expenditure on R&D (GERD) as a percentage of GDP (2.08%) compared to the UK (1.79%). France also has a higher percentage of GERD financed by industry (52.4% compared with 47.2% for the UK) and the government (38.4% compared with 29.3% for the UK) while the UK has a higher percentage of GERD financed from abroad (17.7% compared with 7% for France).

The UK has a slightly higher proportion of GERD activity performed by the Business Enterprise sector (64.1% compared with 63.2% in France), and the

Higher Education sector (24.5% compared with 19.2% in France). France made a higher proportion of patent applications to the EPO compared to the UK (125.26 applications per million inhabitants in France compared with 77.67 applications in the UK).

Key Regional Economic Drivers and Supporting Knowledge Transfer and Innovation Activities within the Four Study Regions

The South East of England

The South East England Development Agency (SEEDA) is responsible for the economic and social development of the region. SEEDA acknowledge that the prosperity of the South East depends on the success of the region's businesses and have developed the Regional Economic Strategy (RES) 2006-2016 which takes account of the current challenges facing the region. As a globally high performing region the South East faces challenges that are yet to impact in many English regions and it is these challenges that are driving economic development within the region. The RES identifies three key challenges and responds with aims to address each of the challenges:

1) **The Global Challenge.** In response to this challenge the South East aims to become "an exemplar region implementing the Lisbon Strategy". The South East aims to increase world trade and foreign investments by strengthening what it identifies as the key components of the region's future global competitiveness – research, development and innovation.

2) **Smart Growth.** In response to this challenge the South East aims to achieve higher prosperity, without increasing its ecological footprint, by strengthening the interplay between the key productivity drivers of enterprise, skills, innovation, competition and investment, employment and quality of life.

3) **Sustainable Prosperity.** In response to this challenge the South East aims to preserve quality of life as a competitive advantage. The region aims to enhance the environmental, social and lifestyle offer to ensure the region is perceived as an attractive place to live, work and conduct business.

For each of the three aims the RES identifies a set of measurable objectives. While many of these objectives have variable, indirect effects on innovation within the region, the areas of global competitiveness and smart growth are significant in terms of objectives with an innovation and knowledge transfer focus. The objectives relating to these aims are outlined below:

Global Competitiveness	Smart Growth
Global Businesses and Foreign Direct Investment. Increase the percentage of businesses located in the South East operating internationally from an estimated 8% in 2003 to 12% by 2016, maximising the South East's share of global Foreign Direct Investment	**Enterprise**. Increase the business stock by 35% from 35 businesses per 1,000 inhabitants in 2005 to 44 per 1,000 inhabitants by 2016, including 10,000 new businesses run by women by 2010
Knowledge Transfer and Business Expenditure on Research and Development. Increase the proportion of businesses in the South East reporting R&D links with universities from 11% in 2005 to 15% by 2016, and increase business expenditure on R&D in the South East from 3.2% of Gross Value Added in 2003 to 4% by 2016	**Skills**. Maximise the number of people ready for employment at all skill levels, and ensure they are continually equipped to progress in the labour market
Innovation and Creativity. Increase the percentage of total South East business turnover attributable to new products from 12% in 2004 to 20% by 2016, and the percentage attributable to significantly improved products from 18% in 2004 to 25% by 2016	**Competition and Business Regulation**. Increase the level of participation of South East businesses (especially small businesses and social enterprises) in tendering for public sector contracts
	Employment. Improve the productivity of the workforce and increase economic activity from 82% to 85% by bringing 110,000 net additional South East residents of working age into the labour market by 2016 (as a step towards bringing up to 250,000 residents into the labour market by 2026).

The RES also identifies a large variety of actions and activities that SEEDA will support, alongside its partners, in order to achieve these aims and objectives, including:

- **Develop South East Innovation Action Plan** in response to the Governments 10 year SIIF. As a result of the Innovation Action Plan a number of new initiatives have been launched to exploit the regions world class knowledge base:
  - Speeding up the development of new products, processes and services through increased knowledge transfer between business and universities;
  - Increasing the competitiveness of businesses through the promotion of innovation; and,
  - Ensuring a supply of scientifically trained people within the region.

- **Creation of a Funding Escalator**. SEEDA plans to create an integrated South East early stage business fund through the merging of existing funding programmes. The Funding Escalator will provide a continuous pipeline for innovators to access funding at every stage of business progression from concept to commercialisation through to development growth and expansion.

- **Promoting Key Sectors**. Within the RES SEEDA identify the need to promote its seven key sectors. Seven Sector Consortia currently exist and SEEDA aim to support further development of the current key Sector Consortia and develop new consortia where necessary.

- **Development of the Business Link Service**. SEEDA funds the Business Link service in the South East as the access channel for business support across the region. Business Link provides access to information, advice and support at all stages of the business process. Business Link also provides the Enterprise Gateway Service which encourages people to think about starting their own business or working for themselves and provides relevant one-to-one support, coaching, access to networks, training and signposting to other support organisations.

The South West of England

The South West Regional Development Agency (SWRDA) is responsible for economic growth and development and the wider remit of sustainable development within the region, and have developed the region's RES 2006-2015. The RES recognises three economic drivers that are central to the economic development of the region:

1) **Innovation.** The South West cannot compete on cost alone anymore and, therefore, must concentrate on adding value through innovation. In order to achieve this, the South West requires a culture of innovation and enterprise, across private, public and voluntary organisations, in which change and challenge are welcomed.

2) **Skills.** At a time when global competition is high and the South West is seeking to gain an advantage through innovation and technology, knowledge-based and technical skills are at a premium. As a result, high-level skills and an adaptable approach to learning and working are critical for the region.

3) **Environment.** The South West has a great deal of strength, specifically related to its location. The identification of the environment as a key economic driver highlights the importance of building, rather than diminishing, the region's environmental and cultural capital.

The vision is for the South West to "have an economy where the aspirations and skills of people combine with the quality of our physical and cultural environment to provide a high quality of life and sustainable prosperity for everyone". The RES highlights three strategic objectives to be fulfilled in order to meet this vision, one of which, successful and competitive businesses, is specifically targeted at businesses and innovation and, therefore, provides a sensible starting point when exploring the area of innovative and knowledge transfer. This objective will be delivered through a number of headline economic priorities which are outlined below:

- **Support Business Productivity.** Due to the importance of the region's businesses in determining its long-term success, of which a high proportion are SMEs, the need for an effective business support system is paramount. Such an effective service aims to provide businesses with advice, intelligence and networks needed in order to make informed decisions on future development.

- **Encourage New Enterprise.** New enterprises are vital to the economy and develop in response to new or growing markets. This regional priority seeks to create conditions conducive to enterprise, thus encouraging entrepreneurial activities and risk-taking.

- **Deliver Skills for the Economy.** Skills are important for both the economy and improving participation, and, as such, require a strong education system providing basic and technical skills. An important aspect of the regional priority is the need for training provision to be driven by businesses.

- **Compete in the Global Economy.** International trade is becoming increasingly important, and the extent to which South West companies engage in the global market will have significant effects on the region's competitiveness.

- **Promote Innovation.** Innovation is vital, if businesses are to remain competitive in a rapidly changing market, with rapidly changing technologies. Key to this regional priority is

encouraging a 'culture' of innovation within public, private and voluntary organisations.

The RES identifies a variety of actions and activities that SWRDA will support, alongside its partners, in order to achieve the strategic objectives and related priorities including:

- **The Business Link Service**. SWRDA delivers a number of business support services through its funding and management of the Business Link service across the South West, which is delivered by Peninsula Enterprise. The Business Link service provides access to information, advice and support at all stages of the business process. The Business Link service is integral to the delivery of various aspects of the RES and also delivers the Rural Enterprise Gateway (REG) which provides information, training and business development support to rural businesses the aim to increasing the economic performance and competitiveness of rural businesses. The Business Link service is also a fundamental part of the **Train to Gain** initiative, a national initiative offering expert skills advice to companies in order to improve business performance by supporting employers to improve the skills of their employees.

- **Networks.** SWRDA supports a number of business-to-business networks within the region with the aim to lead economic growth through the region's leading businesses. These networks contribute to the priorities to support business productivity and promote innovation through business to business networking.

- **Enhancing HEI's Contribution to the Regional Knowledge Economy.** SWRDA support a number of activities to enhance the contribution of HEIs to the region's knowledge economy and promote innovation. Activities include Knowledge Escalator South West (KESW) which aims to deliver a range of activities to boost the capacity of HEIs to provide knowledge intensive support to South West businesses and stimulate new enterprise. SWRDA also support the Great Western Research (GWR) project which aims to promote collaborations between the region's HEIs and forward thinking businesses through research fellowships and studentships in order to support economic growth. To further encourage collaboration between businesses and the region's knowledge base SWRDA support Knowledge Transfer Partnerships (KTPs) which are designed to assist businesses with improvements in competitiveness and

productivity through better use of knowledge, technology and skills currently residing in the UK knowledge base.

The Nord-Pas-de-Calais Region of France

The Nord-Pas-de-Calais Regional Council is responsible for the economic development of the region. The Regional Council developed and adopted the Regional Economic Development Strategy (*Stratégie Régionale de Dévelopement Economique – SRDE*) in November 2005, which incorporates a common strategic vision to implement the broad economic policy guidelines for the region.

The SRDE clearly outlines its ambition to make Nord-Pas-de-Calais a major economic region in Europe, with the main goal to develop activities and jobs in a united region. It is this overarching ambition that is driving the economic development of the region.

The SRDE also organises and leads on a number of other strategies and programmes that aim to drive the economic development of the region, the Regional Program for the Creation and Transmission of business (PRCTE), the Regional Development Plan for Handicraft, the draft Strategie Regionale Innovation (SRI) and the Plan Innovation Valorisation de la Recherche.

The SRDE identifies eight overarching objectives to help the region achieve its ambition to be a major economic region in Europe:

- **Support business creation and communication.** This objective aims to further support the work of the PRCTE programme which has successfully being reviving the economic fabric of the region through the creation of new businesses;

- **Structure the region around 15 centres of economic excellence.** This objective aims to build on the region's key economic strengths and foster further collaborations between laboratories, businesses and training centres to further develop R&D;

- **Place innovation, R&D at the very heart of priorities to accelerate transformation of the regional economy.** This objective responds to the Lisbon Strategy and aims to increase the proportion of the region's GDP spend on research and innovation to 3% by increasing public and private research, increasing collaborations between laboratories, clusters and companies, and developing and supporting innovation and technology transfer between companies;

- **Anticipate changes to the economic climate.** The economic climate is increasingly changing and there is a need for businesses to be able to anticipate these changes as a key to economic success;

- **Rethink the economic activities of the Nord-Pas-de-Calais abroad.** In recognition that a large number of SMEs in the region struggle to access international markets, this objective is concerned with reviewing the region's future international trading;

- **Mobilise and coordinate the financial tools for regional economic development.** The Regional Council highlights that SMEs are important to the local economy in terms of innovation and job creation, but acknowledges that financial resources are needed to create and expand their activities;

- **Make Nord-Pas-de-Calais a highly progressive region in Information Communication Technologies (ITCs).** ICT is viewed as a major driver of economic growth and development and fundamental to the modernisation of public services; and,

- **Promote a united region and ensure balance between the districts.** Solidarity is viewed as a fundamental element of economic policy and this objective highlights the desire to ensure integrated and balanced development of all areas.

The SRDE and a number of the supporting strategies and programmes identify activities that the region will support in order to achieve the objectives and priorities. Activities supported by the SRDE include:

- **Support business creation and communication**. Information to support the achievement of the PRCTE priorities, which fall within this strategic aim of the SRDE, are communicated through three websites: jecree.com, which is dedicated to the entrepreneur or potential entrepreneur; jereprends.com, which is dedicated to individuals wishing to sell or take over a company; and, demainjecree.com, which is dedicated to promoting entrepreneurship amongst the young people within the region. In addition the website lacreativallee.com has been launched which promotes the region as the 'valley of opportunity' which aims to enhance the attractiveness of the region and promote it as a successful region.

- **Place innovation, R&D at the very heart of priorities to accelerate transformation of the regional economy**. Activities supported include establishing an innovation platform on research and valorisation which is an area of collaborative work to mobilise all of the skills of the region in support of innovation and knowledge transfer. The SRDE also supports the establishment of an operational team of business development officers responsible for valorisation to enhance scientific and technological skills in the region. Another activity supported by the SRDE involves implementing regional fund for innovation and research development.

- **Rethink the economic activities of the Nord-Pas-de-Calais abroad**. Activities to attract foreign investment are managed by **North eXperts France** (NFX) and its network of development agencies located across the region. In order to promote international trading the Regional Council, Regional Chamber of Commerce, Industry of Nord-Pas-de-Calais and their partners have established an **International Week** which provides an opportunity for companies to interact with large regional experts, as well as national and international companies.

The Bretagne Region of France

Within Bretagne, the Regional Council is responsible for the development and coordination of the Regional Economic Strategy ('Stratégie Régionale de Dévelopement Economique' - SRDE). The SRDE, adopted in October 2006, identifies three major aims which constitute the driving force behind the region's overall strategic approach:

1. **To determine a direction for new dynamic economic growth**
   The belief within the SRDE is that the economy, in its current structural form, has reached the end of a cycle. In order to maintain the region's attractiveness and its below-national-average levels of unemployment it is necessary for the region to rethink the foundations of its production system in order to identify principles of new, dynamic growth.

2. **To implement a sustainable development model**
   The search for a new area for dynamic and sustainable growth was based on a sustainable long-term vision. It was felt that this development was a vital aspect to future regional success as the foundations of competitiveness and attractiveness of the region are changing every day, moving towards a greater use of sustainable developmental components.

3. **To increase employment along with subsequent social and human development**
   Employment remains centrally important to the public and across all actors within the region. As such, economic development within the region should focus on the creation of jobs, in order for regional employment levels to remain above the French national average. The SRDE highlights the importance of creating high value-added jobs, as concentrating purely on increasing the total number of jobs would lead to increases in the number of low value-added jobs, which would not be viable in the medium-term and within the current global market.

Complementing these over-arching aims are a number of key strategic ideas which have shaped the development of the SRDE, including making innovation the engine of growth. Responding to this, and in reaction to the EC's requirement that all the regions of France develop a regional innovation strategy to determine the use of ERDF funds over the period 2007-2013, the region developed a Regional Innovation Strategy (Schema Regional de l'Innovation - SRI). This aims to give the region and its stakeholders the tools from which a relevant and progressive set of policy measures promoting regional economic development can be developed, with the ability to adapt this to a shifting global environment. On this basis, the region has a number of objectives in relation to the fields of innovation and knowledge transfer:

1. **Strengthen and consolidate the existing economy through innovation:** This objective focuses on ensuring that innovation support provides a coherent set of regional synergies of innovation activities and a clear and better understanding among SMEs of the available support.

2. **Diversify the economy through innovation:** The competitiveness of the economy relies upon Bretagne developing and strengthening its skills and areas of excellence. Thus, diversification through innovation will be achieved by identifying new sources of growth in areas that show high potential. In order to achieve this, one of the key objectives is to provide monitoring tools which enable SMEs to remain informed about technological, legislative, regulatory and competitiveness developments.

3. **Promote the region to outside companies and other innovation actors:** The region is faced with growing levels of competition both from within France and internationally. As such, innovation and differentiation are seen to be the only way forward.

The SRDE has a number of objectives directed at supporting 'knowledge society' developments impacting upon regional industries:

- To promote links between business, research and training in order to put companies at the centre of a knowledge network (eg. Competitiveness Clusters, networks of technology transfer centres, technology etc.);

- To support the acquisition of added-value functions (eg. diffusion of technological innovation, internationalisation of markets, management of human resources, social innovation and quality of employment, the development of simple and clean energy etc.); and,

- To support and encourage the development of new uses of technology in all processes, organisations, internal and external companies, and in the establishment and development of networks of economic development.

The SRI identifies activities that the region will support in order to achieve the strategic objectives and sub-objectives, including:

- **Support Technology Transfer**. Activities focused on enhancing the transfer of knowledge, skills and results from research laboratories include the implementation of a Charter of Regional Technology Transfer which defines good practice for the multitude of organisations supporting technology transfer in the region. Further activities include providing financial support for the initial R&D and proof of concept stage of business development through the Maturation Fund.

- **Promote the creation of companies and innovative activities**. Activities with the overarching aim to promote technology transfer and support the creation of new activities, specifically by developing an environment conducive to the emergence and sustainability of new companies include Business Hotels. These are facilities for young entrepreneurs offering accommodation, support and services to maximise the success rate of start ups. The SRI also supports Technopoles, technology parks that support innovation of start-ups and existing enterprises through the promotion of synergies between industry, higher education and research establishments.

- **Educate individuals to innovate**. The SRI supports a number of activities that aim to encourage individuals to innovate. For example, through the 'Week of Innovation' which is dedicated to promoting innovation and encouraging partnerships between research laboratories and companies. In addition the general public can source information about innovation through the innovation portal – Bretagne Innovation's website.

Identification of a Common Set of Innovation Objectives and Economic Sub-sectors Across the Regions

According to the Revealed Regional Summary Innovation Index (RRSII) within the UK the innovation performance of both the South East and South West is higher than both the UK and EU average, with the South East being the best performing region in the UK. Within France, whilst innovation performance within the Bretagne region is higher than both the French and EU average, the Nord-Pas-de Calais region performs below both the French and EU average.

The degree of commonality across the regions' innovation objectives was established by identifying, and cross matching, the regional objectives against the innovation criteria regarded as important within the context of regional economic development. This analysis highlights that all four regions have objectives within their regional strategies that address:

- Internationalisation and foreign investment;

- The promotion of an innovation culture and entrepreneurial mindset; and,

- Workforce skills development.

Three of the regions have objectives that address:

- Technology/knowledge transfer actions;
- The promotion of innovation in SMEs and,
- The provision of enhanced innovation support services and infrastructure.

Future PROTTEC Work Packages should therefore focus on these common innovation criteria in order to maximise the effect of the cross border activities on economic development priorities.

The comparative analysis also identified five sectors that are seen as important across the regions:

- Environmental Technologies;
- Food and Drink;
- Healthcare Technologies;
- ICT; and,
- Marine Sector.

These areas of commonality should be considered when developing cross-border activities through the PROTTEC project.

Performance Match of Innovation and Knowledge Transfer Activities

The common areas, in the context of the IRE innovation criteria, where each of the regions focus their attention when it comes to planning and undertaking activities to support innovation and knowledge transfer include:

- The provision of enhanced innovation support services and infrastructure;
- Workforce skills development;
- The promotion of an innovation culture and entrepreneurial mindset;

- Mechanisms for better co-ordination of the innovation system; and,

- The development of clusters, supply chains and company networks.

It seems reasonable to suggest that these are the key areas in which individual regions could learn from each other through the sharing of best practice and expertise.

There are interesting differences across the two countries in which partner regions are located. The two English regions support a larger number of actions and activities supporting the 'provision of enhanced innovation support services and infrastructure' and 'workforce skills development', while the two regions of France support a larger number of actions and activities to 'support technology/knowledge transfer actions', 'mechanisms for better coordination of the innovation system' and 'monitoring and assessment of the innovation system'. These present areas of innovation and knowledge transfer activities which could benefit from cross border sharing of expertise.

In addition, there are two criteria of innovation that are not addressed by any of the regional economic strategies which highlight possible gaps in the area of economic development:

- Strengthening of triple helix relations; and,

- New legislation favouring innovation.

By exploring the similarities and differences between the regions in more detail, through comparing the actions and activities supported by the regions respective economic strategies in order to fulfil common objectives, the key opportunities for collaboration and sharing of best practice and expertise, and the identification of innovation gaps or areas where improvements in innovation and knowledge transfer could be pursued through the enhancement of existing schemes or the development of new schemes, have been identified.

- The South East and Nord-Pas-de-Calais regions both propose to develop strategies to support objectives addressing internationalisation and foreign investment, the development of which could benefit from cross border collaboration.

- All four regions support activities around the development of clusters, supply chains and company networks to support objectives addressing internationalisation and foreign investment. These activities could be enhanced through cross-border collaboration to enable regional companies' access to a network of international companies.

- The South East and South West of England and the Bretagne region of France all adopt activities to support companies in transferring their technology and knowledge at an international level to improve their international competitiveness. This highlights a potential gap in the application of innovation and knowledge transfer activities to improve international competitiveness within the Nord-Pas-de-Calais region.

- The South West of England aims to support an 'aftercare' service to organisations investing in the region to help secure their long term future in the region. This is an activity that could be applied in other regions to develop more sustainable internationalisation and foreign investment.

- The South West of England and Nord-Pas-de-Calais region of France both support activities to promote their regions internationally in some way. These activities could be enhanced within each region to provide a more rounded promotional approach to internationalisation, and also be applied in other regions.

- Both English regions support a number of activities to promote an innovation culture amongst young people, while the South East of England and Bretagne region both support a number of activities to promote an innovation culture and entrepreneurial mindset through competitions. The similarities in the types of activities supported offer the opportunity for sharing experiences, best practice and expertise across the regions to maximise their impact in developing a culture of innovation.

- The South East, South West and Bretagne regions all support activities to deliver business support which presents an opportunity for the regions to share best practice in terms of the business support mechanisms they adopt.

- Both English regions have a focus on promoting woman's enterprise and both regions aim to deliver a strategy or strategic framework for woman's enterprise in the region. This offers the opportunity for sharing experiences to enhance each regions development of woman's enterprise.

- The South West of England's RES supports a comparatively large number of activities focusing on technology and knowledge transfer actions in order to address the promotion of an innovation culture and entrepreneurial mindset compared to the other partner regions. This offers the opportunity for other regions to consider the impact such activities might have on addressing objectives to promote a culture of innovation and entrepreneurialism.

- A number of the regions support the development of networks to assist in the promotion of a culture of innovation. There is an opportunity for knowledge sharing across the regions regarding the structure, working practices and communication of their networks, and partnerships between the regions to maximise their impact on business innovation.

- The South East, South West and Bretagne regions all support activities to market the regional innovation profile which offer opportunities for sharing best practice and expertise across the regions to enhance each region's promotional activity with a view to promote a culture of innovation.

- The South East and South West of England both recognise the importance of engaging with HEIs to ensure they are providing the right skills to the labour market, each adopting activities to support this process. Activities to engage with HEIs in this way could be applied within the French regions to assist in the appropriate development of their workforce skills to compete in the global economy.

- Both English regions also support the Train to Gain initiative, which is a national initiative offering expert skills advice to companies in order to improve business performance by supporting employers to improve the skills of their employees. Bretagne supports an activity to provide training for innovation actors, which could be enhanced through further development along the lines of the UK Train the Gain initiative.

- The South East of England and Bretagne region of France both adopt activities to develop a directory of their competencies. This highlights an opportunity for both tools to be further developed through cross border collaboration to enable them to be utilised regionally, nationally and internationally.

- The South East of England supports a number of activities to provide enhanced innovation support services and infrastructure in order to promote innovation in SMEs. However, neither region's in France adopt activities within this criteria, highlighting a potential gap in their innovation activities.

- The South West of England directly supports a number of activities to provide enhanced innovation support services and infrastructure which focus around the Business Link service. Bretagne's Regional Council supports activities to place advisors within the Innovation Network and to develop tools and skills within the innovation structures that support companies through the innovation process. These activities could be enhanced through the sharing of best practice with established schemes operating within the South West of England.

- The South West of England and Bretagne region of France support similar activities addressing workforce skills development. The techniques used to address this could benefit from cross-border information sharing.

Impact Study of Innovation and Knowledge Transfer Activities

While the original purpose of this section of the report was to investigate the impacts that the innovation and knowledge transfer activities are having within the regions it is evident that the actual impact of specific activities is not something that is currently evaluated by the four partner regions. However a number of the regions, Bretagne being the exception, do systematically measure progress against the priorities and objectives within their regional economic strategies, from which it is possible to draw some inferences about the region's strengths that could be exploited through cross border sharing of good practice. Therefore this is the focus of this section of the report.

From this analysis, and utilising the innovation criteria regarded as important within the context of regional economic development (IRE Working Group, 2008), a number of strengths and weaknesses have been identified across the regions, as highlighted below.

Regional Strengths

Innovation Criteria	Region		
	South East of England	South West of England	Nord-Pas-de-Calais
Mechanisms for better coordination of the innovation system			✓
Promotion of R&D activities	✓		✓
Technology/knowledge transfer actions	✓		
Promotion of an innovation culture and entrepreneurial mindset		✓	✓
Promoting innovation in SMEs	✓		✓
Provision of enhanced innovation support services and infrastructure		✓	✓
Workforce skills development	✓	✓	✓

Regional Weaknesses

Innovation Criteria	Region		
	South East of England	South West of England	Nord-Pas-de-Calais
Internationalisation and foreign investment	✓	✓	✓
Promotion of an innovation culture and entrepreneurial mindset	✓		

Whilst it is difficult to make causal links between activities and impact, the indication is that actions and activities supporting objectives within a region's area of strength are driving the region's economic development. Therefore, the areas where regions demonstrate strengths offer opportunities for the other regions to benefit from cross border learning and sharing of best practice in relation to the activities the successful regions are supporting in order to achieve objectives within these areas.

Discussion and Recommendations

The purpose of Work Package One was to identify the key economic drivers and their supporting innovation and knowledge transfer objectives and activities within the four regions. Any commonalities or differences between the regions were highlighted in order to identify opportunities for cross-border collaboration and sharing of knowledge and best practice to increase the efficiency of knowledge transfer and innovation.

Within the regional economic strategies, and any related innovation and knowledge transfer strategies or programmes, each region identifies a number

of overarching aims, priorities or objectives to help progress regional economic development. Alongside these each region identifies a number of actions and activities it supports in order to achieve the aims and objectives.

Within the regional economic strategies each region identifies a number of economic sub-sectors that they prioritise for a variety of reasons, several of which are common across a number of the regions. Five common priority economic sub-sectors have been identified across the four regions:

- Environmental Technologies;
- Food and Drink;
- Healthcare Technologies;
- ICT; and,
- Marine sector.

These common economic sub-sectors should be considered when developing cross-border activities through future PROTTEC Work Packages to ensure that the activities fit within the priority sub-sectors commonly identified within the regional economic strategies.

Utilising the innovation criteria regarded as important within the context of regional economic development (IRE Working Group, 2008) further exploration of the regional economic strategies identified a degree of commonality across the aims and objectives supported by the four partner regions. Objectives falling within six of the innovation criteria were identified as being common across the partner regions. Further analysis of the region's progress against their individual aims and objectives identified a number of strengths and weaknesses across the regions within the innovation criteria. By combining these findings innovation criteria that are both common across the regions and a strength of at least one region can be identified.

Objectives falling within five of the innovation criteria are identified as being both common objectives across the regions, and areas of regional strengths:

- Technology/knowledge transfer actions;
- Promotion of an innovation culture and entrepreneurial mindset;
- Promoting innovation in SMEs;

- Provision of enhanced innovation support services and infrastructure; and,
- Workforce skills development.

Cross-border activities developed through future PROTTEC Work Packages should consider these innovation criteria in order to ensure the impact the activities have in contributing to the economic development priorities of the four partner regions are maximised, and to exploit the opportunities to learn from and build on the areas of strength.

Objectives falling within two of the innovation criteria are identified as being both common objectives across the regions, and areas of regional weaknesses:

- Internationalisation and foreign investment; and,
- Promotion of an innovation culture and entrepreneurial mindset.

Cross-border activities developed through future PROTTEC Work Packages should consider these innovation criteria in order to maximise the effect the activities have in contributing to the economic development priorities of the four partner regions in areas of weakness.

Work Package One has identified the scope and range of innovation activities pursued within the partner regions. Leading on from this Work Package Two seeks to develop a best practice portfolio of knowledge transfer activities, in particular identifying those that could be piloted cross-border and therefore contribute to inter-regional innovation and economic growth. Work Package Four aims to practically apply these good practices of technology transfer through innovative cross border collaborative projects. As a result of the activities of Work Package One it is recommended that these future PROTTEC Work Packages consider the following when developing activities:

- The five **common economic sub-sectors** that have been identified.
- The six **common innovation objectives** that have been identified.
- The five **common innovation criteria** with **regional strengths**.
- The two **common innovation criteria** with **regional weaknesses**.

In doing so, the impact of future activities will be maximised across all four regions economic development priorities.

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Overview of PROTTEC

In a bid to improve European knowledge transfer success rates, French organisations Bretagne Valorisation and Ifremer are working alongside the UK's University of Plymouth, the University of Exeter and Marine South East in a research project that looks at maximising the potential for academic research to be used as a source of business innovation.

PROTTEC (Public Research Organisation Technology Transfer through Regional Economic Clusters) was officially granted funding by an INTERREG steering committee in February 2009. The committee agreed that the project should aim to improve technology transfer from public research to industry; for instance by accelerating the gathering of technology transfer in public structures in order to better answer the needs of businesses and centres of excellence.

PROTTEC will investigate knowledge transfer between European academic institutions and industry, in particular small to medium business enterprises (SMEs), with a view to establishing some best practice routines.

Under PROTTEC guidelines, these routines will have three main aims:

1. To enhance the adoption of a market-driven innovation model by promoting a spirit of entrepreneurship;

2. To accelerate joint-venturing among Higher Education, regional SMEs and regional economic clusters; and,

3. To promote innovation and boost knowledge transfer from public research organisations to private regional companies.

Heading the project in France is Bretagne Valorisation, which is an organisation that acts as an interface between researchers and industry partners and centralises technology transfer from eight national higher education organisations: four universities of Brittany – Université de Rennes 1, Rennes 2, Bretagne Occidentale and Bretagne-Sud – and four engineering schools – Ecole Nationale Supéririeure de Chimie de Rennes, Institut National des Sciences Appliquées de Rennes, Ecole Normale Supérieure de Cachan - Antenne de Bretagne and Agrocampus Ouest. Also taking part in the project in France is leading marine research organisation, Ifremer. The University of Plymouth, the University of Exeter and Marine South East make up the UK-based project partners.

The University of Plymouth is leading on identifying key economic drivers and their supporting innovation and knowledge transfer objectives and activities within the four regions represented by the project partners. Better understanding of the commonalities and differences between the regions will highlight opportunities for cross-border collaboration. The University of Exeter is taking the lead in identifying and researching a number of knowledge transfer case studies of activities ongoing within the regions. From this some cross-channel knowledge transfer strategies will be compared with an aim to identify practices that work and those that don't. The activity led by Bretagne Valorisation will be to identify and implement skills development for knowledge transfer officers through cross-channel exchanges, which will help to create the environment for successful knowledge transfer. A number of innovative projects will then be proposed for development that will benefit from cross-channel collaboration and from the knowledge transfer activities explored within this project. This final stage of the project is being coordinated by Ifremer and the project communication strategy is being overseen by Marine South East.

Regional Strategies, Partnership Capabilities and Tech Transfer State of the Art

Section One: Introduction

1.1 Introduction

This report focuses on PROTTEC Work Package One, 'Regional Strategies, Partnership Capability and Tech Transfer State of the Art'. The report has been produced by the University of Plymouth, in line with the initial PROTTEC project description, with key contributions from the following internal departments: the Socio Economic Research and Intelligence Observatory (Research and Enterprise); the School of Engineering; and, the Marine Institute.

1.2 Context and Outcomes of Work Package One

Work Package One focuses on the regional economic strategies, and any related innovation and knowledge transfer strategies, developed by the four regions represented by the project partners. The Work Package explores how innovation and knowledge transfer are considered as economic development factors, and identifies the innovation and knowledge transfer activities selected by the four regions to support economic development. As a result opportunities for cross-border collaboration and sharing of knowledge and best practice to increase the efficiency of knowledge transfer and innovation will be highlighted.

It is common practice for regional economic development agencies to set out an economic strategy, alongside an accompanying innovation strategy, with targets defined for business support, business growth and prosperity. In this context, Public Research Organisations (PROs) and Higher Education Institutions (HEIs) are faced with the challenge to contribute to these regional aspirations through the delivery of knowledge transfer, which in many cases, is empowered through regional, national and international support.

Although it is acknowledge that PROs and HEIs seek to play an active role in the creation and support of new business, it has also been accepted that knowledge transfer activities vary from country to country with regards to the roles of PROs and HEIs in the innovation process and the extent to which regions embrace PROs and HEIs as integral vehicles and contributors to economic prosperity and regional objectives.

As a result, an opportunity for cross border collaboration and sharing of knowledge and best practice to increase the efficiency of knowledge transfer and innovation has been identified through the PROTTEC partnership. To achieve this, a thorough understanding of how the respective regions' address, and strategically approach, innovation is required. Therefore, the outcomes of Work Package One include:

- A full understanding of the regions' economic development and innovation strategies;
- A full understanding of initiatives and methods of innovation employed in the project partner regions and recommendations for cross border application; and,
- The identification of innovation gaps and/or aspects where improvement in knowledge transfer can be pursued through the enhancement of existing schemes and the development of new schemes developed through the PROTTEC project.

In line with these outcomes, Work Package One involves four benchmarking study elements which are listed below.

- Study element one: Identification of key regional economic drivers and supporting innovation and knowledge transfer activities;
- Study element two: Identification of a common set of economic and innovation objectives and a common set of economic sub sectors;
- Study element three: Performance match of innovation and knowledge transfer activities identified in study element one; and,
- Study element four: An impact study of the innovation and knowledge transfer activities identified as part of study element one.

1.3 Structure of Report

To meet the requirements of Work Package One, Section Two of the report provides contextual information on knowledge transfer and innovation. More specifically, this section provides a clear definition of innovation, outlines the key tools and indicators used to measure

innovation and focuses on economic drivers and innovation strategies at a European and national level (UK and France).

The report then focuses on each of the individual study elements that comprise Work Package One. Section Three focuses on study element one: identification of key regional economic drivers and supporting innovation and knowledge transfer activities. Section Four focuses on study element two: identification of a common set of economic and innovation objectives. Section Five focuses on study element three: performance match of innovation and knowledge transfer activities identified in study element one and Section Six focuses in study element four: impact study of innovation and knowledge transfer activities identified in study element one. Finally Section Seven draws together the key findings from earlier study elements and makes a number of recommendations for taking the findings from Work Package One forward to future PROTTEC Work Packages.

Section Two: Context

2.1 Introduction

The purpose of this section is to clearly establish the relationship between knowledge transfer and innovation, and to outline the methods used to measure national and regional innovation performance, and address innovation strategy and delivery at a European and national level.

In line with this, Section 2.2 summarises the European Union's position within the context of globalisation. Building upon this, Section 2.3 establishes a clear definition of knowledge transfer and innovation, whilst Section 2.4 outlines the key tools used to measure innovative performance. The information presented in this latter sub section will underpin discussions on innovation performance discussed in Section 2.6 of this report. Section 2.5 focuses on economic drivers and innovation at the European level, whilst Section 2.6 focuses on economic drivers and innovation at the national level.

2.2 Europe and Globalisation

It has been widely acknowledged that the world economic order has changed since the Bretton Woods Conference in 1944 and the onset of modern globalisation. More recently, the rapid economic growth of China and India, who are currently taking major steps forward in innovation and technology, has forced the Europe Union (EU) to reconsider its competitive policy in order to ensure its sustained economic survival and development.

In response, the European Commission (EC) has recognised that the EU has no choice but to become a vibrant knowledge driven economy, putting research, education and innovation - the "knowledge triangle" - at the centre in order to achieve global competitiveness.

A knowledge driven economy will supply the EU with its unique selling point provided innovation, the process by which this knowledge is converted into marketable new products and processes, is at the heart of its agenda; a process which the EC perceived as lacking in Europe towards the later stages of the Twentieth Century (European Commision, 1995 p. 5).

2.3 Knowledge Economy, Knowledge Transfer and Innovation

As discussed in Section 2.2 above, innovation has been regarded as essential to the future economic survival of the EU. Furthermore, with 99% of enterprises in the EU classified as SMEs[1], the EC has recognised SMEs as being **'responsible for much of the innovation which leads to new higher value products and services… [and that] small firms are the key actors in innovation'.**[2]

Innovation, as a concept and practice, has roots in both knowledge economies and processes of knowledge transfer. The relationship between these concepts is fundamental to the approach towards economic development taken at a European, national and regional level. Thus, a brief description of how these concepts are defined and how they relate is provided here.

Although definitions of a 'knowledge economy' vary widely, two definitions, produced by the UK Department for Trade and Industry (DTI) and the UK Economic and Social Research Council (ESRC), provide a well rounded term of reference (The Work Foundation, 2008). The DTI define a knowledge economy as:

> ***'One in which the generation and exploitation of knowledge has come to play the predominant part in the creation of wealth. It is not simply about pushing back the frontiers of knowledge; it is also about the most effective use and exploitation of all types of knowledge in all manner of economic activity' (DTI, 1998 – see The Work Foundation, 2008).***

In a similar vein, the ESRC define a knowledge economy as one in which…

> ***'Economic success is increasingly based upon the effective utilisation of intangible assets such as knowledge, skills and innovative potential as the key resource for competitive advantage. The term "knowledge economy" is used to describe this emerging economic structure' (ESRC, 2005 – see The Work Foundation, 2008).***

[1] For more information please see: http://ec.europa.eu/enterprise/entrepreneurship/facts_figures.htm
[2] For more information please see: http://ec.europa.eu/enterprise/sme/innovation_en.htm#

Within the context of global competitiveness, knowledge economies are dependent upon the production and management of large volumes of information and intelligence (knowledge), not least the transfer of knowledge between academia, research organisations and the business and/or wider community.

The EC's Expert Group on Knowledge Transfer Metrics (EGKTM) set out a clear definition of knowledge transfer in 2009. EGKTM firstly identified three types of knowledge subject to knowledge transfer, including:

- Codified knowledge: for example, scientific literature or patents;
- Knowledge that has been internalised by people: for example, graduates leaving their respective HEI to work in an enterprise; and,
- Knowledge that is embedded in artefacts: for example, machinery and software (often referred to as technology).

The EGKTM go on to specify the channels through which knowledge types are transferred between PROs and other 'actors' involved with economic development. Nine channels were identified, although not an exhaustive list, which were derived from the research of Holi et.al. (2008) (see Muller, 2009):

- Networks;
- Continuing Professional Development;
- Consultancy;
- Collaborative Research;
- Contract Research;
- Licensing;
- Spin-outs;
- Teaching; and,
- Other Measures.

More importantly, the EGKTM recognised that the process of exchange of knowledge types through these various channels falls in line with modern perceptions of innovation:

> ***'Knowledge can be produced, mediated, reproduced, acquired, and transformed in and between the different forms through these channels. This understanding is in line with modern views of innovation as mostly interactive learning processes – where learning includes the generation of new knowledge as well as the integration of knowledge from external sources' (EC EGKTM, 2009 p. 5).***

Therefore, innovation is an intrinsic aspect of a knowledge based economy, and in this respect the term has received numerous definitions. For the purposes of the PROTTEC project, the EC definition has been used. The EC's Green Paper on Innovation (1995) defined innovation as:

> ***'The renewal and enlargement of the range of products and services [on offer] and their associated markets; the establishment of new methods of production, supply and distribution; the introduction of changes in management, work organisation, and the working conditions and skills of the workforce.'***

More recently, the European Commission broadened the definition of innovation:

> ***'An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relation. The minimum requirement for an innovation is that the product, process, marketing method or organisational method must be new (or significantly improved) to the firm' (European Commission, 2009a).***

Implicit within these definitions, innovation refers to both the process of knowledge transfer and the end result (product). Innovation as a process focuses on the stages involved in the knowledge transfer process, including creativity, marketing, research and development, design, production and distribution. With regards to the results of innovation, the emphasis is on the new product or service within the context of increasing customer demand for new innovative products (European

Commision, 1995). Both innovation process and product is closely related to technological product innovation; however the EC also recognises two types of innovation, marketing innovation and organisational innovations (European Commission, 2005a).

In light of the close relationship between these conceptual definitions and the increasing importance of innovation strategies in the current global economy the Innovating Regions in Europe (IRE) working group, which has a specific remit to "strengthen the global competitiveness of European regions by promoting innovation policies…" have identified a number of important criteria that need to be addressed by innovation strategies, these include:

- Mechanisms for better coordination of the innovation system;
- Monitoring and assessment of the innovation system;
- Strengthening of triple-helix relations;
- Promotion of R&D activities;
- Technology/knowledge transfer actions;
- Development of clusters, supply chains and company networks;
- Supply of economic intelligence/technology watch services;
- Internationalisation and foreign investment (particularly knowledge intensive, Technology-based ventures);
- Support to high-tech, high-growth entrepreneurship;
- Promotion of an innovation culture and entrepreneurial mindset;
- Provision of innovation financing;
- Boosting innovation in the public sector;
- Promoting innovation in SMEs;
- New legislation favouring innovation;
- Provision of enhanced innovation support services and infrastructure;
- Marketing the regional innovation profile; and,

- Workforce skills development (IRE Working Group, 2008).

Identifying approaches to innovation and the role of innovation in regional economic strategies plays a key role in PROTTEC Work Package One. These aspects are explored in more detail in the following sections.

2.4 Measuring Innovation

The collection of innovation data allows for a better understanding of innovation and its relationship with economic growth and enables countries to benchmark their national performance against other nations. A number of indicators are used to measure innovation; of particular importance to the PROTTEC project are the OECD Main Science and Technology Indicators (MSTI); the Global Innovation Scoreboard (GIS); the European Innovation Scoreboard (EIS); and, the Regional Innovation Scoreboard (RIS). Each of these are summarised below.

2.4.1 The OECD Main Science and Technology Indicators (MSTI)

The OECD Main Science and Technology Indicators provide a set of indicators that reflect efforts undertaken by the thirty OECD member countries, and eight selected non-member economies, in the field of Science and Technology. The MSTIs have been collated since 1981, with data being most recently available for 2007. There are, in total, 149 indicators which fall within the following categories:

- Gross domestic expenditure on R&D (GERD);
- R&D Personnel (FTE);
- GERD by source of funds;
- GERD by performance sectors;
- Researchers (Headcount);
- Business Enterprise Expenditure on R&D (BERD);
- Business Enterprise R&D Personnel (FTE);
- BERD by source of funds;
- BERD by performance sectors;

- Higher Education Expenditure on R&D (HERD);
- Higher Education R&D Personnel (FTE);
- Government Expenditure on R&D;
- Government R&D Personnel (FTE);
- Government Budget Appropriations or Outlays for R&D by socio-economic objectives (GBAORD);
- R&D Expenditure of Foreign Affiliates;
- Patents;
- Technology Balance of Payments (TBP); and,
- International trade in highly R&D-intensive industries.

2.4.2 The Global Innovation Scoreboard

The Global Innovation Scoreboard (GIS) compares the innovation performance of R&D spending countries worldwide, including; Argentina, Australia, Brazil, Canada, China, Hong Kong, India, Israel, Japan, New Zealand, Republic of Korea, Mexico, Russian Federation, Singapore, South Africa and the United States. The GIS also compares these countries to the EU27 member states (European Commision, 2009d).

The GIS (2008) includes nine indicators of innovation and technological capabilities, which are grouped within three main 'pillars'. These pillars and indicators are shown in Table One below:

Table One: Pillars and Associated Indicators Employed Within the GIS 2008

Pillar	Indicator
Firm Activities and Outputs	• Triadic patents per population (3 yr average) • Business R&D (BERD) as a % of GDP
Human Resources	• S&T tertiary enrolment ratio • Labour force with tertiary education (% of total labour force) • Scientific articles per population
Infrastructures and Absorptive Capacity	• ICT expenditures per capita • Broadband penetration per population • Public R&D (HERD + GERD) as a % of GDP

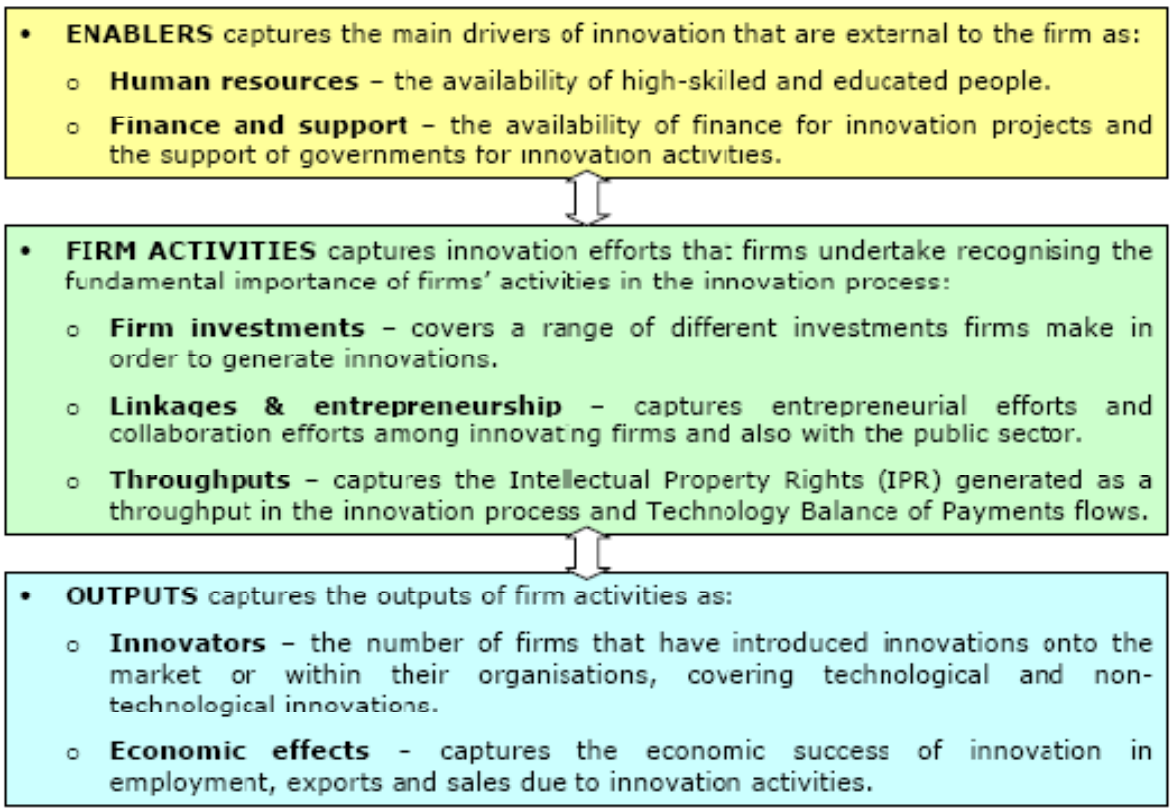
Source: (European Commision, 2009d)

For each of the three pillars a “Dimension Composite Innovation Index” is calculated (a simple average of the indicators). The GIS Index is composed of the three Dimension Composite Innovation Indexes. The Firm Activities and Outputs account for 40% of the total, because the purpose of the GIS Index is to emphasise the innovation activities occurring within the business sector, with the Human Resources and Infrastructure and Absorptive Capacity each accounting for the remaining 30%.

2.4.3 The European Innovation Scoreboard

The European Innovation Scoreboard (EIS) is a tool developed at the initiative of the EC, developed under the Lisbon Strategy (discussed in Section 2.6), which provides a comparative assessment of the innovation performance of EU member states (analysis also includes: Croatia, Turkey, Iceland, Norway and Switzerland). The EIS 2008 is the eighth edition of the scoreboard, in which methodologies have been revised slightly and the number of dimensions increased to seven (grouped into three main blocks: enablers, firm activities and outputs) to allow for a stronger focus on services, non-technological aspects and outputs of innovation (European Commission, 2009c). The blocks and dimensions are shown in Figure One below:

Figure One: The Blocks and Dimension of Innovation Performance Captured Within EIS 2008



Source: (European Commission, 2009c)

The EIS utilises the most recent statistical data available from Eurostat[3], along with other internally recognised sources such as Thomson Reuters, World Bank and The International Monetary Fund (EC, 2009b). Table Two below shows the individual EIS indicators and their respective data sources:

[3] For more information see: http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/ Accessed June 2009.

Table Two: Indicators and Data Sources for the EIS 2008

	EIS Dimension / Indicator	Data Source Reference year)[2]
ENABLERS		
	Human Resources	
1.1.1	S&E and SSH graduates per 1000 population aged 20-29 (first stage of tertiary education)	Eurostat (2006)
1.1.2	S&E and SSH doctorate graduates per 1000 population aged 25-34 (second stage of tertiary education)	Eurostat (2006)
1.1.3	Population with tertiary education per 100 population aged 25-64	Eurostat (2007)
1.1.4	Participation in life-long learning per 100 population aged 25-64	Eurostat (2007)
1.1.5	Youth education attainment level	Eurostat (2007)
	Finance and Support	
1.2.1	Public R&D expenditures (% of GDP)	Eurostat (2007)
1.2.2	Venture capital (% of GDP)	EVCA / Eurostat (2007)
1.2.3	Private credit (relative to GDP)	IMF (2007)
1.2.4	Broadband access by firms (% of firms)	Eurostat (2007)
FIRM ACTIVITIES		
	Firm Investments	
2.1.1	Business R&D expenditures (% of GDP)	Eurostat (2007)
2.1.2	IT expenditures (% of GDP)	EITO / Eurostat (2006)
2.1.3	Non-R&D innovation expenditures (% of turnover)	Eurostat (2006)
	Linkages & Entrepreneurship	
2.2.1	SMEs innovation in-house (% of SMEs)	Eurostat (2006)
2.2.2	Innovative SMEs collaborating with others (% of SMEs)	Eurostat (2006)
2.2.3	Firm renewal (SME entries plus exits (% of SMEs)	Eurostat (2005)
2.2.4	Public-private co-publications per million population	Thomson Reuters / CWTS (2006)
	Throughputs	
2.3.1	EPO patents per million population	Eurostat (2005)
2.3.2	Community trademarks per million population	OHIM / Eurostat (2007)
2.3.3	Community designs per million population	OHIM / Eurostat (2007)
2.3.4	Technology Balance of Payments flows (% of GDP)	World Bank (2206)
OUTPUTS		
	Innovators	
3.1.1	SMEs introducing product or process innovations (% of SMEs)	Eurostat (2006)
3.1.2	SMEs introducing marketing or organisational innovations (% of SMEs)	Eurostat (2006)
3.1.3	Resource efficiency innovators, unweighted average of:	
	• Share of innovators where innovation has significantly reduced labour costs (% of firms)	Eurostat (2006)
	• Share of innovators where innovation has significantly reduced the use of materials and energy (% of firms)	Eurostat (2006)
	Economic Effects	
3.2.1	Employment in medium-high & high-tech manufacturing (% of workforce)	Eurostat (2007)
3.2.2	Employment in knowledge-intensive services (% of workforce)	Eurostat (2007)
3.2.3	Medium and high-tech manufacturing exports (% of total exports)	Eurostat (2006)
3.2.4	Knowledge-intensive services exports (% of total services exports)	Eurostat (2006)
3.2.5	New-to-market sales (% of turnover)	Eurostat (2006)
3.2.6	New-to-firm sales (% of turnover)	Eurostat (2006)

Source: (European Commission, 2009c)

2.4.4 The Regional Innovation Scoreboard

At a regional level innovation performance is measured through the Regional Innovation Scoreboard (RIS), which attempts to use the same methodology as the EIS, but with significantly reduced data availability. The RIS was last published in 2006, and is due to be repeated in 2009. The RIS 2006 provides an update for the two previous reports published in 2002 and 2003, using more recent data[4], and including the regions found within new member states[5], but using seven, as opposed to thirteen, indicators. The indicators are:

- Human resources in science and technology;
- Participation in life-long learning;
- Employment in medium-high and high-technology manufacturing;
- Employment in high-technology services;
- Public R&D expenditures;
- Business R&D expenditures; and,
- European patent office applications.

The RIS calculates a Revealed Regional Summary Innovation Index (RRSII), which takes into account a region's relative performance within the EU and their relative performance within the country (Hollanders, 2006).

Both the EIS and RIS use data from the Community Innovation Survey (CIS) which is carried out across EU member states every four years using the same methodology so that comparisons can be drawn. The CIS collects data on the innovative characteristics of firms including measures of innovation-related expenditure and rates of innovation activities.

[4] Mostly data from 2003.
[5] An increase from 173 to 208 regions.

2.5 Innovation in Europe

This section focuses on innovation in Europe, particularly addressing: factors that drive and affect innovation; innovation policy and strategy; innovation funding; and, the EU's innovative performance.

2.5.1 Factors that Drive and Affect Innovation in Europe

The EC recognises that innovation is key to the continuing growth of the EU economy:

> ***'In advanced economies such as the EU, knowledge, meaning R&D, innovation and education, is a key driver of productivity growth. Knowledge is a critical factor with which Europe can ensure competitiveness in a global world where others compete with cheap labour or primary resources' (European Commission, 2005b p. 20).***

However, innovation can be affected by a number of factors. The 2008 Innova Synthesis Report (Reinstaller, et al., 2008) highlighted a number of such factors. These factors can be grouped into four main categories; knowledge creation and knowledge acquisition, human capital, financial resources, and competition.

2.5.1.1 Knowledge Creation and Knowledge Acquisition

The Innova Synthesis Report suggested that firms vary in many ways and this affects the 'innovation process': for example some technologically equipped firms engage in 'in house' research activities to develop new products and are, therefore, less dependent on sourcing external research or development, whereas some firms are heavily dependent on acquiring external knowledge through HEIs. Within many sectors non-R&D activities are important drivers of innovation. Therefore "It shows that innovation… is influenced by a larger number of factors such as entrepreneurship or the knowledge base of an industry and the related technological opportunities" (Reinstaller, et.al. 2008, p.xi).

2.5.1.2 Human Capital

The Innova Report highlighted that recent studies have emphasised the importance of the level and composition of skills within the economy in

relation to innovation and growth. It was also suggested that engineering and science skills in particular contribute directly to international competitiveness and productivity by augmenting labour efficiency and improving firms' capacity to integrate new technologies and concepts.

Advanced and more available skills, for a country not on the technological frontier, improves its capacity to imitate technologies that are produced elsewhere, and are a precondition for sustained innovation performance and growth. On the other hand, more economically advanced countries, advancing upon the technological frontier, have undergone a gradual 'building-up' of capabilities. These factors alone mean that "convergence in innovation performance across EU member states will be slow and gradual" (Reinstaller, et al., 2008 p. xii).

2.5.1.3 Financial Resources

Financing innovative activities will always be difficult, as scarce resources must be reserved for projects showing the highest potential returns. Therefore, the availability of policy related financial support, in order to compensate for a firms' reluctance to invest heavily enough in innovation to maximise social returns, is a key driving force behind innovation.

In situations where either the level of reward falls short of that which is expected by management, or where an innovative project must compete with an alternative, two factors appear to contribute most to underinvestment. Firstly, the existence of unfavourable earnings to costs ratios and, secondly, the reluctance of banks to debt finance innovation activities, in the most part due to an asymmetry of risk between lender and borrower.

Thus, the more a firm engages in innovation, rather than adopting new technologies (via capital purchases), the more they increase their associated risk, making sourcing and obtaining external debt finance more difficult and more expensive. With this in mind, it is unsurprising to find that cutting-edge technology firms are worst affected by this lack of debt finance, as they generally have a much greater risk exposure (Reinstaller, et al., 2008).

2.5.1.4 Competition

The relationship between competition and innovation usually follows an inverted 'U' shape, where competition has a positive effect on innovation up to a certain point, after which, increased competition leads to

decreases in innovation[6]. In general, technologically more advanced firms who compete against less advanced firms have less incentive to innovate as opposed to when they compete against similarly placed firms; a situation that heightens the need to innovate in order to create opportunities for competitive advantage.

In addition, too much or too little competition will also tend to discourage investment in research and development; either the stimulation to innovate is not present, or the likelihood of diminishing returns is greater respectively. Therefore, in situations where a 'U' shape governs the relationship between competition and innovation, policy makers must determine whether the losses from growth, due to lower R&D investment, outweigh the cost savings available to the consumer because of increased competition (Reinstaller, et al., 2008).

2.6 EU Innovation Policy and Strategy

The cornerstone strategy regarding innovation in the EU is the Lisbon Strategy for Growth and Jobs (2000), which set the target for Europe to become the most competitive and dynamic knowledge based economy in the world. In 2005 the Lisbon Strategy was re-launched, singling out innovation and knowledge as key areas upon which action must be orientated (European Commission, 2005b). Three key objectives were highlighted;

1. To ensure that Europe is a more attractive place to invest and work;

2. To maintain knowledge and innovation as the 'beating heart' of European growth; and,

3. To create more and better quality jobs.

In addition the Strategy included the crucial objective set by the 2002 Barcelona European Council of increasing R&D spending in the Union to 3% of GDP by 2010 and increasing the private funding proportion from 55% to two-thirds (Barcelona European Council, 2002).

In line with these objectives, the European Council also endorsed the objective of creating a European Research Area (ERA)[7]. The idea of an

[6] For more information see: Crespi, G., Patel, P., (2008a). Innovation and competition: Sector level evidence. Europe Innova Sectoral Innovation Watch deliverable WP4. European Commission, Brussels.
[7] For more information see: http://cordis.europa.eu/era/concept_en.html Accessed June 2009.

ERA grew out of the realisation that research in Europe suffers from three weaknesses: insufficient funding; lack of an environment to stimulate research and exploit results; and, the fragmented nature of activities and the dispersal of resources. The ERA created a unified area across Europe, which aimed to:

- Enable researchers to move and interact seamlessly, benefit from world-class infrastructures and work with excellent networks of research institutions;
- Share, teach, value and use knowledge effectively for social, business and policy purposes;
- Optimise and open European, national and regional research programmes in order to support the best research throughout Europe and coordinate these programmes to address major challenges together; and,
- Develop strong links with partners around the world so that Europe benefits from the worldwide progress of knowledge, contributes to global development and takes a leading role in international initiatives to solve global issues.

ERAs were aimed at inspiring the best talents to enter research careers in Europe, inciting industry to invest more in European research. They strongly contribute to the creation of sustainable growth and jobs. Despite the implementation and prioritisation of these policies, the EU continued to face a variety of challenges in relation to innovation performance. To overcome this, the report “Creating an Innovative Europe” identified the need to make the business environment more innovation-friendly as a core concern (European Commission, 2006).

Following on from the recommendations in the Creating an Innovative Europe (2006) report, the EC adopted a broad based innovation strategy for Europe to further assist the EU in becoming an innovation-based society. This strategy presented a framework to take innovation forward by promoting all types of innovation, including: technological innovation; organisational innovation; and, innovation in services. It aimed to engage all parties, business, public sector and consumers, to create a virtuous circle where the supply of new ideas and demand for new solutions both push and pull innovation, and encourage the development of innovation-friendly led markets (European Council, 2006a).

Based on the recommendations of the broad based innovation strategy, the Competitiveness Council of December 2006 concluded that the

following nine strategic priorities for innovation action at EU level should be pursued as a matter of priority (European Council, 2006b):

- Create an intellectual property rights (IPR) framework;
- Create a pro-active and standard-setting policy;
- Make public procurement work for innovation;
- Launch Joint Technology Initiatives (JTIs);
- Boost innovation and growth in lead markets;
- Enhance closer cooperation between higher education, research and business through the establishment of the European Institute of Innovation and Technology (EIT);
- Help innovation in regions;
- Develop a policy approach to innovation in services and to non-technical innovation; and,
- Risk capital markets.

Evidence suggests that good progress has been made regarding these strategic priorities: for example both the Joint Technology Initiatives[8] and the European Institute of Innovation and Technology[9] have been launched. Considerable progress has been made in the area of clusters, with the Communication "Towards more world-class clusters in the European Union" being adopted in October 2008 (European Council, 2008).

Building on these developments, the EC planned to conduct an assessment of the broad-based innovation strategy in June 2009, this will provide input into future innovation policy development. The EC aim to present the new European Plan for Innovation towards the end of 2009.

[8] For more information see: http://ec.europa.eu/information_society/tl/research/priv_invest/jti/index_en.htm Accessed June 2009

[9] For more information see: http://eit.europa.eu/about-eit/at-a-glance/eit-mission.html Accessed June 2009.

2.7 European Innovation Programmes and Funds

There are a number of support measures and funding programmes which aim to instigate, support and enhance innovation in Europe. The programmes focused upon in the following sub sections include:

- The 7th Research Framework Programme;
- Competitiveness and Innovation Framework Programme;
- Education and Training: policy cooperation and funding programmes; and,
- Structural Cohesion Funds.

2.7.1 The 7th Research Framework Programme

Beginning in the 1980s, the Framework Programmes (FPs) have been the principal tool with which the Commission has implemented its scientific and technological research policy (Rossi, 2005). Europe is currently on the 7th Framework Program (FP7) which runs between 2007-2013[10]. This programme has been "...designed to support a wide range of participants: from universities, through public authorities to small enterprises and researchers in developing countries".

During 2007 the European Joint Technology Initiative (JTI) was launched as a new element of the EU's 7th Research Framework Programme. The JTIs provide a means of creating new partnerships between publicly and privately-funded organisations that are involved in research; implement large-scale applied and industrial-based research activities; and, focus on areas where research and technological development can contribute to European competitiveness and quality of life. The approach consolidates how Europe has moved towards a profile of industry-driven research strategies that are designed specifically to establish European leadership in specific technologies that are noted to be strategic to Europe's future (Sumpser-Lupson, 2008).

FP7 combines all research-related EU initiatives under one umbrella, and will play a vital role in helping Europe reach the Lisbon Strategy goals of growth, competitiveness and employment. FP7s broad objectives have been grouped into four categories. For each objective there is a specific programme corresponding to the main areas of EU policy. In addition, the non-nuclear research activities of the Joint Research Centre (JRC)

[10] For more information see: http://cordis.europa.eu/fp7/home_en.html Accessed June 2009.

are grouped under a specific programme. These categories and their corresponding aims are listed below: (Anon, 2007b).

- Cooperation: collaboration between industry and academia to gain leadership in key technology areas;
- Ideas: supporting basic research at the scientific frontiers;
- People*:* supporting mobility and career development for researchers both within and outside Europe;
- Capacities*:* helping develop the capacities that Europe needs to be a thriving knowledge-based economy; and,
- Nuclear research (Euratom programme): Improving Europe's nuclear fission and fusion capabilities.

2.7.2 Competitiveness and Innovation Framework Programme

The principal aim of the Competitiveness and Innovation Framework Programme (CIP) is to encourage competitiveness amongst European enterprises (Anon, 2007c). Targeting SMEs mainly, the programme supports innovation activities (including eco-innovation), provides better access to finance and delivers business support services within the EU. At a regional level, the programme encourages better uptake of Information and Communication Technologies (ICT) and promotes the increased use of renewable energies and energy efficiency. With a total budget of €3,621 billion (2007-2013), the CIP is divided into three programmes, which are summarised below:

2.7.2.1 Entrepreneurship and Innovation Programme (EIP)[11]

The EIP aims to stimulate innovation through five key objectives, shown below:

1. To improve access to finance for SMEs via EU financial instruments;
2. To support business and innovation through a network of regional support services;

[11] For more information see: http://ec.europa.eu/cip/eip_en.htm Accessed June 2009.

3. To provide support for entrepreneurial and innovative initiatives, including the championing of trans-national networking and the exchange of best practices;

4. To provide support for eco-innovation with the aim of reducing environmental impacts of business; and,

5. To provide support for policy-making through the organisation of a number of conferences during which sectoral knowledge would be publicised in order to inform policy-makers.

2.7.2.2 Information Communication Technologies Policy Support Programme (ICT PSP)[12]

The ICT PSP aims to stimulate innovation and competitiveness through five objectives, shown below:

1. To develop a single European information space;

2. To strengthening the European internal market for ICT and ICT-based products and services;

3. To encourage the wider adoption of ICT;

4. To develop an 'inclusive information society' along with more efficient and effective services in areas of public interest; and,

5. To improve 'quality of life'.

2.7.2.3 Intelligent Energy Europe (IEE)[13]

With a particular focus on the transport sector, the IEE aims to:

1. Support improvements in energy efficiency;

2. Adopt new renewable energy sources to identify opportunities for improving energy efficiency;

3. Achieve energy and fuel diversification;

[12] For more information see: http://ec.europa.eu/information_society/activities/ict_psp/index_en.htm Accessed June 2009.
[13] For more information see: http://ec.europa.eu/energy/intelligent/index_en.html Accessed June 2009.

4. Reduce energy consumption;

5. Encourage the use and development of new renewable energy sources within Europe; and,

6. Promote energy efficiency and new energy sources in transport.

2.7.3 Education and Training: Policy Cooperation and Programmes[14]

Within the Education and Training 2010 work programmes, launched in 2002 with the aim "...to improve the quality of learning systems and provide greater opportunities for people at all stages of their lives", the EC focused on two key aspects: policy cooperation and funding programmes. These are individually addressed below.

2.7.3.1 Policy Cooperation

To achieve the ambitious goals set out in the Lisbon Strategy, the Education and Training 2010 work programme set out a policy framework which included a number of initiatives to promote life-long learning (including the European Qualification Framework (EQF)) and a number of key policy documents on higher education, education and the training of teachers.

The establishment of the **European Institute of Innovation and Technology (EIT)[15]** as the "...first European initiative to integrate fully the three sides of the "Knowledge Triangle" (education – research – innovation)" should be a key driver of European growth and competitiveness. Their mission is "...to grow and capitalise on the innovation capacity and capability of actors from higher education, research, business and entrepreneurship from the EU and beyond through the creation of highly integrated Knowledge and Innovation Communities (KICs)".

2.7.3.2 Funding Programmes

There are a number of funding programmes that complement the EC's policy related work, affording financial or technical support to

[14] For more information see: http://ec.europa.eu/education/at-a-glance/about141_en.htm Accessed June 2009.
[15] For more information see: http://eit.europa.eu/about-eit/at-a-glance/eit-mission.html Accessed June 2009.

organisations and individuals, thus enabling participation in many projects within and beyond the EU.

The Life-long Learning Programme (2007-2013) has been identified as the 'flagship' European funding programme covering all learning opportunities from childhood to old age. This programme supports projects and activities that foster exchange, co-operation and mobility across the EU, building on initiatives previously grouped under the Socrates, Leonardo da Vinci and eLearning programmes.

Additionally, 'Tempus' (first launched in 1990) helps to modernise higher education in countries surrounding the EU, whilst 'Mundus' (launched in 2004) opens up the EUs education system to students and organisations around the world.

2.7.4 Structural and Cohesion Funds

In 2007, the previous Structural Funds and Community Initiatives (2000-2006) gave way to a new simplified architecture containing just three objectives and three financial instruments[16]:

- **Convergence:** The promotion of growth enhancing conditions and factors leading to real convergence for the least developed member states and regions;
- **Regional competitiveness and employment:** The strengthening of competitiveness and attractiveness, as well as employment; and,
- **European territorial cooperation:** The strengthening of cross-border cooperation through joint local and regional initiatives, trans-national cooperation and inter-regional cooperation and exchange of experiences.

The three financial instruments are the:

- **European Regional Development Fund (ERDF):** This aims to strengthen economic and social cohesion within the EU by attempting to correct interregional imbalances;

[16] Three new objectives incorporate the missions of the previous: Objectives 1, 2 and 3 as well as the previous Community Initiative; Interreg III, Equal and urban II. For more information see; http://ec.europa.eu/regional_policy/sources/docoffic/official/regulation/pdf/2007/publications/guide2007_en.pdf Accessed June 2009.

- **European Social Fund (ESF):** This aims to improve employment and job opportunities in the EU; and,

- **Cohesion Fund:** This is aimed at member states whose Gross National Income per inhabitant is less than 90% of the Community average, with the objective to reduce their economic and social shortfall and stabilise their economy.

Table Three below shows the relationship between each of the above mentioned objectives and financial instruments.

Table Three: Relationship between Objectives and Financial Instruments

Objective	Financial Instrument
Convergence	ERDF, ESF, Cohesion Fund
Regional competitiveness and employment	ERDF, ES
European territorial cooperation	ERDF

Source: SERIO (2009)

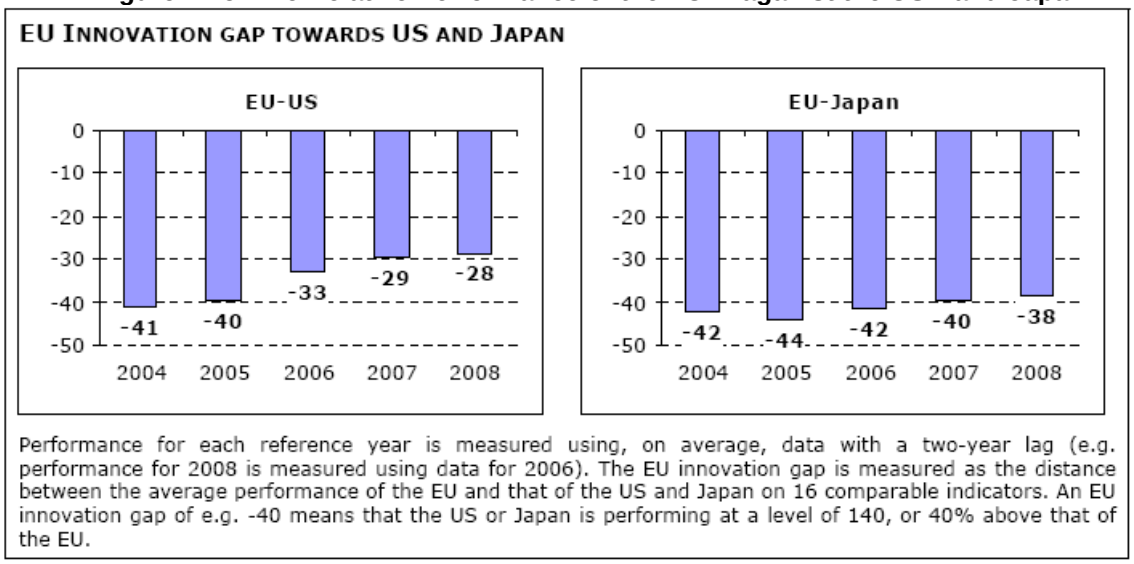
2.8 The EU's Innovation Performance

As already demonstrated, progress has been made in numerous respects regarding innovation in the EU. Policy and strategy development has culminated in the broad based European innovation strategy, whilst a range of funding and support programmes have been introduced with a specific remit to both initiate and also enhance innovation within the European economy.

Nevertheless, evidence suggests that a continued focus and effort is still required to make Europe the most innovative economy in the world. The EIS (2008), discussed in Section 2.4, includes a separate analysis of the EU's 27 member states (EU27) innovation performance in relation to the USA and Japan (European Commission, 2009c).

As shown in Figure Two below, the USA and Japan are performing at levels of 28% and 38% respectively, above the EU (although it should be noted that the 2008 results are taken from 2006 data). More positively, results indicate that there has been a continued improvement of the EU's performance in comparison to the USA, and recent improvements in comparison to Japan.

Figure Two. The Relative Performance of the EU27 against the USA and Japan



Source: (European Commission, 2009c)

When compared to emerging economies, such as China, India and Brazil, the EU27 are performing well. Indeed, several EU countries are among those who have most improved their relative ranking between 1995 and 2005 (EC, 2009c).

According to the GIS (2008) the EU27 is ranked 20th in the overall index, as shown in Table Four below. Although this represents good progress compared to the 1995 index, a positive change of -3 places in the overall ranking which is reflected in the three pillars of measurement, the EU27 still does not fall within the first quartile of the ranking.

Table Four: GIS Ranks and Rank Variations[17] for Each Pillar, 2005

	GIS Index		Firm Activities		Human Resources		Infrastructures and Absorptive Capacity	
Country	**rank 2005**	**rank variation**	**rank 2005**	**rank variation**	**rank 2005**	**rank variation**	**rank 2005**	**rank variation**
Sweden	1	0	4	-3	4	-2	1	1
Switzerland	2	0	2	0	5	-2	3	6
Finland	3	3	5	-1	1	3	2	12
Israel	4	1	3	4	3	-2	11	-7
Japan	5	-1	1	2	13	-3	9	-4
United States	6	-3	8	-2	6	-1	7	-6
Denmark	7	3	10	3	8	1	4	7
Korea, Rep.	8	4	7	5	7	10	14	-4
Canada	9	0	18	0	2	5	8	-1
Germany	10	-2	6	-1	17	-1	17	3
Netherlands	11	-4	9	1	20	-1	6	0
Singapore	12	7	15	6	10	11	10	2
France	13	-2	13	-4	18	-7	12	3
Austria	14	4	12	4	25	1	16	-8
Norway	15	2	20	-3	14	4	5	8
United Kingdom	16	-2	17	-3	12	2	13	9
Belgium	17	-4	14	-3	23	-11	18	3
Australia	18	-3	19	0	9	n/a	19	-3
Luxembourg	19	n/a	11	-3	21	19	n/a	n/a
EU-27	20	-3	16	-1	19	-4	21	-2
Hong Kong	21	n/a	32	2	n/a	n/a	15	-12
New Zealand	22	0	23	6	26	-18	20	3
Ireland	23	1	21	-1	16	7	23	1
Spain	24	6	28	0	15	10	24	4
Slovenia	25	-2	22	0	28	-4	25	-8
Italy	26	2	26	3	32	4	22	3
Czech Republic	27	4	24	0	29	0	28	6
Estonia	28	-2	33	4	27	0	27	-9
Russian Fed.	29	-2	27	-1	11	2	42	-3
Portugal	30	7	35	3	31	8	26	3
Greece	31	4	43	-8	24	8	35	-2
Lithuania	32	-3	41	5	30	-8	29	-3
Hungary	33	1	31	-1	38	-4	30	1
China	34	8	25	7	48	-3	31	9
Croatia	35	n/a	n/a	n/a	36	-5	43	0
Cyprus	36	5	42	2	37	0	33	5
Slovak Republic	37	11	39	12	34	14	39	12
Bulgaria	38	-5	47	-11	33	-3	37	-7
Malta	39	n/a	29	13	47	-1	n/a	n/a
Turkey	40	5	38	3	44	3	34	3
Poland	41	-3	45	-12	39	-1	36	-4
Brazil	42	5	34	11	46	2	32	10

[17] Rank variations are calculated using the scores for those countries for which both 1995 and 2005 data are available. Rank variations are thus not obscured by the entrance of countries in 2005 for which dates were not available for 1995.

Table Four: GIS Ranks and Rank Variations[24] for Each Pillar, 2005 (continued)

	GIS Index		Firm Activities		Human Resources		Infrastructures and Absorptive Capacity	
Country	**rank 2005**	**rank variation**	**rank 2005**	**rank variation**	**rank 2005**	**rank variation**	**rank 2005**	**rank variation**
Mexico	43	-2	40	3	35	0	44	-3
South Africa	44	n/a	30	1	45	-1	n/a	n/a
Argentina	45	-1	46	-7	40	3	41	-6
India	46	1	36	11	42	0	38	7
Latvia	47	-6	37	3	43	-7	40	-4
Romania	48	-12	44	-19	41	-8	45	-1

Source: GIS 2008

With regards to the MSTI, in 2007 the EU27's GERD as a percentage of GDP stood at 1.8%, which is substantially less that the level of Japan (3.4%) and the US (2.7%). The percentage of GERD financed by industry in the EU27 was 55% in 2006, which again is substantially lower than the percentage in Japan (77.1%) and the US (65.2%). The percentage of GERD financed by government is higher in the EU27, at 34.1%, compared to Japan (16.2%) and the US (29.1%).

With regards to performance, the percentage of GERD performed by the higher education sector in the EU27 in 2007 was 21.8%, which is higher compared to Japan (12.6%) and the US (13.3%). However, the percentage of GERD performed by the business enterprise sector was lower in the EU27 (63.4%) compared to Japan (77.9%) and the US (71.9%). The percentage of GERD performed by government in the EU27 was 13.7%, which is higher compared to Japan (11.6%) and the US (10.7%) (OECD, 2007).

2.9 Innovation at the National Level

2.9.1 Introduction

This section of the report is concerned with how innovation is viewed at the national level for France and the UK, in terms of national innovation strategies and delivery. Section 2.6.2 provides an overview of innovation in France by outlining French innovation strategy in Section 2.6.2.1 and how this is delivered both nationally (2.6.2.2) and at a regional level (2.6.2.3). Section 2.6.3 follows the same format regarding innovation in the UK. Section 2.6.4 looks at the innovative performance of both countries, while Section 2.6.5 concludes with a discussion, drawing out the key differences between the innovative performance of France and the UK.

2.9.2 Innovation in France

2.9.2.1 French Innovation Strategy

Innovation policy in France is set within the context of the State's transition from centralisation to decentralisation, which, as highlighted by Muller (2009), has led to the complex innovation governance system which involves European institutions, the French State and several levels of regional/local actors and policy frameworks. In addition to this, the turn of the century has seen a redirection in French innovation policy from a focus on knowledge transfer within large technological companies to a softer knowledge transfer focusing on the exchange of research and results between universities, public scientific and technological research organisations, industrial and commercial research organisations and SMEs (Muller, 2009).

Within this context, the Ministry for Higher Education and Research (which acts under the authority of the Ministry for National Education, Higher Education and Research) and the Ministry Delegate for Industry (which acts under the authority of the Ministry for the Economy, Industry and Employment) share responsibility for research and innovation policy. The ministries have two consultative research councils: the High Council for Science and Technology (Haut Conseil de la Science et de la Technologie - HCST) which provides guidance on research questions and national innovation strategies; and the High Council for Research and Technology (Conseil Superieur de la Recherche et de la Technologie - CSRT) which provides advice on research issues and, following the May 2007 decree, is responsible for the coordination between research actors and society.

The formulation and implementation of policy with regard to research and scientific employment falls within the remit of the Education and Research Ministry, specifically the Directorate General for Research and Innovation (DGRI), which was created in May 2006. The Directorate General for Higher Education is responsible for formulating universities' policy orientations.

The preparation and implementation of policy to enhance competitiveness, stimulate innovation, adapt the regulatory framework and coordinate the Regional Directorates for Industry, Research and Environment (DRIRE), the regional representations of the ministry, falls within the remit of the General Directorate for Competitiveness, Industry and Services (DGCIS), formerly the DGE, within the Industry Ministry (Ministère de l'Économie, de l'industrie et de l'emploi, 2008).

In response to the Innovation Plan (Ministry of Research and the Ministry of Industry), presented by the Ministry in Charge of Research in 2003, the French government prepared the Pact for Research (Ministry of Education, Higher Education and Research, 2005), which included an action programme aiming to adapt the French research system in order to face current and future challenges; namely, to reorganise the public research system; to raise private investment in research; and, to reinforce the links between the public and the private sector (European Commission, 2009b). The pact had six objectives:

- To strengthen organisations' ability to set strategies and define priorities;
- To build a unified, coherent and transparent research evaluation system;
- To encourage cooperation among (public) research actors;
- To offer attractive research careers;
- To increase the innovation-orientated linkages between public and private research actors; and,
- To strengthen the integration of the French research and innovation system into the European Research Area.

Overall, the framework outlines the government's objective to increase private investment in research in order to reach the Barcelona Target of 3% of GDP on R&D by 2010.

The Law for Research, adopted in April 2006 (Ministry of Research, 2006), represents the legislative part of the action plan set by the Pact for Research, which aims to enable France to restore its competitiveness. The Law for Research addresses several issues with a middle-term approach (until 2010) providing the following measures:

- To enforce strategic orientation abilities by the creation of a High Council for Science and Technology;
- To support the reasoning in terms of research projects by the reinforcement of the powers of the existing National Agency for Research (ANR) and OSEO innovation;
- To encourage co-operation between institutions of research and between higher education institutes; and,

- To renew evaluation of research procedures by means of the creation of the Agency for Evaluation of Research and Higher Education as an independent administrative authority.

Many of these objectives have been met, for example the High Council for Science and Technology has been successfully established and ANR and OSEO innovation have been given a larger role in the implementation and support of research and innovation processes. In addition, the way research funds are allocated has changed. Traditionally public research has been funded through contract mechanisms between the government and the research institutions, such as universities and PROs, however, through the ANR funds are also distributed on the basis of grant proposals, thus enhancing competition in the research system.

The Agency for the Evaluation of Research and Higher Education[18] (*Agence d'évaluation de la recherche et de l'enseignement supérieur-AERES*) has been established to ensure joined up, transparent, independent evaluation. Its task consists of assessing research institutions and research activities performed by research units, evaluating curricula and diplomas of higher education institutions, and validating the procedures of appraisal used for staff in research institutions.

In addition, French innovation policy has become more 'bottom-up' in recent years, and links between the different players in the research and innovation system have been strengthened, especially between public and private research, to help boost innovation and competitiveness. Examples of this include:

- **Competitive Clusters**[19]**.** These were introduced in 2005 in order to increase public/private partnerships and to promote and develop key elements of France's industrial competitiveness. A Competitive Cluster is defined as a geographical concentration of businesses, training centres and public- and private-sector research units working in partnership on innovative projects. To date, there are 71 competitive clusters in France covering 16 economic sectors. In 2009 the government allocated €1,5bn for the second phase of the Competitiveness Clusters policy (2009-2011).

[18] For more information see: http://www.aeres-evaluation.fr/ Accessed June 2009.
[19] For more information see: http://www.competitivite.gouv.fr/spip.php?rubrique6&lang=en Accessed July 2009.

- The **Carnot Award**[20]**.** This is a four year renewable award for public research institutes (labelled Carnot Institutes) who support partnerships with socio-economic actors. These institutes receive money from the ANR, based on the volume of partnership research undertaken. There are 33 Carnot institutions across France, organised into seven key themes including: ICT – micro and nano technologies; earth sciences and natural resources; and, soft sciences.

Two new regionally based mechanisms were introduced in May 2006 in order to concentrate public research resources, support collaborative projects between research actors, increase research excellence and counteract the fragmentation of university research activities:

- The **Research and Higher Education Clusters** (*Pôles de recherche et d'enseignement supérieur*[21] *- PRES*). PRES is the principal instrument for grouping universities in a district, department or region. It involves forming large university sites, which manage research, education, and valorisation activities. Fifteen PRES exist to date, while others are being developed.

- The **Thematic Advanced Research Networks** (*Réseaux thématiques de recherche avancée - RTRA*). The RTRA consist of research units located closely to each other, thus gathering a critical mass of high-level researchers. Thirteen RTRA projects have been selected to date, each focusing on a specific thematic field. Some RTRA will have links to Competitiveness Clusters by working on a related theme. Thus, the two instruments will complement each other, with the RTRA creating a scientific pole of excellence and the competitiveness cluster fostering partnerships with industry.

Among the many policies targeted at higher education are various initiatives to make scientific careers more attractive to graduates. For example, by upgrading and improving the doctorate, by facilitating the entry of doctors into research careers and by diversifying the career options of researchers and teacher-researchers. The objective is to increase value, wages and living conditions of young lecturers. It is also anticipated that from September 2009 a PhD or equivalent doctoral degree will be considered as the equivalent of two years professional experience. The Law on University Reform, introduced in 2007, aims to

[20] For more information see: http://www.instituts-carnot.eu/en Accessed July 2009.
[21] For more information see: http://www.enseignementsup-recherche.gouv.fr/cid20724/les-poles-recherche-enseignement-superieur.html Accessed July 2009.

change universities governance to give them greater responsibility in human resource management and ease access to private funding, in order to increase the international competitiveness of French universities.

More recently, in 2009 France launched a programme of work to establish a national strategy for research and innovation that will bring together the overall challenges and priorities for research and innovation and ground future budgetary decisions for the first time. The strategy will provide an overview of the research and innovation challenges facing the country, establish priorities and align the actions of all the players as well as optimising the allocation of public funding. The aim is to update the strategy every four years.

2.9.2.2 Delivery – National Level in France

Innovation policy design and implementation (for the larger part) falls within the responsibility of the Ministry of Industry and Ministry of Higher Education and Research. However, the responsibilities for the implementation of aspects of the policies are increasingly falling upon the national agencies, such as the National Research Agency (*L'Agence nationale de la recherche - ANR*) and OSEO innovation.

From 2005, in order to separate the steering of research and innovation policy from its implementation and effective support, national agencies were given a larger place in the French system. The two main innovation and research agencies are the National Research Agency, created in 2005, and OSEO innovation, the SME agency. In addition, the Regional Councils have gained more powers over the years.

The ANR is supervised by the Ministry Delegate of Higher Education and Research, with other Ministries being represented on the executive board. The ANR distributes research funds based on grant proposals, thus enhancing competition in the research system, and funds small and medium-sized projects according to research priorities identified by the government, supporting public as well as private research. Besides enhancing knowledge production, it also promotes partnerships between public and private companies. The ANR calls for projects that are organised around seven themes:

- Biology and health;
- Ecosystems and sustainable development;
- Sustainable energy and environment;

- Materials and information;
- Human and social sciences;
- Non-thematic or transversal programmes; and,
- Partnerships and competitiveness.

OSEO innovation was established in 2005 to provide R&D and innovation support to SMEs. OSEO innovation was formed as a result of the merging between the National Agency for Innovation (*Agence Nationale de Valorisation de la Recherche - ANVAR*), the Bank for Development of SMEs (*Banque de développement des PME*) and the agency for SMEs (*Agence des PME*). In 2008, the activities of the Agency for Industrial Innovation (*Agence de l'Innovation Industrielle - AII*), which supported large programmes led by large firms, were also merged with OSEO innovation. OSEO innovation covers three areas of activity:

- **Innovation support and funding**: for technology transfer and innovative technology-based projects with real marketing prospects;
- **Funding investments** and operating cycle alongside the banks; and,
- **Guaranteeing funding** granted by banks and equity capital investors.

OSEO innovation reports to both the Ministry for Economy, Finance and Industry, and the Ministry for Higher Education and Research.

In addition to the work of national agencies, research activities are carried out by higher education institutions, PROs, and private companies, all of which have a national presence. These activities are independently evaluated by the AERES and outlined in more detail below.

Higher Education Institutions are the most important research performers in terms of funds. There are two types of HEIs in France: universities, which offer three national diplomas including the licence, master and doctorate[22]; and specialised schools which offer professional training

[22] Please note that these are equivalent, respectively, to the UK Bachelor degree, Masters degree and PhD.

(this includes the *grand ecoles* which prepare students for managerial careers in engineering, administration and management and in the arts and human sciences) (Muller, 2009).

PROs are also important research performers. Public research institutes in France are divided into two categories. These are shown below with examples of the public research organisation which fall within their remit:

- Public institutes for science and technology (*Etablissements publics à caractère scientifique et technologique - EPST*):
  - CNRS (National Centre for Scientific Research);
  - INRA (National Institute for Agricultural Research);
  - INRIA (National Institute for Research in Computer Science and Control); and,
  - INSERM (National Institute for Health and Medical Research).
- Public institutes with a more industrial and commercial character (*Etablissements publics à caractère industriel et commercial - EPIC*):
  - CEA (The French Atomic Energy Commission); and,
  - OSEO.

Each public research institute agrees objectives with the Ministry of Research and Higher Education via four-yearly performance contracts. Most EPST research is performed in 'mixed research units' (*Unités Mixtes de Recherche – UMR*) shared with higher education institutions, or, in a minority of cases, with industry.

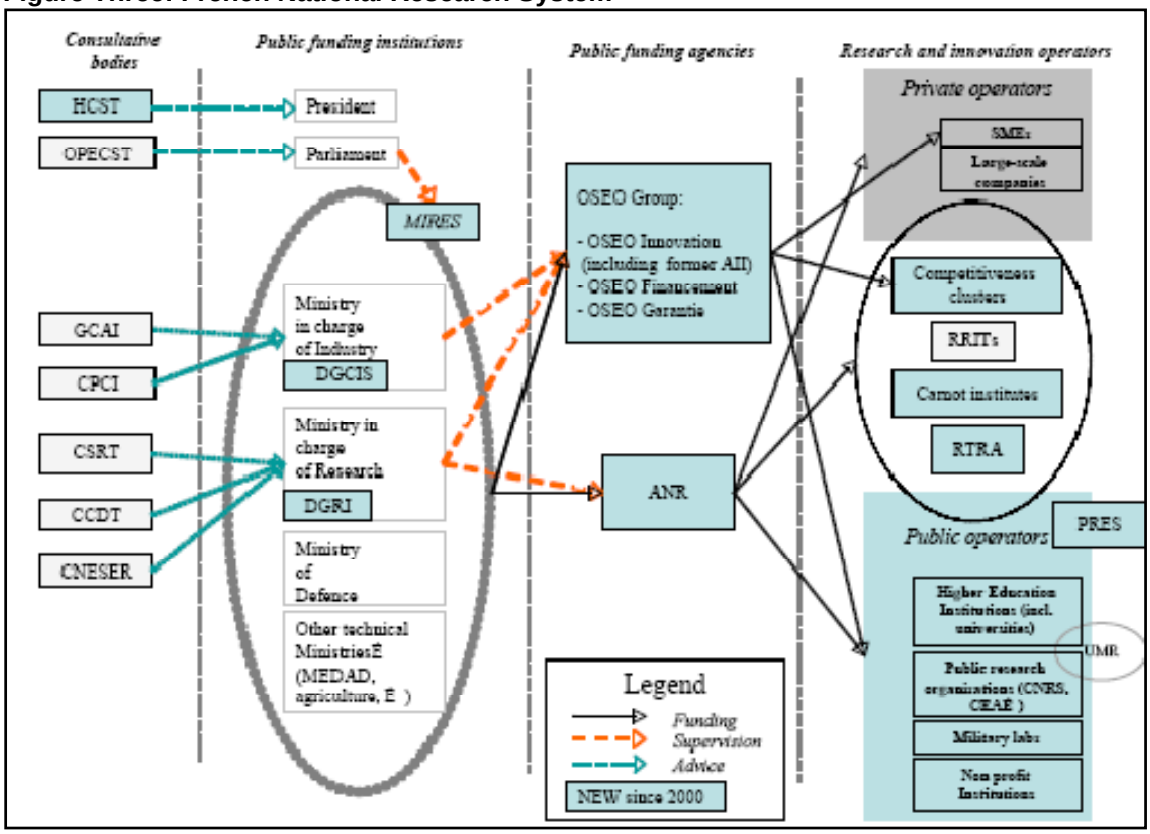
The French government also provides support to the private sector to help companies invest in R&D and innovation. This includes the research tax credit scheme (*Le Credit d'impot Recherche - CIR*[23]), whereby companies can benefit from a tax reduction for a large range of research-related spending, and the "Young Innovative Company" (*Le statut de la jeune entreprise innovante – JEI*[24]), whose status provides significant

[23] For more information see: http://www.enseignementsup-recherche.gouv.fr/cid20358/le-credit-d-impot-recherche-cir.html Accessed July 2009.
[24] For more information see: http://www.enseignementsup-recherche.gouv.fr/cid5738/le-statut-de-la-jeune-entreprise-innovante-jei.html Accessed July 2009.

support to young companies active in R&D, helping them through the difficult early years of development.

Figure Three provides an overview of the key players in the French national research system.

Figure Three: French National Research System



Source: ERAWATCH Research Inventory, Technopolis France (European Commission, 2009b)

2.9.2.3 Delivery – Regional Level in France

French regions have been increasingly involved with research, science and technology since the first Decentralisation Act in 1982, when new collective bodies were created - regions. France is divided into 26 administrative regions, of which 21 are considered mainland France, plus the island of Corsica, and four further overseas territories. The mainland regions are shown in Figure Four.

Figure Four: Regions of France

Source: (Go Europe, 2009)

Although regions do not have legislative power they act as regional authorities, thus responsible for regional administration. The State is represented in the regions by the *Prefet.* Regions are administered by Regional Councils (*Conseils Régionaux*) who are responsible for vocational education, professional and continuous learning, economic development, employment, health, tourism and regional transport. In practice, regions do not act alone on these issues as they are supported by the central state, the European Union and other authorities (departments, cities or legally organised groups of cities).

At the regional level, policy design and planning in matters of research are developed mostly within Regional Councils, with the key objective of economic development. This is achieved through the development of a Regional Economic Development Strategy (*Stratégie Régionale de Développement Economique – SRDE*). All regional and local governments have their own budgets and the autonomy to decide the amount they spend on R&D support. In addition, PROs develop regional-based research programmes.

More recently, the EC has required that all the regions of France develop a Regional Innovation Strategy *(Strategie Regionale Innovation - SRI)* to determine the use of ERDF funds over the period 2007-2013, some of which is managed by the Regional Council under the authority of the State management.

The relationships between the regional authorities and central government are formalised through the signing of a seven year regional research contract (CPER), within which research represents an explicit aspect. The CPER defines the financial aid provided by central government in accordance with regional objectives. Currently, the generation of contracts has been coordinated with the European Structural Funds programmes, having the same time schedule (2007–2013).

At the regional level the state is represented by:

- The **Secretariat General for Regional Affairs** (*Secrétariat Général pour les Affaires Régionales - SGAR*) which negotiates the CPER with the Regional Council and co-ordinates the regional aid of the Structural Funds, together with the Regional Council;

- The **Regional Delegation for Research and Technology** (*Délégation Régionale de la Recherche et de Technologie - DRRT*) which implements the policy of the Ministry in Charge of Research at a regional level. The DRRT also informs regional partners of national policy programmes and measures, coordinates activities undertaken by public organisations in the region, develops and organises technology transfer activities, and tries to bring together research and business in the region; and,

- The **Regional Division for Industry, Research and Environment** (*la Division Régionale de l'Industrie, la Recherche et de l'Environnement - DRIRE*) which implements the policy of the Ministry in Charge of Industry at a regional level. There are 24 DRIRE, each with the key objective of promoting industrial development. The DRIRE network works to strengthen the competitiveness of French businesses and provide support for the development of SMEs by encouraging technological development.

There are a number of national research programmes with a regional focus. These programmes are often strongly funded and supported by

local governments and, above all, by Regional Councils. The most recent include:

- The **Competitiveness Clusters**, which aim at reinforcing relationships between research and innovation actors from both the public and the private sides (see Section 2.9.2.1); their logic is to create regional poles of excellence in accordance with regional strengths and international visibility. Most of them are inter-regional. The DRIREs play a major role in the implementation of the competitive cluster policy and actively take part in cluster development; and,

- The **Research on Higher Education Clusters (PRES)** and the **Thematic Advanced Research Networks (RTRA),** which aim to put together research and higher education actors (see Section 2.9.2.1).

The Regional Innovation and Technology Transfer Centres (Centres Regionaux d'Innovation et de Transfert de Technologie - CRITT) act as an interface structure between public research organisations and regional firms. There are two types of CRITT: *prestataire*, which focus on SMEs and technology, and *interface's*, which offer specific advice and guidance to raise awareness amongst firms regarding innovation and knowledge transfer (Muller, 2009).

In addition OSEO innovation has a strong presence at the regional level, making its skills and networks available and acting in accordance with regional economic development priorities.

2.9.3 Innovation in the UK

2.9.3.1 UK Innovation Strategy

The ERAWATCH Research Inventory Report for the UK (European Commission, 2009a) provides an overview of the development of the UK's innovation strategy. The UK government has consistently used one definition of innovation "the successful exploitation of new ideas" (DIUS, 2008a p. 12) and, although short, this does show a degree of consistency with the European definition discussed earlier (see Section 2.3). The DIUS report highlights the UK government's view that a strong and thriving science and technology base is a vital component of the national innovation system. The government accepts that the UK economy must increase its investment in its knowledge base, and translate this knowledge more effectively into business and public service

innovation in order to generate growth through productivity and employment. R&D capacity in the public and private sectors forms the core of the knowledge base, enabling it to create, absorb and deploy new ideas rapidly. As a result, Science & Technology policy has evolved into an innovation policy wherein S&T concerns are fully integrated into the broader national system of innovation. The report underlines that a great deal of the UK top level innovation policy is ultimately aimed at increasing either the intensity of research or its effectiveness for the economy (DIUS, 2008a).

This approach is also made explicit in the Science and Innovation Investment Framework 2004-14 (SIIF) (HM Treasury, 2004), launched by the UK government in July 2004. Overall, the framework outlines the government's long-term objective for the UK economy to increase the level of knowledge intensity (expressed as R&D as a percentage of GDP) from its current level of around 1.9% to 2.5% by around 2014, which, incidentally, is still below the EU's Barcelona target of 3% of GDP on R&D by 2010.

During July 2005 the government published its first Annual Report on the ten-year SIFF (HM Treasury, 2005) which detailed overall improvements and, although it showed that considerable progress had been made in implementing the ten-year framework, it highlighted that significant challenges still remained. These included raising business investment in R&D and increasing the supply of science, technology, engineering and mathematics (STEM) skills in the workforce. This document was followed by a "next steps" report (HM Treasury, 2006) which detailed further progress made and a set of revised actions. The former Office of Science and Technology published a full set of indicators and policy measures in the ten-year framework, together with a brief summary of progress against each one. In the SIIF the government stated that it would take a long-term view and place science and technology above other spending priorities. The following broad ambitions were identified:

- World class research at the UK's strongest centres of excellence;
- Greater responsiveness of the publicly-funded research base to the needs of the economy and public services;
- Increased business investment in R&D, and increased business interaction with the UK science base for ideas and talent;
- Ensuring a strong supply of well qualified scientists, engineers and technologists;

- Sustainable and financially robust public research base of universities and public laboratories across the UK;
- Ensuring sustainability in research funding accompanied by demonstration by universities and public laboratories of robust financial management to achieve sustainable levels of research activity and investment; and,
- To increase UK society's confidence and awareness in scientific research and its innovative applications.

In the latest SIIF Annual Report (HM Treasury, 2007), the government reiterated these goals and provided additional updated details on progress towards meeting them. For example, the report highlighted the continued positive trend in knowledge transfer and commercialisation activities from the science base, a rise in the number of applicants to study STEM subjects, and the growth in business investment in R&D, though it acknowledged that more rapid growth was needed to meet the long-term ambitions of the SIIF.

The most recent major government statement on research and innovation in the UK is contained within the White Paper *'Innovation Nation'* (DIUS, 2008a) which was published in parallel with the Enterprise: Unlocking the UK's Talent (BERR, 2008) report. The aim of the strategy is to "build an Innovation Nation in which innovation thrives at all levels – individuals, communities and regions". The paper builds on recommendations from the *Sainsbury Review of Science and Innovation* (Sainsbury, 2007) which highlighted the importance of government policies and spending in driving up the demand for innovation and addressed, under five topic areas, the government's role and activities in the encouragement of innovation:

- Supporting Business Innovation;
- International Innovation;
- Innovative People;
- Innovation in Public Service; and,
- Innovative Places.

In December 2008, the government published its first Annual Report on Innovation Nation (DIUS, 2008b) detailing progress made and future

challenges. Some of the perceived main achievements so far included driving innovation through procurement and refocusing of the Small Business Research Initiative (SBRI) to enable small and medium high tech businesses to access government contracts, therefore being able to supply potentially innovative solutions to the challenges government departments are facing. The Regional Development Agencies (RDAs) have been piloting the innovation Voucher Scheme, alongside the development of a common evaluation framework. A number of 'No nonsense guides' to finance have been published offering businesses clear, jargon-free advice about finance. An Innovation Research Centre has been launched, co-located at two HEIs (Cambridge University and Imperial College) and jointly funded by four partners, which will focus on how innovation can make UK businesses more competitive and help to improve the delivery of public services. In addition the National Endowment for Science, Technology and the Arts (NESTA) have started work to develop an Innovation Index, which will include regional and sub-regional innovation measures, and plan to publish a pilot index in 2009, with a fuller system being in place by 2010.

2.9.3.2 Delivery – National Level in the UK

The key elements of the UK national system of innovation are: the government (responsible for policy setting, implementation and funding); the Science and Engineering Base, in the main consisting of the Higher Education sector but also including the remaining (i.e. non-privatised) government laboratories and the research council institutes, which undertake the majority of basic and strategic research in the UK; and, the Business Enterprise sector, which funds and undertakes the largest share of UK R&D (European Commission, 2009a).

The key player at the operational level is the recently formed Department for Business, Innovation and Skills (BIS). BIS is the department with responsibility for enterprise, business relations, regional development and fair markets, along with responsibility for science and innovation, further and higher education and skills, and supporting evidence-based policy making across government. BIS was formed in June 2009 as a result of the merging of the Department for Innovation, Universities and Skills (DIUS) and the Department for Business, Enterprise & Regulatory Reform (BERR). The merger created a single department dedicated to developing Britain's future economic strengths. BIS is home to the Government Office for Science, headed by the government's Chief Scientific Advisor (CSA), and plays a key role in improving the quality of science in the UK. The CSA also chairs the Council for Science and Technology, which advises the Prime Minister on science and technology policy issues.

The key responsibilities of BIS are;[25]

- To promote an enterprise environment that is good for business and good for consumers;
- To design tailored policies for sectors of the UK economy that represent key future strengths and where government policy can add to the dynamics of the market;
- To invest in the development of a higher education system committed to widening participation, equipping people with the skills and knowledge to compete in a global economy and securing and enhancing Britain's existing world class research base;
- To continue to invest in the UK's world class science base and develop strategies for commercialising more of that science;
- To encourage innovation in the UK;
- To defend a sound regulatory environment that encourages enterprise and skills;
- To collaborate with the Regional Development Agencies (RDAs) in building economic growth in the English regions;
- To work with the EU in shaping European regulation and European policies that affect the openness of the single market and the competitiveness of European and British companies; and,
- To continue work to expand UK exports and encourage inward investment to the UK.

BIS works with a range of other organisations that promote UK innovation including the 'new' Technology Strategy Board (TSB), UK Intellectual Property Office (UK-IPO), National Endowment for Science, Technology and the Arts (NESTA) and the Research Councils.

The TSB[26], originally established in 2004, was re-focused in 2007 to manage the government's programme of support for business innovation, along with promoting business participation in European innovation

[25] For more information see: http://www.bis.gov.uk/bis-announcement Accessed June 2009.
[26] For more information see: http://www.innovateuk.org/ Accessed June 2009.

programmes. TSB funds innovation through Collaborative R&D Programmes, Knowledge Transfer Partnerships, Knowledge Transfer Networks, the Small Business Research Initiative, Mico Nanotechnology Centres and International Programmes. The TSB is sponsored and funded by BIS and its activities are jointly supported by other government departments, the Devolved Administrations, RDAs and Research Councils.

NESTA[27] has a mission to make the UK more innovative by working across all stages of the innovation process including: learning about how innovation works, funding new ventures, building and delivering innovation programmes and disseminating what has been learned nationally and internationally.

The UK's academic research base is supported by a system of funding that provides funds to institutions in two streams; one as part of their core grants, provided by the Funding Councils; and the other commonly in the form of project grants, provided by Research Councils.

Research Councils[28] are funded through the government's Science Budget, which is administered through BIS. The Research Councils award the main grants in science and research within the framework aimed at advancing knowledge and the generation of new ideas which can be used to create wealth and drive improvements in the quality of life. The seven Research Councils fund research and training activities in seven different areas of research ranging across the arts and humanities, engineering and physical sciences and the medical and natural environment. They have a number of common objectives including:

- To fund basic, strategic and applied research;
- To support postgraduate training (PhDs and masters students and fellows);
- To advance knowledge and technology and provide services and trained scientists and engineers to contribute to the economic competitiveness, the effectiveness of public services and policy, and quality of life; and,
- To support science in society activities.

[27] For more information see: http://www.nesta.org.uk/ Accessed June 2009.
[28] For more information see: http://www.rcuk.ac.uk/default.htm Accessed June 2009.

In addition, the UK's Higher Education Funding Councils (the Department for Employment and Learning in Northern Ireland)[29], which are supported by BIS, provide funding to support the research infrastructure enabling universities and colleges in England, Wales and Scotland to undertake ground breaking research. Within England this includes the Higher Education Innovation Fund (HEIF) which is designed to support and develop a broad range of knowledge exchange activities and is the core mechanism for supporting knowledge transfer within the English Higher Education sector. Table Five below, shows the planned allocation of HEIF funding to activities covering the period 2008/09-2010/11. As can be seen, the majority of funds are allocated to activities concerned with dedicated knowledge exchange staff. Relatively small amounts of funding have been allocated to activities concerned with investment in spin-outs and proof of concept and seed funding.

[29] For more information see: http://www.dius.gov.uk/higher_education/funding_councils Accessed June 2009

Table Five: Planned Allocation of HEIF Funding to Activities 2008/09-2010/11

Activity overview	All HEIs	Share of total (%)
Dedicated KE staff	207.4	52.3
Support for staff engagement	59.3	14.9
Seed/PoC funds	21.6	5.4
PR/marketing	17.2	4.3
Collaboration/partnerships/networks	10.9	2.7
CPD, enterprise education, student enterprise and employer engagement	10.5	2.6
Training/staff development	10.0	2.5
Engagement support services and other internal/external KE Support	8.1	2.1
KE units, institutes and research centres	7.9	2.0
Development funds	6.5	1.6
General KE support costs	6.4	1.6
KE initiatives and projects	4.9	1.2
Investment in spin-outs	4.1	1.0
Incubation	2.0	0.5
Community outreach	1.2	0.3
Other KE staff	1.2	0.3
Consultancy	0.7	0.2
Awards/events/culture change initiatives	0.6	0.1
Other expenditure	9.9	2.5
Unaccounted expenditure	6.3	1.6
Total	396.7	100.0
Source: HEIF 4 institutional strategies		

Source: (PACEC and the Centre for Business Research, 2009)

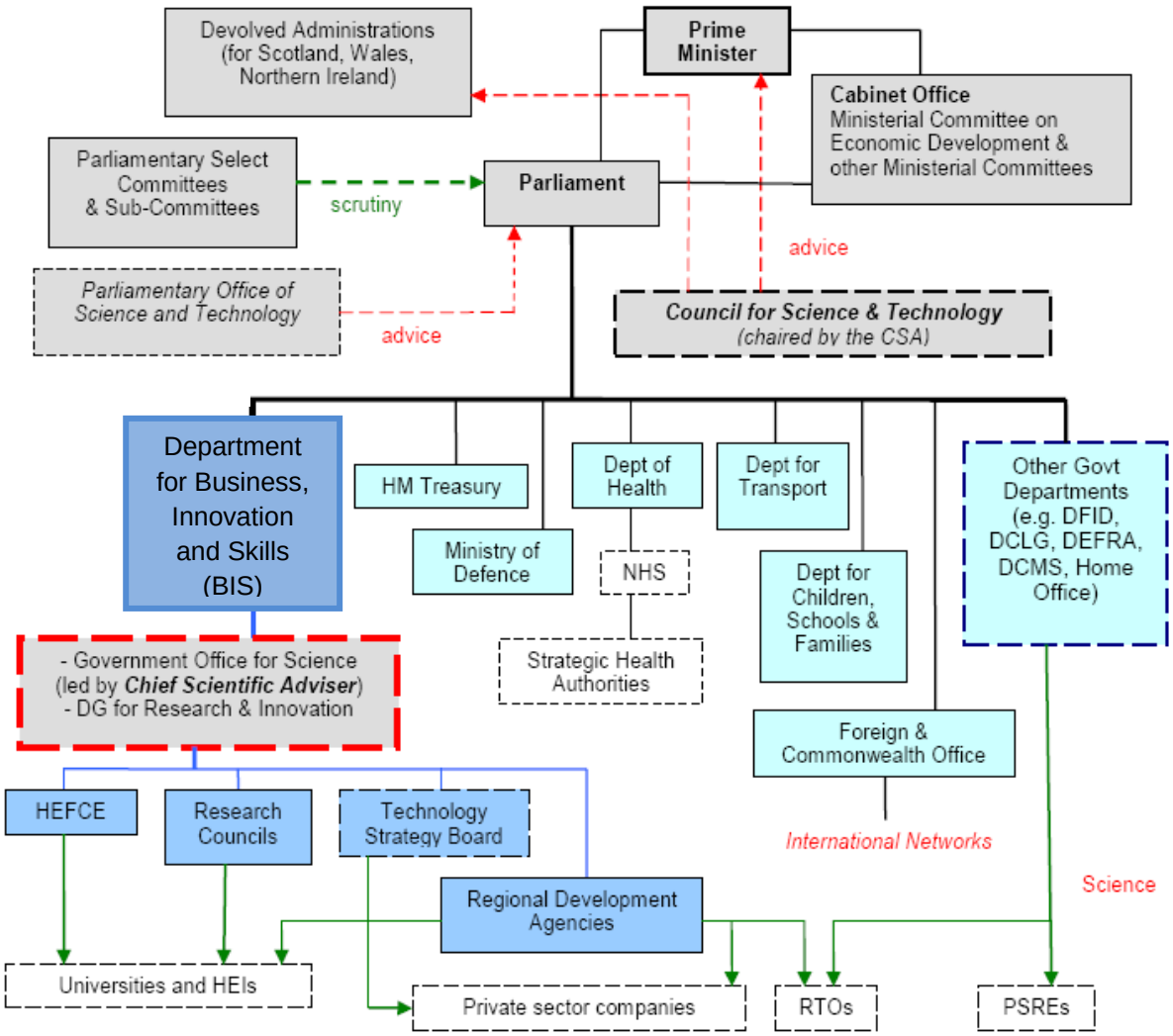
The UK government also provides support to the private sector to help companies invest in R&D and innovation. This includes R&D Tax Credits, which provide tax relief, or in some cases cash for companies not for profit, to incentivize companies to undertake more scientifically and technologically challenging R&D, and the Small Business Research Initiative (SBRI), which invites companies to tender for work that addresses specific research challenges identified by government departments. In addition, the government provides a number of 'Solutions for Business' which can be accessed via Business Link, the

primary channel for accessing business support and advice. These include:

- **Collaborative R&D**: this provides grants to businesses working together and with the knowledge base to develop and exploit new ideas;
- **Networking for innovation**: this supports businesses to build relationships with knowledge based institutions to develop and exploit new ideas;
- **Innovation Vouchers**: these enable a business to buy support from a knowledge base institution in order to explore potential opportunities for future collaboration in developing and exploiting new ideas;
- **Grant for Research and Development**: this provides finance to assist a business in developing and exploiting new ideas;
- **Innovation advice and guidance**: this provides businesses with expert knowledge and highly specialised, technical and advanced skills, enabling them to innovate and improve performance.

Figure Five provides an overview of the key players in the UK national research system.

Figure Five: UK National Research System



Source: INNO-Policy TrendChart Policy Trends and Appraisal Report UK (European Commision, 2008)

2.9.3.3 Delivery - Regional Level in the UK

The UK has nine English Regions, each represented by a Regional Development Agency (RDA) and three Devolved Administrations (Scotland, Wales and Northern Ireland), as shown in Figure Six.

Figure Six: Countries and Regions of the UK

Source: (UK Independance Party, 2009)

While the Department for Communities and Local Government (DCLG) has overall responsibility within Whitehall for regional policy, the BIS has a strong interest in regional economic policy and has the specific responsibility for the nine Regional Development Agencies (RDAs) in England. The RDAs are financed through a Single Budget, a fund that pools money from all of the six government departments from which it receives contributions.

The government recognises that innovation, and how an area can benefit from it, differs across the regions (BIS, 2009). In recognition of this, the RDAs are responsible for strengthening the regional innovation infrastructure, developing strategies, and bringing together partnerships to address local and regional innovation challenges. In addition, RDAs liaise with central government to ensure that RDA views shape regional economic development. As with national level policy, research policy at the regional level is very much integrated with innovation policy issues. The RDAs provide their regions with a strategic framework for economic growth and regeneration, in which science and innovation plays an important role. The frameworks are provided through Regional Economic

Strategies (RES) and Regional Innovation Strategies (RIS). In the future, as a result of the Review of Sub-National Economic Development and Regeneration which considers how to strengthen economic performance in the regions, RDAs, in close consultation with local authorities, will be responsible for preparing a single strategy for their region.

The RDAs work with a wide range of partners including universities, colleges, local authorities, Research Councils, the Technology Strategy Board and BIS and are also responsible for the delivery of programmes through the European Regional Development Fund (ERDF). Each RDA has a business-led Science and Industry Council (SIC), with leading figures from both the public and private sectors, which influences the innovation agenda both regionally and nationally.

The RDAs also have powers to develop joint strategy between themselves, to promote inter-regional science and innovation initiatives and to develop the concept of 'Science Cities', which provide a focal point for businesses seeking to collaborate with world-class research establishments in the regions.

As discussed above, one of the key responsibilities of BIS is to 'Collaborate with the RDAs in building economic growth in the English regions' (BIS, 2009). In recognition of this point, some aspects of government funding are now being managed at the regional level to ensure that relevant innovation support and expertise is tailored to meet the needs of local businesses. For example, regional innovation funds, aimed at encouraging innovation in working practices, Knowledge Transfer Networks, and the Higher Education Innovation Fund, which is designed to support and develop a broad range of knowledge exchange activities, are all being managed at a regional level (European Commission, 2009a).

As well as localised funding, a number of government innovation support services are delivered at the regional level. For example, the RDAs manage the Business Link service. In addition they work with regional partners in a number of other ways, including:

- Improving access to finance for business start ups and growing businesses;
- Investing in internationally competitive sectors in their regions;
- Attracting inward investment and helping businesses develop new markets;
- Encouraging innovation across the region;

- Providing specialist advice and increasing collaboration between universities and the business community; and,

- Ensuring that training, education and skills developments are meeting the needs of employers and individuals within the region (ERDAs, 2009).

2.9.4 Innovative Performance

2.9.4.1 Innovative Performance of France

France is ranked at position ten overall according to the European Innovation Scoreboard 2008 Summary Innovation Index (SII) (European Commission, 2009c), which takes into account performance over a five year period. France's overall level of innovation performance places it among the 'innovation followers' group. This category also includes Austria, Ireland, Luxembourg, Belgium and the Netherlands, and shows that their innovation performance is below those of the innovation leaders, but above that of the EU average. However, at 1.7 the innovation growth performance of France is below the EU average of 2.3, and slightly below that of the 'innovation followers' group average at 2.0.

The EIS sets its indicators according to seven dimensions of innovation (see Section 2.4.3). Table Six illustrates France's performance and growth in comparison to the EU average against each of the dimensions.

Table Six: France Innovation Performance and Growth by Dimension

Dimension	Performance		Growth	
	Above EU average	Below EU average	Above EU average	Below EU average
Human Resources	✓			✓
S&E and SSH graduates	✓			✓
S&E and SSH doctorate graduates	✓			✓
Tertiary education	✓		✓	
Life-long learning		✓		✓
Youth education	✓			✓
Finance and Support	✓			✓
Public R&D expenditures	✓			✓
Venture capital		✓		✓
Private credit		✓	✓	
Broadband access by firms	✓		✓	
Firm Investments		✓	✓	
Business R&D expenditures	✓			✓
IT expenditures	✓		✓	
Non-R&D innovation expenditures		✓	✓	
Linkages & Entrepreneurship	✓		✓	
SMEs innovating in-house		✓	✓	
Innovative SMEs collaborating with others	✓			✓
Firm renewal (SMEs entries + exits)	**N/A**	**N/A**	**N/A**	**N/A**
Public-private co-publications		✓		✓
Throughputs		✓		✓
EPO patents	✓		**Equal**	**Equal**
Community trademarks		✓		✓
Community designs		✓	✓	
Technology Balance of Payments flows		✓		✓
Innovators	✓		✓	
SMEs introducing product or process innovations		✓	✓	
SMEs introducing marketing or organisational innovations	✓		**N/A**	**N/A**
Resource efficiency innovators	**N/A**	**N/A**	**N/A**	**N/A**
Reduced labour costs	✓		**N/A**	**N/A**
Reduced use of materials and energy	✓		**N/A**	**N/A**
Economic Effects		✓		✓
Employment in medium-high & high-tech manufacturing		✓	✓	
Employment in knowledge-intensive services	✓			✓
Medium-tech and high-tech manufacturing exports	✓			✓
Knowledge-intensive services exports	**N/A**	**N/A**	**N/A**	**N/A**
New-to-market sales		✓		✓
New-to-firm sales		✓		✓

Source: Adapted from the EIS 2008
N/A = not available.

In terms of performance, France performs above the EU average on four dimensions: Human Resources, Finance and Support, Linkages and Entrepreneurship and Innovators. However, France performs below the EU average on the remaining three dimensions: Firm Investments, Throughputs and Economic Effects. In terms of growth performance France performs above the EU average on three dimensions: Firm Investments, Linkages and Entrepreneurship and Innovators. France performs below the EU average on the remaining four dimensions: Human Resources, Finance and Support, Throughputs and Economic Effects.

What is important to remember is that the classifications of Human Resources, Finance and Support and Throughputs are recorded as being the main drivers of improvements in innovation performance over the past five years in France.

Table Six shows that France performs above the EU average for a number of indicators which fall within the seven EIS dimensions, most notably; the number of Science and Engineering and Social Sciences and Humanities graduates (Human Resources), broadband access by firms (Finance and Support), European Patent Office (EPO) patent applications (Throughputs), reduced labour costs (Innovators) and medium-tech and high-tech manufacturing exports (Economic Effects). The indicators for which France performs below the EU average include Community trademarks and Community designs (Throughputs).

France's growth performance is above the EU average most notably for; broadband access by firms (Finance and Support), and below the EU average for; the number of Science and Engineering and Social Sciences and Humanities graduates (Human Resources), venture capital (Finance and support) and new-to-market sales (Economic Effects).

According to the MSTI 2008, France's gross domestic expenditure on R&D (GERD) as a percentage of GDP remains above the EU average of 1.85% (2007), standing at 2.08% (2007). Nevertheless, at 52.4% (2006) the percentage of GERD financed by industry is just below the European average of 55.4% (2006), while the percentage financed by government (38.4%, 2006) is above the EU average of 33.5% (2006), and the percentage financed from abroad (7%, 2006) is slightly below the EU average of 8.6% (2006). Within France 63.2% of GERD activity is performed by the Business Enterprise sector (2007), 19.2% by Higher Education (2007), 16.5% by government (2007), and 1.1% by the non-profit sector (2007), which compares favourably to the EU average (OECD, 2007).

In terms of patent applications to the European Patent Office (EPO), France performs above the EU average, with 125.26 applications per million inhabitants in 2006 compared with the EU average of 106.72 (Eurostat, 2006).

2.9.4.2 Innovative Performance of the UK

According to the INNO-Policy TrendChart - Policy Trends and Appraisal Report for the UK (European Commision, 2008), which focuses on the period between September 2007 – September 2008, the UK presents a strong innovation performance. This is the case both for specific indicators and for recent trends. The UK ranks 5th overall according to the European Innovation Scoreboard (EIS) 2008 Summary Innovation Index (SII) (European Commission, 2009c), which takes into account performance over a five year period. The UK's overall level of innovation performance places it among the 'innovation leaders' group, performing above the EU average, alongside Sweden, Finland, Germany and Denmark. However, at 1.1 the average annual innovation growth rate of the UK is below that of the EU average of 2.3.and slightly below that of the 'innovation leaders' group average at 1.6.

The EIS sets its indicators according to seven dimensions of innovation (see Section 2.4.3). Table Seven illustrates the UK's performance and growth in comparison to the EU average against each of the EIS dimensions discussed in Section 2.4.3.

Table Seven: UK Innovation Performance and Growth by Dimension

Dimension	Performance		Growth	
	Above EU average	Below EU average	Above EU average	Below EU average
Human Resources	✓			✓
S&E and SSH graduates	✓			✓
S&E and SSH doctorate graduates	✓			✓
Tertiary education	✓			✓
Life-long learning	✓			✓
Youth education	**Equal**	**Equal**		✓
Finance and Support	✓		✓	
Public R&D expenditures		✓	✓	
Venture capital	✓		✓	
Private credit	✓		✓	
Broadband access by firms	✓		✓	
Firm Investments	✓		✓	
Business R&D expenditures		✓		✓
IT expenditures	✓		**Equal**	**Equal**
Non-R&D innovation expenditures	**N/A**	**N/A**	**N/A**	**N/A**
Linkages & Entrepreneurship	✓			✓
SMEs innovating in-house	**N/A**	**N/A**	**N/A**	**N/A**
Innovative SMEs collaborating with others	✓			✓
Firm renewal (SMEs entries + exits)	✓		✓	
Public-private co-publications	✓			✓
Throughputs		✓		✓
EPO patents		✓		✓
Community trademarks	✓			✓
Community designs		✓		✓
Technology Balance of Payments flows		✓		✓
Innovators		✓		✓
SMEs introducing product or process innovations		✓		✓
SMEs introducing marketing or organisational innovations		✓	**N/A**	**N/A**
Resource efficiency innovators	**N/A**	**N/A**	**N/A**	**N/A**
Reduced labour costs	**N/A**	**N/A**	**N/A**	**N/A**
Reduced use of materials and energy	**N/A**	**N/A**	**N/A**	**N/A**
Economic Effects		✓		✓
Employment in medium-high & high-tech manufacturing		✓		✓
Employment in knowledge-intensive services	✓			✓
Medium-tech and high-tech manufacturing exports	✓			✓
Knowledge-intensive services exports		✓		✓
New-to-market sales		✓		✓
New-to-firm sales		✓		✓

Source: Adapted from the EIS 2008
N/A = not available.

In terms of performance, the UK is shown to perform above the EU average on four dimensions: Human Resources, Finance and Support, Firm Investments and Linkages and Entrepreneurship. However, the UK performs below the EU average on the remaining three dimensions: Throughputs, Innovators and Economic Effects. In terms of growth performance the UK performs above the EU average on two dimensions: Finance and Support and Firm Investments. However, the UK performs below the EU average on the remaining five dimensions Human Resources, Linkages and Entrepreneurship, Throughputs Innovators and Economic Effects.

Results from the EIS suggest that the UK's strong innovation performance is due to excellent performance on a few indicators, most notably good performance in participation in lifelong learning and excellent growth in venture capital and broadband access by firms. The area of Finance and Support is recognised as being the main driver of improvement in innovation performance over the past five years.

Table Seven shows that the UK performs above the EU average for a number of other indicators which fall within the EIS dimensions, including; the number of Science and Engineering and Social Sciences and Humanities graduates (Human Resources), public-private co-authored publications (Linkages and Entrepreneurship), community trademarks (Throughputs) and medium-tech and high-tech manufacturing exports (Economic Effects). Indicators for which the UK performs below the EU average include: European Patent Office (EPO) patent applications, community designs (Throughputs), SME's introducing marketing or organisational innovations (Innovators) and knowledge-intensive service exports (Economic Effects).

The UK's growth performs above the EU average for a number of indicators, most notably venture capital and broadband access by firms (Finance and Support), but below the EU average for new-to-market sales and new-to-firm sales (Economic Effects).

According to the MSTI 2008, the UK's gross domestic expenditure on R&D (GERD) as a percentage of GDP was 1.79% (2007), falling just below the EU average of 1.83% (2007). It has fluctuated around this level for more than a decade. Nevertheless, at 47.2% (2007) the percentage of GERD financed by industry is considerably below the European average of 55.4% (2006), while the percentage financed by government (29.3%, 2007) is closer to the EU average of 33.5% (2006) and the percentage financed from abroad (17.7%, 2007) is substantially higher that the EU average of 8.6% (2006). Within the UK 64.1% (2007) of GERD activity is performed by the Business Enterprise sector, 24.5% by Higher Education and

9.2% (2007) by government, and 4.2% by the non-profit sector (2007), which compares favourably to the EU average (OECD, 2007).

In terms of patent applications to the European Patent Office (EPO) the UK performs below the EU average, with 77.67 applications per million inhabitants in 2006 compared with the EU average of 106.72 (Eurostat, 2006).

2.9.4.3 Comparison between France and the UK

While both countries' innovation performance is above the EU average, the UK's overall level of innovation performance over the past five years places it among the 'innovation leaders' group while France is placed amongst the 'innovation followers' group. However, the innovation growth performance of both countries falls below the EU average.

Table Eight below compares the innovation performance and growth of France and the UK identifying the particular areas of strength for each country.

Table Eight: Comparison of UK and French Innovation Performance

Dimension	Performance		Growth	
	France outperforms UK	UK outperforms France	France outperforms UK	UK outperforms France
Human Resources	-	-	-	-
S&E and SSH graduates	-	-	-	-
S&E and SSH doctorate graduates	-	-	-	-
Tertiary education	-	-	✓	-
Life-long learning	-	✓	-	-
Youth education	✓	-	-	-
Finance and Support	-	-	-	✓
Public R&D expenditures	✓	-	-	✓
Venture capital	-	✓	-	✓
Private credit	-	✓	-	-
Broadband access by firms	-	-	-	-
Firm Investments	-	✓	-	-
Business R&D expenditures	✓	-	-	-
IT expenditures	-	-	✓	-
Non-R&D innovation expenditures	**N/A**	**N/A**	**N/A**	**N/A**
Linkages & Entrepreneurship	-	-	✓	-
SMEs innovating in-house	**N/A**	**N/A**	**N/A**	**N/A**
Innovative SMEs collaborating with others	-	-	-	-
Firm renewal (SMEs entries + exits)	**N/A**	**N/A**	**N/A**	**N/A**
Public-private co-publications		✓		
Throughputs	-	-	-	-
EPO patents	✓		✓	
Community trademarks	-	✓	-	-
Community designs	-	-	✓	-
Technology Balance of Payments flows	-	-	-	-
Innovators	✓	-	✓	-
SMEs introducing product or process innovations	-	-	✓	-
SMEs introducing marketing or organisational innovations	✓	-	**N/A**	**N/A**
Resource efficiency innovators	**N/A**	**N/A**	**N/A**	**N/A**
Reduced labour costs	**N/A**	**N/A**	**N/A**	**N/A**
Reduced use of materials and energy	**N/A**	**N/A**	**N/A**	**N/A**
Economic Effects	-	-	-	-
Employment in medium-high & high-tech manufacturing	-	-	✓	-
Employment in knowledge-intensive services	-	-	-	-
Medium-tech and high-tech manufacturing exports	-	-	-	-
Knowledge-intensive services exports	**N/A**	**N/A**	**N/A**	**N/A**
New-to-market sales	-	-	-	-
New-to-firm sales	-	-	-	-

Source: Adapted from the EIS 2008
N/A = Information not available for UK / French comparison to be made.
- = no difference.

Table Eight above shows that the UK out performs France in terms of performance and growth for a number of indicators with respect to Finance and Support (particularly venture capitals). In addition, the EIS recognises Finance and Support as being the UK's main driver of improvement in innovation performance over the past five years, with the UK both performing and growing above the EU average for this dimension. Similarly, within this dimension the UK has experienced excellent growth in venture capital and broadband access by firms.

In comparison the areas of Human Resources, Finance and Support and Throughputs are recognised as being the main drivers of improvement in innovation performance in France over the past five years. Within these dimensions France has experienced high levels of performance in S&E and SSH graduates, EPO patents and broadband access by firms, France has also experienced good growth in broadband access. This is also reflected in Table Eight above, with France outperforming the UK with regards to EPO patents and community designs.

France has a higher gross domestic expenditure on R&D (GERD) as a percentage of GDP (2.08%) compared to the UK (1.79%). France also has a higher percentage of GERD financed by industry (52.4% compared with 47.2% for the UK) and the government (38.4% compared with 29.3% for the UK) while the UK has a higher percentage of GERD financed from abroad (17.7% compared with 7% for France). The UK has a slightly higher proportion of GERD activity performed by the Business Enterprise sector (64.1% compared with 63.2% in France), and the Higher Education sector (24.5% compared with 19.2% in France). While France has a higher proportion performed by the Government (16.5% compared with 9.2% in the UK). France also made a higher proportion of patent applications to the EPO compared to the UK (125.26 applications per million inhabitants in France compared with 77.67 applications in the UK).

This section has explored innovation strategies and delivery at the national and regional level and Section Three will now explore the role of innovation and knowledge transfer in more detail at the regional levels for the four regions represented by the PROTTEC project partnership.

Section Three: Identification of Key Regional Economic Drivers and Supporting Knowledge Transfer and Innovation Activities

3.1 Introduction

The purpose of this section is to identify the key regional economic drivers and supporting knowledge transfer and innovation activities within each of the four regions represented by the PROTTEC project partnership, utilising the regional economic strategies for each region. The section also identifies any innovation or knowledge transfer strategies within each region.

Each region is taken in turn, starting with the South East of England (Section 3.2), followed by the South West of England (Section 3.3), the focus then moves to France with Section 3.4 exploring the Nord-Pas-de-Calais region of France, and Section 3.5 focusing on the Bretagne region of France. Each region begins with an overview of its demographic and economic profile; this is followed by the identification of the key regional economic drivers. Building on this, the key innovation and knowledge transfer objectives are identified, and finally the supporting innovation and knowledge transfer activities are detailed.

3.2 The South East of England

3.2.1 Regional Demographics and Economic Profile

The South East of England consists of 19 county and unitary authorities and 55 districts, covering a 19,096km^2 arc around London (Government Office for the South East, 2009), as shown in Figure Seven.

Figure Seven: Map of the South East (a) County Authorities and (b) Major Cities and Transport Links in the South East Region

Source: (SEEDA, 2009)

The South East's population was estimated to be 8.3 million people in mid-2007, making it the largest population of any English region and the third highest in terms of population density. Since 1997 the region has seen a 5.8% increase in its population, compared to an overall increase of 4.6% for the UK (Office for National Statistics, 2009).

The region contributes substantially to the UK economy, accounting for around 15.1% of total UK Gross Value Added (GVA) in 2007. Generally, "...the South East economy can be categorised as being advanced, high cost, high income, broadly based and service oriented" (Government Office for the South East, 2009).

The South East provides around 4.3 million jobs, predominantly in the service sector, along with significant contributions to the labour market in London. Employment rates for working age people are high, at around 82.3% and 73.3% for men and women respectively. Unemployment is below the national average (7.2%), at 5.5% (Government Office for the South East, 2009).

According to the Revealed Regional Summary Innovation Index (RRSII) (see Section 2.4.2) the South East's innovation performance is ranked 12th in the EU, and 1st within the UK, which is higher than both the UK and EU average. Although the South East experienced a steady decline in innovation performance between 2001- 2006, the region shows relative strengths in life-long learning and relative weaknesses in medium/high-tech manufacturing (Hollanders, 2006).

Within the South East, Higher Education South East (HESE[30]) aims to promote all higher education institutions with a presence in the South East region. HESE aims to strengthen HEIs contribution to the growth of the region, and to influence and shape the regional agenda. The South East is home to 20 HEIs:

- Royal Holloway, University London;
- University for the Creative Arts;
- University of Surrey;
- Canterbury Christ Church University;
- University of Greenwich;
- University of Kent;
- University of Brighton;
- University of Chichester;
- University of Sussex;
- University of Portsmouth;
- Southampton Solent University;
- University of Southampton;
- The University of Winchester;
- University of Reading;
- Thames Valley University;
- Buckinghamshire New University;
- The Open University;
- Oxford University;
- Oxford Brookes University; and,

[30] See: http://www.hese.ac.uk/page.asp Accessed July 2009.

- Cranfield University.

The regional development agency for the South East of England (SEEDA) targets key sectors recognised due to their potential to add value to the South East economy. The seven sectors are:

- Aerospace and defence;
- Environmental technologies;
- Health technologies;
- Marine;
- Digital content;
- Construction; and,
- Security.

These sectors have been identified by meeting at least one of three criteria:

- Sectors driven by new and emerging technologies with transformational potential*;*
- Major employers and economic drivers throughout the region; and,
- Manufacturing sectors with high value added growth potential, underpinning the region's international trade performance.

3.2.2 Key Regional Economic Drivers

SEEDA is responsible for the economic and social development of the region, supported by the South East Science, Engineering and Technology Advisory Council (SESETAC) who advise SEEDA on how science and technology can drive regional business performance. SEEDA acknowledge that the prosperity of the South East depends on the success of the region's businesses and have developed a Regional Economic Strategy (RES) 2006-2016 (SEEDA, 2006a). The RES sets a framework to support successful businesses, and sits alongside the Regional Spatial Strategy (RSS). However, as a result of the Sub-

national Review (see Section 2.6.3.3) these two strategies will amalgamate to produce a single` Strategy after 2010.

The RES takes account of the current challenges facing the region. As a globally high performing region the South East faces challenges that are yet to impact in many English regions and it is these challenges that are driving economic development within the region. The RES identifies three key challenges driving the economic development of the region:

1. **The Global Challenge.** In the face of intensifying global competition the South East must maintain its competitiveness by investing in its current success and becoming more enterprising, innovative and skilled.

2. **Smart Growth.** The South East needs to deliver higher levels of prosperity per head without increasing the region's ecological footprint. This can be achieved through the principles of smart growth and raising levels of enterprise, productivity and economic activity throughout the region.

3. **Sustainable Prosperity.** SEEDA recognise that long-term regional economic prosperity can only be secured through sustainable development; pursuing growth within environmental limits, which, in itself, can create new opportunities for innovation and competitiveness.

In response to these three challenges the RES adopts three overarching aims focused on addressing each of the key challenges, and these are explored in more detail in the following section (3.2.3).

3.2.3 Key Innovation and Knowledge Transfer Objectives

SEEDA responds to the key challenges driving the economic development of the region through the development of three overarching aims, each of which address one of the key challenges. These are highlighted below (SEEDA, 2006b):

1. **The Global Challenge.** In response to this challenge the South East aims to become "an exemplar region implementing the Lisbon Strategy" (SEEDA, 2006a p. 12). The South East aims to increase world trade and foreign investments by strengthening what it identifies as the key components of the region's future global competitiveness – research, development and innovation.

2. **Smart Growth.** In response to this challenge the South East aims to achieve higher prosperity, without increasing its ecological footprint, by strengthening the interplay between the key productivity drivers of enterprise, skills, innovation, competition and investment, employment and quality of life.

3. **Sustainable Prosperity.** In response to this challenge the South East aims to preserve quality of life as a competitive advantage. The region aims to enhance the environmental, social and lifestyle offer to ensure the region is perceived as an attractive place to live, work and conduct business.

As a result of these aims the vision for the South East is to become "a world class region achieving sustainable prosperity" (SEEDA, 2006a p. 44). The Strategy adopts three ambitious headline objectives in relation to these overarching aims:

- Achieve an average annual increase in GVA per capita of at least 3%;
- Increase productivity per worker by an average 2.4% annually, from £39,000 in 2005 to at least £50,000 by 2016; and,
- Reduce the rate of increase in the region's ecological footprint (from 6.3 global hectares per capita in 2003, currently increasing at 1.1% per capita per annum) and seek to reduce it by 2016.

In addition, for each of the three aims the RES identifies a set of measurable objectives. While many of these objectives have variable, indirect effects on innovation within the region, the areas of global competitiveness and smart growth are significant in terms of objectives with an innovation and knowledge transfer focus. The objectives relating to these aims are outlined below:

Aim: Global Competitiveness

- **Global Businesses and Foreign Direct Investment**. Increase the percentage of businesses located in the South East operating internationally from an estimated 8% in 2003 to 12% by 2016, maximising the South East's share of global Foreign Direct Investment;

- **Knowledge Transfer and Business Expenditure on Research and Development**. Increase the proportion of businesses in the South East reporting R&D links with universities from 11% in 2005 to 15% by 2016, and increase business expenditure on R&D in the South East from 3.2% of Gross Value Added in 2003 to 4% by 2016; and,

- **Innovation and Creativity**. Increase the percentage of total South East business turnover attributable to new products from 12% in 2004 to 20% by 2016, and the percentage attributable to significantly improved products from 18% in 2004 to 25% by 2016.

Aim: Smart Growth

- **Enterprise**. Increase the business stock by 35% from 35 businesses per 1,000 inhabitants in 2005 to 44 per 1,000 inhabitants by 2016, including 10,000 new businesses run by women by 2010;

- **Skills**. Maximise the number of people ready for employment at all skill levels, and ensure they are continually equipped to progress in the labour market;

- **Competition and Business Regulation**. Increase the level of participation of South East businesses (especially small businesses and social enterprises) in tendering for public sector contracts; and,

- **Employment**. Improve the productivity of the workforce and increase economic activity from 82% to 85% by bringing 110,000 net additional South East residents of working age into the labour market by 2016 (as a step towards bringing up to 250,000 residents into the labour market by 2026).

SEEDA work with a number of partners in order to achieve these objectives, including businesses, education at all levels, local authorities, Government agencies and voluntary and community organisations. The Implementation Plan, which is produced alongside the RES, identifies an overall sponsor for leading and co-ordinating progress on each objective, as outlined in Table Nine below (SEEDA, 2006b).

Table Nine: Objective Sponsors

Aim	Objective	Sponsor
Global Competitiveness	Global Businesses and Foreign Direct Investment	SEEDA
	Knowledge Transfer and Business Expenditure on Research and Development	South East Science, Engineering and Technology Advisory Council (SESETAC)
	Innovation and Creativity	SEEDA
Smart Growth	Enterprise	SEEDA
	Skills	Regional Skills for Productivity Alliance (RSPA)
	Competition and Business Regulation	SEEDA
	Employment	Regional Skills for Productivity Alliance (RSPA)

Source: SERIO 2009

The RES also identifies a large variety of actions and activities that SEEDA will support, alongside its partners, in order to achieve these aims and objectives. These actions and activities are explored in more detail in the following section (3.2.4).

3.2.4 Innovation and Knowledge Transfer Activities

The RES identifies a number of innovation and knowledge transfer actions and supporting activities that will contribute to achieving the aims and objectives outlined in the previous section. Tables Ten and Eleven identify the key actions that will be implemented as a result of the overarching aims to achieve global competitiveness and smart growth. Many of these actions are continuations of existing activities; any new activities are highlighted.

Table Ten: Objectives and Key Actions to Achieve Global Competitiveness

Objective	Actions
Global Businesses and Foreign Direct Investment. Increase the percentage of businesses located in the South East operating internationally from an estimated 10% in 2003 to 15% by 2016, maximising the South East's share of global Foreign Direct Investment.	• Fully exploit the opportunities presented by the creation of a single regional team encompassing trade and investment, underpinned by a joint trade and investment regional international strategy. • Strengthen the international network of global partners from similar high performing regions overseas. • Further develop a programme of aftercare support for investors as part of a broader Investor Development Programme. • (New Action). Develop and utilise the offer of the Greater South East's collective strengths by working with regional partners in London and the East of England.
Knowledge Transfer and Business Expenditure on Research and Development. Increase the proportion of businesses in the South East reporting R&D links with universities from 11% in 2005 to 15% by 2016, and increase business expenditure on R&D in the South East from 3.2% of Gross Value Added in 2003 to 4% by 2016.	• Respond, with the advice of SESETAC, to the Government's 10-Year Investment Framework in Science and Innovation, through developing and delivering SEEDA's Innovation Action Plan. • (New Action). Promote the strengths of the South East's knowledge base, including Higher Education Institutions and public sector research establishments, to regional, national and international businesses. Assist foreign companies to access the innovative capabilities of the region's knowledge base and businesses. • Ensure a skills perspective to the 10-Year Framework for Science and Innovation, ensuring that innovation and creativity are underpinned by excellent skills.

Table Ten: Objectives and Key Actions to Achieve Global Competitiveness (continued)

Objective	Actions

Innovation and Creativity.
Increase the percentage of total South East business turnover attributable to new products from 12% in 2004 to 20% by 2016, and the percentage attributable to significantly improved products from 18% in 2004 to 25% by 2016.
	• Support further development of the following key Sector Consortia:
	  • South East Media Network (digital content)
	  • Marine South East (marine technologies)
	  • South East Health Technologies Alliance (health technologies)
	  • Envirobusiness South East (environmental technologies and services)
	  • South East Centre for the Built Environment (built environment)
	  • Farnborough Aerospace Consortium (aerospace and defence)
	• (New Action). Promote the importance of design and creativity across all sectors, to realise the true market value of the South East's rich technology and creative resources, and maximise the contribution of the creative industries to the South East economy.
	• Continue to develop a programme to support high expectation enterprise, which will be key drivers of the economy in 10 years' time.
	• Develop, support and consolidate the Regional Enterprise Hub Network.
	• (New Action). Create an integrated South East early stage business fund by merging existing funding programmes.
	• Develop the Manufacturing Advisory Service (MAS) to improve its effectiveness and impact and make it into a fully sustainable service.
	• Develop the Innovation Advisory Service (IAS), providing intensive support to those businesses with the most capacity for sustained innovation and the potential to influence others through their supply chains.
	• Encourage pan-regional collaboration and good practice on innovation, to maximise the economic value released through innovation both regionally and nationally.
	• (New Action). Develop support mechanisms that ensure entrepreneurs can access leadership and management skills they need to innovate and thus grow successful businesses.

Source: Adapted from SEEDA (SEEDA, 2006a)

Table Eleven: Objectives and Key Actions to Achieve Smart Growth

Objective	Actions
Enterprise. Increase the business stock by 35% from 35 businesses per 1,000 inhabitants in 2005 to 44 per 1,000 inhabitants by 2016, including 10,000 new businesses run by women by 2010.	• Implement an integrated approach to business support. • Implement improved and better targeted support for women's enterprise. • Support new and growing businesses in the creative, cultural, leisure, sporting and visitor economy sectors. • Stimulate rural enterprise and nurture new and existing businesses based on good market intelligence, making use of networks, collaborations and co-operatives and centres of excellence. • (New Action). Support the development of home-based businesses, particularly targeting rural and women owned businesses. Recognise the importance of micro businesses and home-based businesses, the major contribution made from the voluntary sector and the potential for social enterprise. • Expand the Enterprise Gateway Network from nine to 20 Gateways by 2007. • (New Action). Build sustainability and corporate social responsibility into everyday business practice. • Enhance the teaching of, and support for enterprise in schools, colleges and Higher Education. • (New Action). Stimulate increased levels of enterprise among underrepresented groups.
Skills. Maximise the number of people ready for employment at all skill levels, and ensure they are continually equipped to progress in the labour market.	• Ensure education and training providers deliver skills provision and services to meet business requirements and stimulate the demand for higher level skills, including the use of Sector Skills Agreements. • (New Action). Clarify and simplify the skills offer to businesses across the region and address skills deficits, particularly those at intermediate level. • (New Action). Increase the percentage of the working age population with qualifications at Level 2 or higher from 66% in 2003 to at least 80% by 2016, and the percentage with qualifications at Level 4 or higher from 28% in 2003 to at least 40% by 2016. • (New Action). Ensure that all young people and adults of all ages in the region have access to relevant diplomas, vocational and work based learning opportunities, including the number, range and quality of apprenticeships and other vocational opportunities including foundation degrees – in skills centres and elsewhere. • (New Action). Develop an action for communities model with providers and other partners.

Table Eleven: Objectives and Key Actions to Achieve Smart Growth (continued)

Objective	Actions
Competition and Business Regulation. Increase the level of participation of South East businesses (especially small businesses and social enterprises) in tendering for public sector contracts.	• Improve business support available to help small and medium enterprises and social enterprises tender for contracts. • (New Action). Identify areas of the public sector where there is potential for more procurement from local SMEs, and encourage alliances and collaboration to increase local procurement by improving client-side capacity. • Develop the region's capability to influence legislation and regulations affecting the region's economy, including rural businesses. • Develop a proactive approach to improving planning performance and speed.
Employment. Improve the productivity of the workforce and increase economic activity from 82% to 85% by bringing 110,000 net additional South East residents of working age into the labour market by 2016 (as a step towards bringing up to 250,000 residents into the labour market by 2026).	• (New Action). Work with employers to support in-work training schemes; provide vocational training and support in a range of learning styles; and target the support of Further Education (FE) and Higher Education (HE) courses in industrial sectors that have significant skills gaps. • Encourage a culture of learning throughout business and community life. • (New Action). Enable coverage and access to ICT support throughout the region, and promote the development of flexible working in quality jobs, including in rural areas.

Source: Adapted from SEEDA (SEEDA, 2006a)

In addition, the South East RES identifies eight transformational actions that have the potential to impact across the whole of the Strategy:

1. **100% Next Generation Broadband Coverage** – to improve business efficiency and transform the way people work and learn;

2. **Science and Innovation Campuses** – to establish new world class research facilities in the South East;

3. **Skills Escalator** – to ensure that people at all skill levels are continually equipped to progress in the labour market;

4. **Regional Infrastructure Fund** – to harness new sources of funding for infrastructure investment;

5. **Raising Economic Activity Rates** – by addressing barriers to employment and increasing incentives to work;

6. **Global Leadership in Environmental Technologies** – to exploit the business opportunities created by reducing carbon emissions and waste generation;

7. **Education-Led Regeneration** – to harness the catalytic effect of new Further and Higher Education facilities on releasing untapped potential; and

8. **Making the Most of 2012** – to ensure that the 2012 Olympic Games and Paralympic Games leave a positive and lasting legacy for the South East.

While a number of these transformational actions have variable, indirect effects on innovation within the region, the development of 100% broadband coverage, establishment of science and innovation campuses and the skills escalator are key in terms of actions with an innovation and knowledge transfer focus.

Full details of the actions and supporting innovation and knowledge transfer activities, in the context of the aim and objective they are intending to fulfil, alongside the partners involved in the delivery and sources of funding for each activity, are provided in a separate document - ‘Work Package One Database of Activities’. In addition, the objectives and activities have been classified into an aspect of innovation, based on those identified by the IRE working group (see Section 2.3), by the University of Plymouth research team.

This section now goes onto explore a number of the key innovation and knowledge transfer activities adopted by the RES within the South East region in more detail.

Development of a Regional Trade and Investment Strategy
In response to the objective focusing on global business and foreign direct investment, led by UK Trade and Investment (UKTI) South East, SEEDA proposes to develop a regional trade and investment strategy. UKTI is a government organisation that supports businesses that want to trade and invest overseas. The International Trade team in the South East work with regional partners to develop an international business strategy for the region. They deliver services to local companies through a network of experienced International Trade Advisers. Activities include involvement in the development of a regional trade and investment strategy to reflect a wider new approach to supporting global competitiveness.

Develop South East Innovation Action Plan
In response to the objective focusing on knowledge transfer and business expenditure on R&D, SEEDA proposes to develop a South East Innovation Action Plan which responds, with the advice of the SESETAC (who advise on how science and innovation can drive forward regional business performance) to the Governments 10 year SIIF. As a result of the Innovation Action Plan a number of new initiatives have been launched to exploit the regions world class knowledge base:

- Speeding up the development of new products, processes and services through increased **knowledge transfer** between business and universities;
- Increasing the competitiveness of businesses through the **promotion of innovation**; and,
- Ensuring a supply of **scientifically trained people** within the region.

Knowledge Transfer
Examples of activities to increase knowledge transfer between universities and business include SEEDA's **Emerging Technologies programme**, whereby SEEDA is enabling a group of companies and universities to bring new products and services to the market place. SEEDA has allocated funds for four business-led collaborative R&D projects, which promise to lead in new products or services within two to

three years. In addition eight **knowledge networks** have been developed. With a specific focus on a specific technology or group of technologies, knowledge networks bring together businesses and the knowledge base to turn knowledge into commercially successful products and services. SEEDA has also developed the **Research Excellence Data** (RED) Directory, a searchable directory to help businesses in the UK and overseas explore a web database providing full details of research underway at universities and public sector research establishments (PSREs) within the South East that have the potential for commercial application, and directs users to relevant contacts within each HEI. The **Higher Education Entrepreneurship Group** (HEEG) has been established by SEEDA to build capacity within the HEIs to promote entrepreneurship.

Promoting Innovation

Examples of activities to promote innovation include the recent establishment of **South East Business Development Growth**. SEEDA is funding a regional network of eight Innovation and Growth Teams (IGTs), managed by local stakeholders. The IGTs replace numerous regional and local innovation and growth projects with an integrated, regionally consistent and locally delivered business support activity. South East Business Development Growth aims to “unlock and drive forward potential in businesses with real growth ambitions” through the provision of comprehensive and tailored business support at every stage of their growth path across the region. South East universities form an integral part of the IGTs. The IGTs will focus on delivering five areas of support which are part of the ‘Solutions for Business' initiative funded by the Government (see Section 2.6.3.2). These are:

- Starting a high growth business;
- Innovation advice and guidance;
- Coaching for high growth;
- Understanding finance for business; and,
- Business collaboration and networking.

Skills for the Future

Examples of SEEDA's activities to ensure a supply of scientifically trained people within the region include the establishment of a **Regional STEM Resource Centre**, in partnership with the regional STENET director and the regional Science Learning Centre at the University of Southampton. The resource centre brings together professional development and outreach activities for supporting science education to provide more co-ordination to the many disparate STEM initiatives. The centre aims to remove duplication and identify and communicate best practice. Additionally, the centre will work to ensure increased and sustainable engagement between education and business. Furthermore, alongside industry partners, SEEDA has developed the **Regional Resource Centre (RRC) initiative**, a network of five regional resource centres, each with a particular sector focus to address the skills supply issues of priority sectors that require STEM skills.[31] The centres are located close to relevant industry clusters and HEIs and provide a regional access point for industry to obtain information, and facilitate solutions relating to their specialism. SEEDA is also involved in various projects focused on promoting entrepreneurship amongst graduates in the region.

Creation of a Funding Escalator

In response to the objective focusing on innovation and creativity SEEDA plans to create an integrated, South East early stage business fund through the merging of existing funding programmes. The Funding Escalator will provide a continuous pipeline for innovators to access funding at every stage of business progression from concept to commercialisation through to development growth and expansion. Funding is provided through Finance South East (FSE), a regional funding organisation, backed by SEEDA and privately governed. FSE specialise in the identification, funding, and development of high potential growth businesses. Current funding available include the commercialisation fund, which provides repayable finance to SMEs for proof-of-concept and commercialisation activities that enable a new business idea to gain first revenues and market traction. The Fund's main aim is to facilitate the progress of business ideas that demonstrate clear potential for high growth in the market place. The Accelerator Fund provides an innovative source of finance for companies in the South East demonstrating the potential for significant growth. The Seed Fund invests in SMEs, which may include university spin-outs/spin-ins, perceived to have the highest potential for success. The Collaboration Fund, which awards funds through calls for proposals, facilitates the transition of

[31] The sectors include: Biosciences and Healthcare, Environmental Technologies, Advanced Technology, Aerospace/Space and Marine composite.

research previously financed by the Engineering and Physical Sciences Research Council (EPSRC) into a viable commercial application. The Collaboration Fund may support projects where this can be achieved through the collaboration of a UK research organisation and a commercial partner.

Promoting Key Sectors

Within the RES SEEDA identify the need to promote the seven key sectors (see Section 3.2.1). Seven Sector Consortia currently exist, covering the key sectors that have been recognised as having the potential to add value to the regional economy. Sector Consortia are companies limited by guarantee practicing a business-led approach to winning market share. The main objectives of these new companies are to:

- Identify new market opportunities and bring together coalitions of firms to take advantage of these opportunities, including those which occur overseas;
- Provide a focal point for assistance to companies in the sector;
- Provide networking opportunities; and,
- Provide strategic leadership.

SEEDA aim to support further development of the current key Sector Consortia and develop new consortia where necessary. Proposed activities include:

- Identifying and prioritising the most important global market opportunities for the South East and then targeting the Sector Consortia with these opportunities;
- Working with the region's business support organisations and industry partners to promote their services to consortia memberships;
- Developing networking opportunities and specialist events for consortia businesses; and,
- Developing a highly targeted sector approach to inward investment and trade activity by developing industry led strategies in conjunction with SEEDA's Sector Consortia.

Development of the Business Link Service

SEEDA funds the **Business Link** service in the South East as the access channel for business support across the region. Business Link provides access to information, advice and support at all stages of the business process. Proposed activities include involvement in implementing an integrated approach to business support. This involves simplifying regional business support, making it easier for businesses to access publically funded business support and reducing administration costs. Business Link also provides the **Enterprise Gateway Service**. This service is integrated into HE business incubation strategies. The service encourages people to think about starting their own business or working for themselves and provides relevant one-to-one support, coaching, access to networks, training and signposting to other support organisations. Activities include increasing the number of Enterprise Gateways available. Other activities include the development of a programme to encourage the development of home based business, and development of a centrally managed information, diagnostic and brokerage innovation service for SMEs.

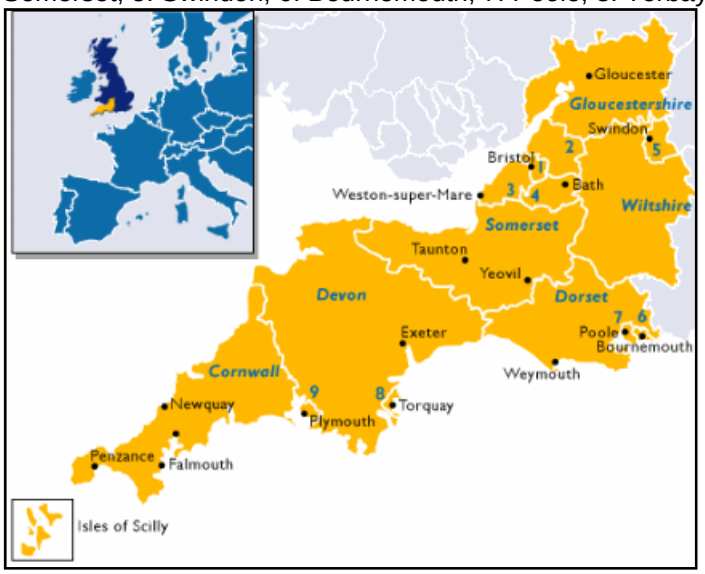
3.3 The South West of England

3.3.1 Regional Demographics and Economic Profile

The South West covers the largest geographic area of the nine English regions, covering 23,837 km^2 and surrounded by 630 miles of coast. It consists of 15 county and unitary authorities, as shown in Figure Eight.

Figure Eight: County and Unitary Authorities of the South West

(1.Bristol, 2. South Gloucestershire, 3. North Somerset, 4. Bath and North East Somerset, 5. Swindon, 6. Bournemouth, 7. Poole, 8. Torbay and 9. Plymouth)



Source: (SWRDA, 2009)

The South West's population was estimated to be 5.2 million people in mid-2007, the lowest population density of any English region, with the highest proportion of older people. Since 1997 the region has seen a 7.3% increase in its population, compared to an overall increase of 4.6% for the UK, making it the third fastest growing regional population (Office for National Statistics, 2009).

Generally, the South West economy follows UK national trends. In 2007, the South West economy was estimated at £94.2 bn (an increase of 5.8% on the previous year), in terms of GVA, accounting for around 9.0% of the national total and making it the fifth (out of nine) largest English regional economy (The South West Observatory, 2009).

In 2008, roughly 2.5 million people were 'economically active', out of a working age population of just below 3.1 million people, of which 27% were over 50 years of age (above the nation average of 24%). In

addition, there was a small decline in the number of economically active 16-34 year olds (The South West Observatory, 2009).

Unemployment in the South West remains lower than that experienced by the other nine English regions, however 2008 saw unemployment increase to approximately 127,000 people in November, an increase of 29,000 on the previous year (The South West Observatory, 2009).

According to the Revealed Regional Summary Innovation Index (RRSII) (see Section 2.4.4) the South West's innovation performance is ranked 37th in the EU, and 4th within the UK, out of 12, and is higher than both the UK and EU average. Although the region experienced a steady decline in innovation performance between 2001-2006, the region shows relative strengths in life-long learning and relative weaknesses in medium/high-tech manufacturing (Hollanders, 2006).

The Association of Higher Education Institutions in the South West (HERDA-SW[32]) provides a forum for the 13 Universities and Higher Education Colleges in the region to work collaboratively. Its principal aims include extending the contribution of higher education to sustainable regional development and competitiveness, and influencing the shape of the economic agenda in the South West region. Expert South West[33] aims to promote collaborations between the 13 HEIs and businesses in the South West region. The 13 HEIs in the South West are:

- Arts University College at Bournemouth;
- Bath Spa University;
- Bournemouth University;
- University College Falmouth;
- University College Plymouth St Mark and St John;
- Open University in the South West;
- Royal Agricultural College, Cirencester;
- University of Bath;
- University of Bristol;

[32]For more information see: http://www.herda-sw.ac.uk/ Accessed July 2009.
[33] For more information see: http://www.expertsouthwest.com/ Accessed July 2009.

- University of Exeter;
- University of Gloucestershire;
- University of Plymouth; and,
- University of the West of England, Bristol.

The South West Regional Economic Strategy (RES) 2006-15, developed by the South West Regional Development Agency, identified eight priority business sectors that are strategically important for the region, show opportunities for future growth, or are in need of additional support in order to adapt to industry change (SWRDA, 2006)[34]. The priority sectors are:

- Advanced engineering, including aerospace;
- Bio-medical;
- Creative industries;
- Environmental technologies;
- ICT;
- Food and drink;
- Marine; and,
- Tourism.

The South West RES also recognised the Learning and Skills Council's four *priority sectors*:

- Construction;
- Engineering;
- Health and social care; and,

[34] SWRDA also recognise a number of world class clusters within the region (Aerospace, Bio-technology and Bio-medical, Creative industries, Environmental technologies and ICT), and other prominent sectors (Advanced engineering, Food and drink, Marine, Nano and Micro technologies and Service industries).

- Retail.

In addition, there are other sectors which are recognised as being important to the region because of their size or linkage with other industries (SWRDA, 2006). The four other *regionally important sectors* are:

- Distribution and transport, including logistics;
- Finance and business services;
- Paper and printing; and
- Public administration.

The public sector is the largest employer in the South West region and can have a significant influence on the economy through its spending and its regulatory powers. The South West RES proposes a number of targeted initiatives to encourage the public sector to become more productive and innovative, and to use its regulatory and purchasing power to improve economic performance in the region.

3.3.2 Key Regional Economic Drivers

3.3.2.1 Overview

As previously discussed, SWRDA is responsible for economic growth and development and the wider remit of sustainable development within the region, and have thus developed region's RES 2006-2015.

The RES takes account of strategies and policies at regional, national and European levels. Regionally, the RES aims to reinforce the aims set out in the Integrated Regional Strategy (IRS)[35] and complements the Regional Spatial Strategy, in order to ensure that the region is working towards common goals (SWRDA, 2006). The RES acknowledges that, at the European level, the Lisbon Strategy and Gothenburg agendas focus on enterprise, innovation and sustainability (SWRDA, 2006), and are designed to guide member states' strategy formulation.

[35] For more information see: http://www.justconnect-sw.co.uk/media/SWRA/IRS/Just_Connect.pdf Accessed July 2009.

Alongside the production of the South West RES, a number of other strategies have been developed at a regional level which focus on the engagement between enterprise, innovation and the wider community. Summaries of these strategies are given below.

South West of England Incubation and Science Park Strategy

The mission of this strategy was to "ensure the South West has a thriving regional incubator network by 2006 that will form the cornerstone of a wider integrated programme to support clustering. This includes skills and training, business support and signposting to business finance, and all other aspects of help needed by small innovative businesses" (SWRDA p. 6). Its overarching aim was to provide existing and future entrepreneurs with the opportunity and support to exploit their knowledge and ideas (SWRDA).

South West of England International Trade Strategy

Concentrating on support for SMEs, novice exporters and high growth businesses, the Strategy's overarching mission was to "build the success of South West businesses internationally" (SWRDA, 2004 p. 1) focusing specifically, but not exclusively on four sectors: Engineering, Food and Drink, ICT and Marine. Key objectives included:

- Increasing the contribution which international trade makes to the regional Economy;
- Strengthening the skills and capabilities of regional businesses to trade internationally;
- Understanding and responding to the needs of business and the barriers to their international trade development;
- Encouraging companies to benefit internationally from innovation, investment, technology and research;
- Raising the awareness of, and resources for, business support services to companies wishing to trade internationally; and,
- Encouraging cooperation between business support organisations (public and private sector) in the region (SWRDA, 2004).

South West of England Innovation Strategy - Innovation: the Successful Exploitation of New Ideas

Building on the Innovation and Technology Regional Framework for Action (1999), this strategy set out to guide decision makers in business, education, research, government and the third sector on innovation in the South West. The strategy had three main aims: to raise the understanding, awareness and level of innovation in the South West; to identify a key number of defined actions that the RDA and partners can take forward to make a positive impact on innovation in the region; and to encourage inclusion of innovation in other regional strategies. Relating to this, the strategy had three corresponding objectives, listed below:

- To create a culture within the region that encourages innovation in all sectors of business, public sector, education, research organisations and the voluntary sector;
- To strengthen the skills and capabilities of businesses, especially within the priority sectors, to operate in an innovative manner; and,
- To develop greater understanding of foreseen changes and potential for innovation in the region's businesses (SWRDA, 2001).

The South West Framework for Regional Employment and Skills Action (FRESA)

The overarching focus of FRESA was the development of collaborative and coherent skills interventions, taking a multi-agency regional approach. The main strategic objectives of FRESA were:

- To increase employers' commitment to skills development;
- To raise individuals aspirations and skills for working in the South West; and,
- To develop the efficient and inclusive working of the South West labour market.

The South West England Regional Strategy for Enterprise

The South West Regional Strategy for Enterprise primarily aimed to provide a focus for everyone involved in enterprise and business in order

to "build a region where the potential of its enterprising businesses and people is unlocked and encouraged to flourish so that we can create the growth and wealth that a healthy balanced and diverse South West England depends on" (SWRDA p. 6). Working with national and regional partners to achieve a coherent policy approach, the strategy had five key strategic themes, shown below:

- Developing a culture of enterprise;
- Creating a positive business support environment;
- Support for high growth businesses;
- Support for social enterprise; and,
- Enterprise for all (SWRDA).

3.3.2.2 Economic Drivers

The RES 2006-2015 recognises three economic drivers that are central to the economic development of the region, which are shown below. SWRDA acknowledges that these regional economic drivers support and complement the Treasury's national 'drivers of productivity'[36] (SWRDA, 2006):

1. **Innovation**
   It is suggested that the South West cannot compete on cost alone anymore and, therefore, must concentrate on "...added value through ideas, knowledge and technology" (SWRDA, 2006, p.16). In order to achieve this, the South West requires a culture of innovation and enterprise, across private, public and voluntary organisations, in which change and challenge are welcomed.

2. **Skills**
   Staff and mangers (i.e. people) that create products and services are the fundamental basis for any economy. At a time when global competition is high and the South West is seeking to gain an advantage through innovation and technology, knowledge-based and technical skills are at a premium (SWRDA, 2006). As a result, high-level skills and an adaptable approach to learning and working are critical for the region.

[36] For more information see: http://www.berr.gov.uk/files/file49953.pdf Accessed June 2009.

3. **Environment**
   The South West has considerable strength, specifically related to its location. Around 12% of the regional economy relies on the land and landscape and, in addition, the 'quality of life' within the South West attracts investment, businesses, workers and tourists to the region. SWRDA identified environmental technologies and services, like renewable energy, as presenting enormous global market potential (SWRDA, 2006). The identification of the environment as a key economic driver highlights the importance of building, rather than diminishing, the region's environmental and cultural capital.

The vision is for the South West to "have an economy where the aspirations and skills of people combine with the quality of our physical and cultural environment to provide a high quality of life and sustainable prosperity for everyone" (SWRDA, 2006 p. 14). The RES highlights three strategic aims and associated objectives to be fulfilled in order to meet this vision and these are explored in the following section (3.3.3).

3.3.3 Key Innovation and Knowledge Transfer Objectives

The RES states that the South West's vision for economic development will be realised through three key strategic objectives (SWRDA, 2006), which are outlined below:

1. **Successful and Competitive Businesses**

   "...to create the conditions that enable the region's businesses to be more successful by increasing their productivity" (SWRDA, 2006, p.17).

"Successful, competitive business create the wealth that is at the heart of the region's prosperous and sustainable future" (SWRDA, 2006, p.17). Importantly, they offer employment at the higher levels of pay (i.e. high value added), they serve to develop and utilise higher-level skills and produce high quality products, all of which help to generate wealth for the region (SWRDA, 2006). It is suggested that good businesses, in collaboration with the public sector, will be pivotal in tackling the region's social and environmental challenges (SWRDA, 2006). Private sector organisations should be encouraged to grow profitable, generate value added and offer satisfying, rewarding and sustainable jobs within the region. Public sector organisations must provide support to the private sector, helping to build a foundation that will enable private

entrepreneurship to thrive. This will be achieved by "...helping to disseminate the information and knowledge the businesses and workers need to compete..." and "...spreading "best practice" through the economy..." (SWRDA, 2006, p.17). In particular, the public sector has a role to play in "...planning process and regulation..." along with supporting the development of a robust infrastructure and promoting a culture of investment in competitiveness (SWRDA, 2006, p.17).

2. Strong and Inclusive Communities

"...to ensure that more people and communities have the skills, capacity and aspiration to participate in, and benefit from, the growing economy" (SWRDA, 2006, p.17).

"A successful and sustainable economy needs to deal with imbalances, harnessing the talents of everyone to improve individual and regional quality of life" (SWRDA, 2006, p.17). In essence, this objective focuses on addressing the causes of "...deprivation and exclusion...", while at the same time, identifying new opportunities for sustainable growth and development, via urban and rural renaissance (SWRDA, 2006). With the advent of a more knowledge-driven economy it is vitally important that regional inhabitants with low skills levels or no qualifications be supported in order that they may enter or remain within the workforce. Evidence suggests that a high proportion of the regional potential is located within its cities and larger towns. These areas should be supported, while at the same time providing support for deprived areas (urban neighbourhoods, market towns and villages) in order to improve their economic infrastructure (SWRDA, 2006).

3. An Effective and Confident Region

"...to ensure that the South West is working well as a region" (SWRDA, 2006, p.17).

"Successful regions display a number of common characteristics including a clear and well articulated image and purpose, strong leadership, and effective partnerships and networks to make things happen" (SWRDA, 2006, p.17). This objective highlights the need for "...effective policy and action at a regional level..." in order to promote a successful regional economy (SWRDA, 2006, p.17). Consequently this means, "...effective transport and communications; effective promotion and improvement of the region's assets; effective long-term planning and effective lobbying and influence at a national and international level"

(SWRDA, 2006, p.17). Additionally, the South West accepts the need to continue to attract investment, visitors and businesses to the region through the promotion of the environment, culture and creativity (SWRDA, 2006). Finally, the 'partnerships' approach remains key to regional development, clarifying the regional, sub-regional and local structures (SWRDA, 2006).

Each of the three strategic objectives will be delivered through a number of headline economic priorities that are perceived to be essential to secure sustainable economic development of the region. The three strategic objectives and related priorities are illustrated in Table Twelve.

Table Twelve: Strategic Objectives and Priorities

Successful and Competitive Businesses	**Strong and Inclusive Communities**	**An Effective and Confident Region**
Support business productivity.	Improve participation in the economy.	Improve transport networks.
Encourage new enterprise.	Regenerate the most disadvantages areas.	Promote and enhance what is best about the region.
Deliver skills for the economy.	Plan sustainable and successful communities.	Improve leadership, influence and partnership.
Compete in the global economy.		
Promote innovation.		

Source: (SWRDA, 2006)

Although many of these priorities have variable, indirect effects on innovation within the region, the priorities falling under the Successful and Competitive Business strategic objective, which are specifically targeted at businesses and innovation, provide a sensible starting point when exploring the area of innovative and knowledge transfer. These priorities are explored in more detail below.

Support Business Productivity

Due to the importance of the region's businesses in determining its long-term success, of which a high proportion are SMEs, the need for an effective business support system is paramount. Such an effective service aims to provide businesses with advice, intelligence and networks needed in order to make informed decisions on future development (SWRDA, 2006). This regional priority is underpinned by themes two and three of the South West Regional Strategy for Enterprise.

Encourage New Enterprise
New enterprises are vital to the economy and develop in response to new or growing markets. This regional priority seeks to create conditions conducive to enterprise, thus encouraging entrepreneurial activities and risk-taking (SWRDA, 2006). This regional priority is 'steered' by themes one, four and five of the South West Regional Strategy for Enterprise.

Deliver Skills for the Economy
Skills are important for both the economy and improving participation, and, as such, require a strong education system providing basic and technical skills (SWRDA, 2006). An important aspect of the regional priority is the need for training provision to be driven by businesses.

Compete in the Global Economy
International trade is becoming increasingly important, and the extent to which South West companies engage in the global market will have significant effects on the region's competitiveness (SWRDA, 2006). This regional priority is guided by the South West International Trade Strategy.

Promote Innovation
Innovation is vital, if businesses are to remain competitive in a rapidly changing market, with rapidly changing technologies (SWRDA, 2006). Key to this regional priority is encouraging a 'culture' of innovation within public, private and voluntary organisations (SWRDA, 2006). This regional priority is largely based on the region's Innovation Strategy.

The South West RES also identifies a variety of actions and activities that SWRDA will support, alongside its partners, in order to achieve the strategic objectives and related priorities. These actions and activities are explored in more detail in the following section (3.3.4).

3.3.4 Innovation and Knowledge Transfer Activities

The South West RES identifies a number of innovation and knowledge transfer actions and supporting activities that will contribute to achieving the strategic objectives and priorities outlined in the previous section. Table Thirteen identifies the key actions that will be implemented as a result of the overarching objective of successful and competitive businesses in order to achieve the related priorities.

Table Thirteen: Priorities and Actions to Achieve Successful and Competitive Businesses

Priority	Actions
Support business productivity.	• Enhance business support for SMEs. • Improve access to finance. • Develop specialist support for high growth businesses. • Ensure rural access to business support services. • Support resource efficiency in business. • Promote regional sourcing and the development of supply chains. • Deliver sustainable sites and premises for business growth. • Implement the Strategy for Sustainable Food and Farming.
Encourage new enterprise.	• Develop a culture of enterprise. • Promote and encourage the creation of new enterprises. • Support new social and community enterprises. • Promote enterprise in disadvantaged areas. • Promote enterprise in rural areas. • Encourage wider participation in enterprise.
Deliver skills for the economy.	• Encourage an efficient and adaptable labour market. • Develop workplace skills and training. • Inspire people to improve their employability skills. • Ensure high quality and flexibility training provision.
Compete in the global economy.	• Encourage and support regional businesses to trade internationally. • Attract and retain domestic and foreign direct investment.
Promote innovation.	• Develop a culture of innovation in the region. • Increase the contribution that science and technology makes to the economy. • Encourage collaboration between business and the region's knowledge base. • Maximise the take-up and exploitation of ICT for business.

Source: (SWRDA, 2006)

Full details of the actions and supporting innovation and knowledge transfer activities, in the context of the priority they are intending to fulfil, alongside the partners involved in the delivery for each activity and any specific delivery tools, are provided in a separate document 'Work Package One Database of Activities'. In addition the priorities and activities have been classified into an aspect of innovation, based on those identified by the IRE working group (see Section 2.3), by the University of Plymouth research team.

The reminder of this section explores a number of the key innovation and knowledge transfer activities adopted by the RES within the South West region in more detail.

The Business Link Service

SWRDA delivers a number of business support services through its funding and management of the **Business Link** service across the South West, which is delivered by Peninsula Enterprise. The Business Link service provides access to information, advice and support at all stages of the business process. The Business Link service is integral to the delivery of various aspects of the RES. For example, the Business Link service contributes to the priorities to support business productivity, encourage new enterprise, deliver skills for the economy and promote innovation. Examples of activities include the delivery of the **Rural Enterprise Gateway (REG)** which provides information, training and business development support to rural businesses the aim to increasing the economic performance and competitiveness of rural businesses, particularly farming and land based industries. The Business Link service is also a fundamental part of the **Train to Gain** initiative, a national initiative offering expert skills advice to companies in order to improve business performance by supporting employers to improve the skills of their employees. Within the South West the RES highlights that the Train to Gain system links seamlessly with the Business Link service.

Networks

SWRDA supports a number of business-to-business networks within the region with the aim to lead economic growth through the region's leading businesses. These networks contribute to the priorities to support business productivity and promote innovation through business to business networking. **Beacon South West** is a network that brings together companies from a variety of industries with a proven track record of success, in order to promote good practice and innovation, share ideas and exchange experiences. SWRDA also supports a number of **Sector Networks** to develop and promote the productivity and business competitiveness of certain sectors.

Enhancing HEI's Contribution to the Regional Knowledge Economy
Through the RES SWRDA support a number of activities to enhance the contribution of HEIs to the region's knowledge economy and promote innovation. For example SWRDA, in partnership with HERDA-SW supports **Knowledge Escalator South West (KESW)** which aims to deliver a range of activities to boost the capacity of HEIs to provide knowledge intensive support to South West businesses and stimulate new enterprise. The activities are broadly structured around three areas of collaborative knowledge transfer/exchange:

- Enterprise support for HE staff, students and graduates;
- Innovation support; and,
- Regional engagement and network support.

Strands of activity include proof of concept schemes, mentoring schemes, enterprise champions and knowledge fellowships. SWRDA also support the **Great Western Research (GWR)** project which aims to promote collaborations between the region's HEIs and forward thinking businesses through research fellowships and studentships in order to support economic growth. To further encourage collaboration between businesses and the region's knowledge base SWRDA support **Knowledge Transfer Partnerships (KTPs)** which are designed to assist businesses with improvements in competitiveness and productivity through better use of knowledge, technology and skills currently residing in the UK knowledge base. KTPs are funded by the Technology Strategy Board and 17 other funding organisations, including SWRDA. KTPs involve the formation of a partnership between a company and an academic institution, involving a recently qualified individual who facilitates the transfer of skills and expertise. The process is two-way, supported by both the company and a senior academic based within the academic institution.

South West Science and Industry Council
The **South West Science and Industry Council** (SWSIC) aims to raise the economic success of businesses in the region through more effective use of science, technology and creativity. The RES highlights SWRDA's plans to develop SWSIC to:

- Provide leadership and advice on how the contribution of science and technology to the regional economy can be increased;

- Provide an industry perspective on how economic development activities can be enhanced;
- Represent the interests of the region on science and innovation programmes and priorities at a national and international level; and,
- Advise on improving capacity and stimulating demand for science and technology in the region's businesses.

3.4 The Nord-Pas-de-Calais Region of France

3.4.1 Regional Demographics and Economic Profile

The region of Nord-Pas-de-Calais consists of two French *departments*, Nord and Pas-de Calais, and covers 12,414 km^2 which borders Belgium, as shown in Figure Nine below:

Figure Nine. Map of Nord-Pas-de-Calais

Source: (Maps of the World, 2009)

Nord-Pas-de-Calais is home to around 6.6% (4.048 million, 2007) of the national population and, since 1999, the region has seen an annual growth in population of 0.16% per annum, which is similar to other northern and eastern regions of France (INSEE, 2008).

The contribution to GDP for the region reached €90.8 billion in 2006 (ranked fourth of all regions in France), although when the 'size effect' is

taken into account, the region falls to twenty-first nationally (INSEE, 2008)[37].

At the end of 2006, a total of 1.43 million people were employed in the region, of which 75% were employed in the tertiary sector and 23% were in the secondary (industry and construction) sector, which was close to the national average of 75% and 22% respectively. Unemployment in the region remained high in the first quarter of 2008, at 10.2%, roughly 3% above the national average. Between 1990 and 2006, the region witnessed a reduction in the secondary sector of around 19%, and an increase in the services sector of around 30%, above the national averages of 15% and 29% respectively (INSEE, 2008).

According to the Revealed Regional Summary Innovation Index (RSII) (see Section 2.4.4) Nord-Pas-de-Calais's innovation performance was ranked 140th in the EU, and 19th within France, out of 22, which is lower than both the French and EU average. The region experienced a steady increase in innovation performance between 2001-2006 and shows relative strengths in life-long learning and relative weaknesses in business R&D (Hollanders, 2006).

The draft Regional Innovation Strategy (Strategie Regionale Innovation - SRI) proposes three strategic sectors for the region to focus upon. These sectors already have a strong regional presence, either through their excellent scientific knowledge, strong R&D resources with national and international competences, strong industrial networks that include international links, high levels of education, or established facilities. The vision is that, through further support, the region will become a European leader in these sectors by 2015. The three sectors are:

- Land Transport;
- Future Trade (particularly in relation to Science and ICTs); and,
- Biology, Nutrition and Health.

As discussed in Section 2.6, the introduction of Competitiveness Clusters in France in 2005 led to the creation of geographic concentrations of partnerships involving businesses, training centres, and public or private research centres, which focus on innovative projects that stimulate the local economy. Nord-Pas-de-Calais is home to six economic Competitive Clusters which have a common commitment to encourage and support

[37] Please note that whereas regional contributions to the national economy are measured in terms of GVA in the UK, GDP has been used in the French literature to measure regional economic performance against national output.

collaborations between businesses, research centres and higher education. The six Competitive Clusters are listed below; web links are also provided where further details of each individual cluster can be viewed:

- **I-TRANS** (land transport) – aims to build international recognition for Northern France as a unique focus of excellence and innovation in land transport (http://www.i-trans.org/);
- **Up-tex** (innovative textile sector) – aims to promote the textiles industry and boost business development and textile markets (https://www.up-tex.fr/default.htm);
- **Filière produits aquatique** (aquatic products) – aims to develop products and co-products related to fishing and aquaculture, strengthen the business environment and improve safety (http://www.poleaquimer.com/)**;**
- **PICOM** (trade and commerce) – aims to develop a centre of international trade (http://www.picom.fr/);
- **Maud** (materials and applications for sustainable use) – aims to develop innovation in three markets; tableware, graphics and packaging (http://www.polemaud.com/pole-competitivite/innovation-nord-pas-de-calais/accueil-pole-maud.htmll); and,
- **Nutrition Santé Longévité** (nutrition / health / longevity) – aims to bring together research and companies in the field of biology, healthcare and the food industry to develop innovative solutions to prevent and treat metabolic, cardiovascular diseases and those related the neuro-degenerative diseases (http://www.pole-nsl.org/).

In addition the Nord-Pas-de-Calais region has established seven regional excellence centres covering:

- Science and Technology of Plastics;
- Digital Picture;
- Logistics;
- Wood;

- Mechanic, Materials and Industrial Equipment;
- Food Industry; and,
- Eco-friendly Technology and Construction.

3.4.2 Key Regional Economic Drivers

The Nord-Pas-de-Calais region of France is represented by the Regional Council, which is responsible for the economic development of the region, with the support of the central state, the European Union and other authorities. The Regional Council acknowledges the need to develop an economic policy that supports major regional issues over the coming years. The Regional Council developed and adopted the Regional Economic Development Strategy (*Stratégie Régionale de Dévelopement Economique – SRDE*) in November 2005, which incorporates a common strategic vision to implement the broad economic policy guidelines for the region (Direction of Economic Action Department (FR), 2004).

The SRDE clearly outlines its ambition to make Nord-Pas-de-Calais a major economic region in Europe, with the main goal to develop activities and jobs in a united region. It is this overarching ambition that is driving the economic development of the region.

The SRDE also organises and leads on a number of other strategies and programmes that aim to drive the economic development of the region, the Regional Program for the Creation and Transmission of business (PRCTE), the Regional Development Plan for Handicraft, the Strategie Regionale Innovation (SRI) and the Plan Innovation Valorisation de la Recherche.

The individual strategies and programmes each identify a number of strategic objectives to help drive the development of the regional economy which are explored in more detail in the following section (3.4.3).

3.4.3 Key Innovation and Knowledge Transfer Objectives

3.4.3.1 Objectives of the SRDE

The SRDE identifies eight overarching objectives to help the region achieve its ambition to be a major economic region in Europe. These are:

- **Support business creation and communication.** This objective aims to further support the work of the PRCTE programme which has successfully been reviving the economic fabric of the region through the creation of new businesses, with a special effort being made surrounding the selling of businesses;

- **Structure the region around 15 centres of economic excellence.** The Regional Council identifies the need to focus on the region's key economic strengths within a global economy. This objective aims to foster further collaborations between laboratories, businesses and training centres to further develop R&D;

- **Place innovation, R&D at the very heart of priorities to accelerate transformation of the regional economy.** This objective responds to the Lisbon Strategy and aims to increase the proportion of the region's GDP spend on research and innovation to 3% by increasing public and private research, increasing collaborations between laboratories, clusters and companies, and developing and supporting innovation and technology transfer between companies;

- **Anticipate changes to the economic climate.** The Regional Council recognises that the economic climate is increasingly changing and identifies the need for businesses to be able to anticipate these changes as a key to economic success;

- **Rethink the economic activities of the Nord-Pas-de-Calais abroad.** In recognition that a large number of SMEs in the region struggle to access international markets, this objective is concerned with reviewing the region's future international trading;

- **Mobilise and coordinate the financial tools for regional economic development.** The Regional Council highlights that SMEs are important to the local economy in terms of innovation and job creation, but acknowledges that financial resources are needed to create and expand their activities;

- **Make Nord-Pas-de-Calais a highly progressive region in Information Communication Technologies (ITCs).** The Regional Council views ICT as a major driver of economic growth and development and sees ICT as fundamental to the modernisation of public services; and,

- **Promote a united region and ensure balance between the districts.** Solidarity is viewed as a fundamental element of economic policy by the Regional Council and this objective highlights the desire to ensure integrated and balanced development of all areas.

3.4.3.2 Objectives of the PRCTE

The SRDE builds on the work of the Regional Program for the Creation and Transmission of business (PRCTE), which was set up by the Regional Council in 2001in partnership with various regional, national and international partners including the French Government, Nord-Pas-de-Calais region, Regional Councils and the public bank for regional development. In March 2009 the State, Regional Councils, the Caisse des Depots and the Region consulted all PRCTE operators, conclusion from which will feed into PRCTE 2010-2013.

Through a dedicated team of staff the PRCTE programme assists and supports individuals wishing to set up their own company. The programme has four strategic priorities:

- Promote the spirit of entrepreneurship;
- Provide a visible and accessible network of support for the creation and selling of business;
- Establish funding tools to finance the establishment of sustainable businesses; and,
- Facilitate and co-ordinate all involved in the start up of new business in the region.

The activities of the PRCTE fall within the first strategic objective of the SRDE, to “support business creation and communication”. The PRCTE identifies three overarching objectives to help fulfil its four strategic priorities, alongside a number of sub-objectives, which are outlined in Table Fourteen.

Table Fourteen: Objectives and Sub-objectives of the PRCTE

Objective	Sub-objective
Support the creation of companies.	• Create 15,000 jobs per year, of which 12,000 new jobs, including 50% who received an intervention from the PRCTE. • Create a financial bonus rewarding firms surviving at 1 year and 3 years.
Support the transmission of companies.	• Improve the survival of businesses to be taken over. • Meet all corporate managers aged over 55 years. • Raise awareness among banks, estate agents and accountants. • Enhance the readability of the program through a toll-free number and single point of entry. • Create training specific to entrepreneurs • Raise awareness about recovery in the learning centres. • Create a specific fund to support knowledge transfer.
Develop the communication strategy.	• Continue with the communication plan.

Source: Adapted from Implementation Scheme of Regional Economic Development (Direction of Economic Action Department , 2009)

3.4.3.3 Objectives of the Regional Development Plan for Handicraft

The aim of the regional development plan for Handicraft is for the region to become the first traditional business region in France. The activities within this plan also fall within the first strategic objective of the SRDE, to "support business creation and communication". The Plan identifies two goals for the region to be reached by 2013:

- Increase the number of traditional companies from 38,000 in 2007 to 55,000 by 2013; and,
- Increase the number of employees from 118,000 in 2007 to 160,000 by 2013.

The Plan also identified five overarching objectives and a number of sub-objectives to assist the region in fulfilling these goals and being recognised as the first traditional business region in France. These are highlighted in Table Fifteen below.

Table Fifteen: Objectives and Sub-objectives of the Regional Plan for Handicraft

Objective	Sub-objective
Encourage the creation of companies.	• Increase the number of new businesses per year from 3,800 in 2006 to 6,000 in 2013 and assist 50% of these companies in their early years.
Encourage the transmission and recovery of companies.	• Increase the number of companies transferred a year from 450 in 2006 to 1,600 in 2013.
Develop traditional, small scale companies.	• Obtain 2000 traditional companies involved in collective actions per year in 2013.
Provide financial support.	• Finance 600 companies annually through specific financial tools (repayable advances, grants, access to bank credit).
Promote the traditional fields.	• Set up an ambitious communication based on traditional fields.

Source: Adapted from Implementation Scheme of Regional Economic Development (Direction of Economic Action Department , 2009)

3.4.3.4 Objectives of the Draft SRI

In response to the ECs requirement that all the regions of France develop a regional innovation strategy to determine the use of ERDF funds over the period 2007-2013, the region of Nord-Pas-de-Calais produced a draft SRI in May 2009 (Regional Council and French Government, 2009). This strategy should have a strategic plan by the end of 2009. The draft SRI has three strategic priorities:

- Support the priority sectors (outlined in Section 3.4.1) so the region is recognised as being a European leader in these sectors by 2015;
- Support economic sectors that are strong in the region in terms of jobs, but not in terms of scientific excellence, to develop innovation, diversification and competitiveness in order to reach an international market; and,
- Identify some potential high growth sectors, potentially within the emerging technologies, to further grow and develop.

The draft SRI identifies two key priorities, innovation and training, which are viewed as being key drivers of the region's economic development, alongside five key principles to help guide economic development and achieve the draft SRI's strategic priorities, which are shown below:

- **Anticipate**: Identifying prospective markets and the relevant technological barriers to identify a route for the regional strategy;

- **Train**: Training of young people, business leaders and employees who will be key to the revival of the regional economy. Training also has a role to play in opening up international markets to the region;

- **Organise**: Organising the large number of actors for innovation and research development within the region into a single plan to ensure maximum efficiency. Maintaining and increasing efforts to provide structure to innovation and development in research;

- **Be visible**: Implementing a strategy to promote the region's knowledge economy strengths; and,

- **Target**: Choosing areas to target development (e.g. intervention of high value SMEs, competitiveness cluster strategy).

The draft SRI identifies six overarching objectives to help the region achieve its three strategic priorities related to the development of specific economic sectors. These are outlined below:

- **Support the creation of innovative companies** by continuing to raise public awareness of entrepreneurship, by highlighting the region's strengths in higher education and by co-ordinating the accompanying structures;

- **Change the practices of regional SMEs** by relying on strategic analysis and human resources:

- **Attract high intensity technology investment** and change the image of the region;

- **Innovation** through and for services;

- **Provide better finance for innovation by** using financial tools to attract entrepreneurs; and,

- **Strengthen the potential of public and private research** and increase technology transfer.

3.4.3.5 Objectives of the Plan for Innovation Exploitation of Research

The Plan for Innovation Exploitation of Research 2008-2010 (Plan Innovation Valorisation de la Recherche) is a regional strategic plan established with regional entities only. The Plan has five strategic objectives, which are shown below:

- **Support innovative projects** within companies and laboratories and increase quality, quantity and importance of these innovative projects;
- Work with public research and **increase the regional potential of technology transfer**;
- **Support funding** of innovative R&D projects which create employment;
- **Support the creation** of innovative companies; and
- **Finance** each innovative project with appropriate support.

The various strategies and programmes also identify activities that the region will support in order to achieve their objectives and priorities. These activities are explored in more detail in the following section (3.4.4).

3.4.4 Innovation and Knowledge Transfer Activities

The SRDE and a number of the supporting strategies and programmes identify a variety of innovation and knowledge transfer actions and supporting activities that will contribute to achieving the objectives and strategic priorities outlined in the previous section. Full details of these actions and activities, where applicable, in the context of the objective and sub-objectives they are intending to fulfil are provided in a separate document - 'Work Package One Database of Activities'.

3.4.4.1 SRDE Actions

The SRDE identifies a number of actions to assist in the fulfilment of the eight strategic objectives outlined in Section 3.4.3.1. Table Sixteen outlines the key actions that will be implemented.

Table Sixteen: Actions to Achieve the Strategic Objectives of the SRDE

Objective	Actions
Support business creation and communication.	• Continue to raise awareness of the creation, recovery and transfer of companies. • Continue to support the communication campaign and facilitate the transition to a culture of entrepreneurism. • Promotion of teaching to awaken the entrepreneurial spirit. • Ensure the quality of support and monitoring – the entrepreneur must be able to check the validity of their project, receive training and increase the chances of survival of young companies. • Ensure clear contracts between funders and operators in terms of expectations. • Enhance the quality of learning traditional crafts in the region and ensure a balance across the regions in the supply of training. • Develop innovative policies to support the creation of services to improve quality of living. Associate the name 'Nord-Pas-de-Calais' with a strong image – the 'valley of opportunity'.
Structure the region around 15 centres of economic excellence.	• Encourage partnership between firms, research centres, and organizations to foster the development of wealth and employment of regional SMEs. • Structure the economy around a joint economic regional centre of excellence. • Increase the number of established centres of excellence to 15.
Place innovation, R&D at the very heart of priorities to accelerate transformation of the regional economy.	• Increase the potential of public/private research. • Increase partnerships between laboratories, technology centres and companies. • Raise awareness, develop and support innovation and technology transfer activities.
Rethink the economic activities of the Nord-Pas-de-Calais abroad.	• Attract foreign investment. • Internationalise SMEs. • Decentralized economic cooperation. • Promote the Nord-Pas de-Calais region internationally.
Mobilize and coordinate the financial tools for regional economic development.	• Articulating financial tools where the public authorities (such as the Regional Council) are shareholders. • Link with other regional financial tools. • Support associations aiming to promote private investment and the proximity with other devices.

Table Sixteen: Actions to Achieve the Strategic Objectives of the SRDE (continued)

Objective	Actions
Make Nord-Pas-de-Calais a highly progressive region in Information Communication Technologies (ITCs).	• Ensure the accessibility of high flow throughout the region and eliminate gray areas. • Develop ICT services for businesses and residents. • Structure the ICT sector. • Disseminate ICT within firms.
Promote a united region which is attentive to balance between the districts.	• Disseminate and promote social economical practice. • Assist the sectors to support local development strategies. • Support the development of social activities. • Encourage development of local plans for economic development (PLDE).

Source: Adapted from Implementation Scheme of Regional Economic Development (Direction of Economic Action Department , 2009)

Full details of these actions and supporting innovation and knowledge transfer activities in the context of the objective they are intending to fulfil for each strategy and programme, are provided in a separate document - 'Work Package One Database of Activities'. In addition the objectives and activities have been classified into an aspect of innovation, based on those identified by the IRE working group (see Section 2.3), by the University of Plymouth research team.

This section explores a number of the key innovation and knowledge transfer activities adopted by the SRDE within the Nord-Pas-de-Calais region in more detail.

Support business creation and communication
Information to support the achievement of the PRCTE priorities, which fall within this strategic aim of the SRDE, are communicated through three websites: **jecree.com**, which is dedicated to the entrepreneur or potential entrepreneur; **jereprends.com**, which is dedicated to individuals wishing to sell or take over a company; and, **demainjecree.com**, which is dedicated to promoting entrepreneurship amongst the young people within the region (aged 14 to 30 years). In addition the website **lacreativallee.com** has been launched which promotes the region as the 'valley of opportunity' which aims to enhance the attractiveness of the region and promote it as a successful region.

Place innovation, R&D at the very heart of priorities to accelerate transformation of the regional economy
Activities supported by the SRDE include establishing an **innovation platform on research and valorisation** which is an area of collaborative work to mobilise all of the skills of the region in support of innovation and knowledge transfer. The SRDE also supports the establishment of an operational team of **business development officers** responsible for valorisation to enhance scientific and technological skills in the region. Another activity supported by the SRDE involves implementing a **regional fund** for innovation and research development.

Rethink the economic activities of the Nord-Pas-de-Calais abroad
Activities to attract foreign investment are managed by **North eXperts France** (NFX) and its network of development agencies located across the region. NFX is a publicly funded investment development agency for Northern France dedicated to the promotion, marketing and management of foreign investments. In order to promote international trading the Regional Council, Regional Chamber of Commerce, Industry of Nord-Pas-de-Calais and their partners have established an **International**

Week which provides an opportunity for companies to interact with large regional experts, as well as national and international companies.

Make Nord-Pas-de-Calais a highly progressive region in Information Communication Technologies (ITCs)
Under the SRDE a study has been conducted to establish the equipment requirements and needs of businesses, from which an action plan will be developed to assist with the dissemination of ICT within companies. In addition the SRDE supports activities to structure the ICT sector around a digital hub.

3.4.4.2 Draft SRI Actions

The draft SRI identifies a number of actions to assist in the fulfilment of a number of its strategic objectives to assist in the development of economic sectors outlined in Section 3.4.3.4. Table Seventeen outlines the key actions that the draft SPR proposes to implement.

Table Seventeen: Actions to Achieve the Strategic Objectives of the Draft SRI

Objectives	Actions
Change practices of regional SMEs by focusing on strategic analysis and human capital.	• Develop a regional organisation responsible for supporting SMEs in their development with the following considerations: 1) Target SMEs with high potential and implement a regional exploration plan 2) Develop team trained to understand and support business needs, 3) Organise a global service to meet business needs. • Raise the level of students training at masters and PhD level. • Work on the integration of students to regional SMEs.
Attract investment in high technology to change the image of the region.	• Develop a communication strategy and promotional tools following the guidelines of the regional innovation strategy.
Innovative by and for services.	• To help both the proposal of new services to existing markets and the conquest of new markets. • At a local level the presence of a real service offering is essential to the competitiveness of enterprises. • Sectors must develop innovation strategies specific to their sector and have strong innovation support.
Better finance for innovation, use financial tools to attract entrepreneurs.	• Work with business leaders to develop a financial strategy. • Communicate the regions financial intervention capacity. • Increase the fluidity between the operators to help the emergence of project and structures funding.
Strengthen the public and private research potential and increase technology transfer.	• Allow the region to achieve scientific excellence in a number of limited areas. • Enhancement of research and the need to transfer to the economic fabric. The implementation of the Plan Campus Centre and regional Higher Education must register in this dynamic for the structure.

Source: Adapted from Implementation Scheme of Regional Economic Development (Direction of Economic Action Department , 2009)

As highlighted in Section 3.4.2.1, the SRI is a draft document and does not currently have a strategic plan.

3.4.4.3 Plan for Innovation Exploitation of Research Actions

The Plan for Innovation Exploitation of Research identifies actions to assist in the fulfilment of a number of its strategic objectives, as outlined in Table Eighteen.

Table Eighteen: Actions to Achieve the Strategic Objectives of the Plan for Innovation Exploitation of Research 2008-2010

Objective	Actions
Support innovative projects within companies and laboratories and increase quality, quantity and importance of these innovative projects.	• Increase the number of projects from 200 to 250 by 2010 and to 300 by 2013. • Involve more than 1,000 companies in collaborative projects. • Involve 70 regional entities: Clusters, Regional Excellence centre, Research centre, Valorisation centre. • Provide a personalised and confidential accompaniment for each laboratory or company requirement by using "Innovation and valorisation platform". • Provide website support through jinnove.com. • Enhance the communication targeting companies and laboratories. • Produce a prospective plan in order to identify companies with an innovative potential.
Work with public research and increase the regional potential of technology transfer.	• Support technology transfer in Clusters or Regional Excellence Centre using technology transfer centre such as CRITT or M2A. • Approve 40 Scientific and Technologic Valuation Centre and use their competences to support companies. • Increase number, quality , and importance of emerging projects within regional laboratories • Develop a strategy for the Research and Higher Education Cluster (an association of universities, engineering school, clusters, public research entities) in order to be internationally attractive. • Establish a strong economy and policy to be a leader on some fields and attract public research entities. • Combine each Cluster with a Technical Centre or one of the 40 Scientific and Technologic Valuation Centres.
Support funding of innovative R&D projects which create employments.	• Develop a specialized territorial fund to enhance regional establishment of these centres. • Develop a strategy to prospect these centres. • Develop a strategy to promote and communicate regional strengths and attract foreign investment.
Support the creation of innovative companies.	• Double new company creations from 25 in 2008 to 50 in 2010. • Raise awareness of entrepreneurship to students. • Develop Nord-Pas-de-Calais "incubators" to support students or employees on their innovative project developments. • Provide grants to support students on their projects.

Source: Adapted from Action Plan Innovation-Valorisation of Research 2008-2010 (Regional Council and French Government Departments, 2008).

3.5 The Bretagne Region of France

3.5.1 Regional Demographics and Economic Profile

Bretagne is divided into four *departments*, Finistère, Côtes d'Armor, Ile et vilaine and Morbihan, and is the westernmost region of France covering 27,506 km^2. It is located at the crossroads of the European Atlantic surrounded by 750 miles of coastline, as shown in Figure Ten.

Figure Ten: Map of Bretagne

Source: (Maps of the World, 2009)

In 2004, according to the National Institute of Statistics and Economic Studies (*Instiut National de la Statistique et des Ètudes Economiques - INSEE*), Bretagne's population was approximately 3.02 million, having increased by an average of 0.8% per annum, since 1999 (primarily due to an increase in immigration levels, post 1999) (INSEE, 2005).

With GDP of 73.5 billion euros in 2005, Bretagne contributed at a level of 4.4% to total national wealth (7th largest contribution nationally). For almost 20 years, Bretagne's contribution to GDP has enjoyed higher average growth than that of France as a whole (Europa, 2005)[38].

[38] Please note that whereas regional contributions to the national economy are measured in terms of GVA in the UK, GDP has been used in the French literature to measure regional economic performance against national output.

In late 2004, employment in Bretagne was around 1.21 million (or roughly 5% of the national total), of which 70% was in the service sector (INSEE, 2005). Employment in the region experienced strong growth up until 2002, after which, growth began to slow. Unemployment in the region after the first quarter of 2009 was 7.3%, which is below the national average (INSEE, 2009).

According to the Revealed Regional Summary Innovation Index (RRSII) (see Section 2.4.4) Bretagne's innovation performance was ranked 66th in the EU, and 5th within France, higher than both the French and EU average. The region has experienced a steady increase in innovation performance between 2001-2006 and shows relative strengths in patents and relative weaknesses in business R&D (Hollanders, 2006).

Whilst food processing and shipbuilding are recognised as strong areas of specialism within the region (INSEE, 2005), the SRDE states that its key sectors are:

- Agriculture;
- ICT;
- Automotive; and,
- Marine.

Tourism is also viewed as an important industry to the Bretagne region.

As discussed in Section 2.6.2, the introduction of Competitiveness Clusters in France in 2005 led to the creation of geographic concentrations of partnerships involving businesses, training centres, and public or private research centres, which focus on innovative projects aiming to stimulate the local economy. Bretagne is home to five economic Competitive Clusters which are listed below; web links are also provided where more detail is provided regarding the individual clusters:

- **Automobile haut de gamme** (automotive industry) – aims to develop innovation and competitiveness within the automotive industry (http://www.investinfrance.org/international/en/automobile-haut-de-gamme-cluster.html);
- **Emc2** (metallic's and composites) – aims to develop an area of excellence in research and industrial applications in key technologies related to the implementation and processes

associated with metallic and composite materials (http://www.pole-emc2.fr/); and,

- **Images et Reseaux** (images and networks) – aims to increase competitiveness and attractiveness of the images and stream networks (http://www.images-et-reseaux.com/).

- **Mer Bretagne** (maritime) – aims to develop products and services that will make a difference in international markets and create business and jobs (http://www.pole-mer-bretagne.com/); and,

- **Valorial** - enhancement for research and food innovation (http://www.pole-valorial.fr/).

3.5.2 Key Regional Economic Drivers

3.5.2.1 Overview

Within Bretagne, the Regional Council is responsible for the development and coordination of the Regional Economic Strategy ('Stratégie Régionale de Dévelopement Economique' - SRDE). The SRDE, adopted in October 2006, was developed in order to provide a shared vision of the medium-term challenges for the economy of Bretagne and common intervention methods to address them. In order to achieve this, the SRDE was deliberately allowed to be flexible, whilst at the same time providing a framework of action to be shared and regularly updated, based on economic and social change (Région Bretagne, 2006).

3.5.2.2 Overarching Goals

According to the SRDE, the impetus behind Bretagne's economic development derives from three major aims. Collectively, these constitute the driving force behind the region's overall strategic approach.

1. **To determine a direction for new dynamic economic growth** The belief within the SRDE is that, following decades of economic and social growth, the economy in its current structural form has reached the end of a cycle. In order to maintain the region's attractiveness and its below-national-average levels of unemployment (which have led to a major expansion in the residential economy), it is necessary for the region to rethink the foundations of its production system in order to identify principles of new, dynamic growth. The

principal objective is to continue economic and social development, and to maintain and develop new activities within all of the regional districts (Région Bretagne, 2006).

2. **To implement a sustainable development model**
   The search for a new area for dynamic and sustainable growth was not based on a short-term vision, but a sustainable long-term one. It was felt that this development was a vital aspect to future regional success as the foundations of competitiveness and attractiveness of the region are changing every day, moving towards a greater use of sustainable developmental components (Région Bretagne, 2006). The key objective is, wherever possible, to seek sustainable development in the production system.

3. **To increase employment along with subsequent social and human development**
   Employment remains centrally important to the public and across all actors within the region. As such, economic development within the region should focus on the creation of jobs, in order for regional employment levels to remain above the French national average (Région Bretagne, 2006). Employment was identified as particularly important as a vehicle for social progress, personal autonomy, individual development and a fundamental aspect of regional vitality (Région Bretagne, 2006). However, the SRDE highlights the importance of creating high value-added jobs, as concentrating purely on increasing the total number of jobs would lead to increases in the number of low value-added jobs, which would not be viable in the medium-term and within the current global market (Région Bretagne, 2006). The key objective is to promote the establishment of a 'virtuous circle' between highly-qualified individuals and low-level jobs within the economy (Région Bretagne, 2006).

3.5.2.3 Underlying Principles

Complementing these over-arching aims are six key strategic ideas which have shaped the development of the SRDE and are shown below:

- The belief that economic development is meaningless unless it is placed at the service of social and individual development;
- The need to maintain and develop a productive and industrial activity in Bretagne;

- A conviction in the importance of a strong research base;
- The will to make innovation the engine of growth;
- The need to strengthen the roots of the Bretagne economy and increase its capacity for endogenous growth; and,
- The desire to achieve successful integration of communication technologies as a key factor for business performance.

In response to the fourth idea, to make innovation the engine of growth, and in response to the EC's requirement that all the regions of France develop a regional innovation strategy to determine the use of ERDF funds over the period 2007-2013, the region developed a Regional Innovation Strategy (Schema Regional de l'Innovation - SRI) under the SRDE in 2008. This Strategy is structured around four goals, which are shown below:

1. **Animate, coordinate and structure the regional innovation support system:**
   This will ensure consistency and synergy between the activities of abundant regional actors in support of innovation.

2. **Use innovation for structuring the economy:**
   The main priority is the development of 'technology watch' for SMEs which enables companies to keep informed of technological, legislative, regulatory and competitive issues.

3. **Development of skills:**
   SMEs require support to develop the skills necessary for successful innovation. SMEs must be aware of the need to innovate, develop their capacity to innovate and encourage the development of their expertise.

4. **Internationalize the innovation process:**
   There is a need to support companies to internationalize their innovative processes.

Together, the over-arching aims and underlying ideas of the SRDE and the goals of the SRI constitute the key structural and strategic driving force behind the regional economy.

3.5.3 Key Innovation and Knowledge Transfer Objectives

Bretagne has a multitude of economic development tools, including public and private actors at different levels, comprehensive financial aids, economic development budgets, international expansion and innovation in growth. However, these tools lack coordination at a regional level. The ultimate aim is to give the region and its stakeholders the tools from which a relevant and progressive set of policy measures promoting regional economic development can be developed, with the ability to adapt this to a shifting global environment (Région Bretagne, 2006).

On this basis, the region has a number of objectives in relation to the fields of innovation and knowledge transfer which is discussed in the following section (3.5.3).

3.5.3.1 Innovation

As highlighted in Section 3.5.2.3, innovation is driven by the SRI; the agreement between key innovation actors throughout the region. The SRI has three key strategic objectives in relation to innovation which are outlined below.

1. **Strengthen and consolidate the existing economy through innovation:**
   This objective focuses on ensuring that innovation support provides a coherent set of regional synergies of innovation activities and a clear and better understanding among SMEs of the available support (Région Bretagne, 2006).

2. **Diversify the economy through innovation:**
   The competitiveness of the economy relies upon Bretagne developing and strengthening its skills and areas of excellence, as well as its ability to identify future niches within the global economy (Bretagne Innovation, 2008). Thus, diversification through innovation will be achieved by identifying new sources of growth in areas that show high potential (Bretagne Innovation, 2008). In order to achieve this, one of the key objectives is to provide monitoring tools which enable SMEs to remain informed about technological, legislative, regulatory and competitiveness developments (Région Bretagne, 2006).

3. **Promote the region to outside companies and other innovation actors:**
   The region is faced with growing levels of competition both from within France and internationally. As such, innovation and

differentiation are seen to be the only way forward (Région Bretagne, 2006). International development within Bretagne's SMEs could include R&D projects, the transfer of knowledge and technology (either exported or imported), settlements abroad and alliances with foreign companies for the distribution of products, processes or services (Bretagne Innovation, 2008).

Table Nineteen details the individual sub-objectives related to each of these strategic objectives.

Table Nineteen: Objectives and Sub-objectives

Strengthen and consolidate the existing economy through innovation	**Diversify the economy through innovation**	**Promote the region to outside companies and other innovation actors**
Develop a culture of innovation and partnership in enterprises.	Anticipate future changes to enable proactive adaptation.	Enable SMEs to develop international partnerships.
Strengthen skills within companies.	Encourage innovative cross-sectoral approaches.	Encourage SMEs, laboratories and supporting structures to participate in European research and innovation programmes.
Improve support of innovative projects within companies.	Promote technology transfer and support the creation of new activities.	Create an innovative and attractive image of Bretagne to the world.
Strengthen research collaborations between public and private sectors.	Spread the culture of innovation in Bretagne.	
Develop and support inter-organisational cooperation.		

Source: (Bretagne Innovation, 2008)

3.5.3.2 Knowledge Transfer

The SRDE has a number of policies directed at supporting 'knowledge society' developments impacting upon regional industries. In order to support regional businesses, the SRDE establishes the following key objectives:

- To promote links between business, research and training in order to put companies at the centre of a knowledge network (e.g. Competitiveness Clusters, networks of technology transfer centres, technology etc.);

- To support the acquisition of added-value functions (e.g. diffusion of technological innovation, internationalisation of

markets, management of human resources, social innovation and quality of employment, the development of simple and clean energy etc.); and,

- To support and encourage the development of new uses of technology in all processes, organisations, internal and external companies, and in the establishment and development of networks of economic development.

While the SRDE does not outline specific actions and activities to assist the region in achieving the objectives to support the knowledge society, the SRI does identify a variety of actions and activities that it will support in order to achieve the strategic objectives and sub-objectives related to innovation. These actions and activities are explored in more detail in the following section (3.5.4).

3.5.4 Innovation and Knowledge Transfer Activities

The SRI identifies a number of innovation and knowledge transfer actions and supporting activities that will contribute to achieving the strategic objectives and sub-objectives outlined in the previous section. Table Twenty to Table Twenty-two identify the key actions that will be implemented as a result of the three strategic objectives.

Table Twenty: Sub-objectives and Key Actions to Strengthen and Consolidate the Economy Through Innovation

Objective	Actions
Develop a culture of innovation and partnership in enterprises.	• **Communicate innovation issues.** Increase the number of innovative companies and foster the emergence of projects. • **Encourage innovative collaborative approaches and partnerships among SMEs.** Foster innovation in SMEs by encouraging external collaborations. • **Structure the innovation network in Bretagne**. Improve the stimulation, the change and support for businesses through a regional network of advisors. • **Strengthen links between Higher Education and regional economic networks.** Promote collaboration between HEIs and businesses.
Strengthen skills within companies.	• **Support the innovation actor within companies.** Strengthen the management of innovation in SMEs. • **Promote the integration of Human Resources into companies.** Enhance support.
Improve support of innovative projects within companies.	• **Strengthen skills in project engineering.** Manage projects through the innovation process. • **Improve support for marketing industrialisation, and commercialisation.** Increase innovative projects in support of marketing, industrialisation and product launches. • **Build support for organisational innovation and marketing.** Support and increase the number of internal organisational innovations, marketing strategies and process management.
Strengthen research collaborations between public and private sectors.	• **Expand opportunities for collaboration between public research and private business.** Encourage collaboration between researchers and SMEs. • **Implement the Charter for collaboration among Bretagne's technology transfer actors.** Strengthen knowledge and technology transfer through greater synergy between innovation supporting actors, and encourage exchanges between public and private sectors. • **Support collaborative projects between public research and private organisations.** Encourage partnerships through industrial research projects.
Develop and support inter-organisational cooperation.	• **Support and develop projects using platforms.** Encourage collaborative projects by using shared research and technical equipment. • **Support SME networks and groups.** Promote trading within and between industries.

Source: Adapted from SRI (Bretagne Innovation, 2008)

Table Twenty-one: Sub-objectives and Key Actions to Diversify the Economy Through Innovation

Objective	Actions
Anticipate future changes to enable proactive adaptation.	• **Support economic intelligence actions and strategic watches.** Give the region the ability to anticipate economic, technological and societal issues. • **Structure action of observation on both innovation and the supporting system.** Improve the regional system of support for innovation by developing decision making tools.
Encourage innovative cross-sectoral approaches.	• **Launch cross-thematic programs.** Provide support for emerging sectors. • **Promote the emergence of cross-sectoral clusters.** Emergence of collaborative market-oriented clusters.
Promote technology transfer and support the creation of new activities.	• **Support technology transfer.** Enhance the transfer of knowledge, skills and results from research laboratories. • **Strengthen the work of the Competitiveness Clusters.** Strengthen regional competitiveness by bringing players into Competitiveness Clusters. • **Promote the creation of companies and innovative activities.** Develop an environment conducive to the emergence of young companies, and their sustainability and diversification through the development of innovative activities.
Spread the culture of innovation.	• **Educate individuals, especially the young, to innovate.** Develop a positive and dynamic image of innovation in Bretagne.

Source: Adapted from SRI (Bretagne Innovation, 2008)

Table Twenty-two: Sub-objectives and Key Actions to Promote the Region to Outside Companies and Other Innovation Actors

Objective	Actions
Enable SMEs to develop international partnerships.	• **Sustain and disseminate international monitoring tools.** Enable SMEs to develop internationally through effective monitoring of all dimensions related to innovation in Bretagne. • **Strengthen customised support for businesses in their international innovative projects.** Increase the number of concrete innovative projects abroad. • **Promote innovation and skills within Bretagne both nationally and internationally.** Improve national and international visibility of innovative firms within Bretagne.
Encourage SMEs, laboratories and supporting structures to participate in European research and innovation programmes.	• **Educate and inform SMEs, support structures and laboratories on the opportunities for European research and innovation.** Increase the number of regional participants in European programmes related to research and innovation. • **Support for European projects.** Increase the number participating in, and coordination of regional European research and innovation projects.
Create an innovative and attractive image of Bretagne to the world.	• **Develop a strategy for international communication of innovation within Bretagne.** Strengthen regional attractiveness for investors and foreign skilled workers. • **Secure events around Europe and internationally.** Ensure that Bretagne is identified at an International level as a reference region for its areas of excellence. • **Attract and retain talented individuals to/within Bretagne.** Secure sustainable human resources from the international community, in areas of excellence, to enhance research and innovation potential.

Source: Adapted from SRI (Bretagne Innovation, 2008)

A separate document - 'Work Package One Database of Activities' - provides full details of the actions and supporting innovation and knowledge transfer activities. These are presented in the context of the strategic objective and sub-objectives they are intending to fulfil, alongside the partners involved in the delivery for each activity and any specific delivery tools. In addition, the sub-objectives and activities have been classified into an aspect of innovation, based on those identified by the IRE working group (see Section 2.3), by the University of Plymouth research team.

This section now goes onto explore a number of the key innovation and knowledge transfer activities adopted by the SRI within the Bretagne region in more detail.

Structuring the Innovation Network in Bretagne

As a result of the sub-objective to develop a culture of innovation and partnership in enterprises the SRI adopts a number of activities to improve the structure of the network of innovation support available in the region. This is done through a regional network of advisors. Activities include: reaffirming the operating rules of support organisations through the implementation of a **Regional Innovation Charter** which defines good practice for these organisations; and, establishing communications with businesses about the network through **Ready to Innovate**, the bi-monthly newsletter published by Bretagne Innovation, and through the **Innovation Portal**, Bretagne Innovation's website which consists of interactive information and intelligence for SMEs updated on a daily basis.

Promoting the Integration of Human Resources into Companies

The SRI supports a number of activities to enhance skills within companies. One activity aims to enhance the communication and support for the integration of students into SMEs. One mechanism for doing this is through an **industrial agreement for training through research** (Conventions Industrielles de Formation Par la Recherché - CIFRE). CIFRE is a national initiative whereby companies receive a grant from the Ministry of Higher Education and Research for employing a recent graduate. An agreement is formed between the company or research lab and recent graduate, who is placed at the heart of a research collaboration between the company and a public laboratory. This process results in the submission of their doctoral thesis after three years.

Implementing the Charter for Collaboration Between Bretagne's Technology Transfer Actors

The SRI supports a number of activities with the overarching aim to strengthen research collaborations between public and private sectors. More specifically, activities focused on strengthening technology transfer through greater synergy between innovation support organisations include promoting cross partner working on projects, sharing and disseminating information between technology transfer officers and establishing a database of research units visited and existing tools for innovation. The key tool behind these activities is the development and sharing of a **database of competences**, an interactive directory of technological competences in the region.

Support Technology Transfer

The SRI supports a number of activities with the overarching aim to promote technology transfer and support the creation of new activities. Within this, activities focused on enhancing the transfer of knowledge, skills and results from research laboratories include the implementation of a **Charter of Regional Technology Transfer**. This Charter defines good practice for the multitude of organisations supporting technology transfer in the region. Further activities include providing financial support for the initial R&D and proof of concept stage of business development. This support is provided through the **Maturation Fund,** a grant fund managed by the Regional Council to support technologies identified as having high commercial potential.

Promote the Creation of Companies and Innovative Activities

Further activities with the overarching aim to promote technology transfer and support the creation of new activities, specifically by developing an environment conducive to the emergence and sustainability of new companies include **Business Hotels**. These are facilities for young entrepreneurs offering accommodation, support and services to maximise the success rate of start ups. Currently Bretagne is home to 47 Business Hotels. The SRI also supports **Technopoles**, technology parks that support innovation of start-ups and existing enterprises through the promotion of synergies between industry, higher education and research establishments. Within this the SRI supports the **Regional Incubator**, Emergys, which supports researchers or young scientists to set up their own business and optimise their research work. Emergys consists of a number of science and technology parks and higher education and research establishments in Bretagne.

Educate Individuals to Innovate

The SRI supports a number of activities that aim to encourage individuals to innovate. For example individuals can get involved through the '**Week of Innovation'**, which is a week dedicated to promoting innovation and encouraging partnerships between research laboratories and companies. The week includes a gallery of innovation projects, forums, testimonials and business booth space. The week is coordinated by Bretagne Innovation with the support of the Regional Council. In addition the general public can source information about innovation through the **innovation portal** – Bretagne Innovation's website. In addition the SRI encourages the promotion of the **Regional Index of Innovation** which is a tool of indicators to evaluate the development of innovation in Bretagne in order to compare its progression with other regions of France and Europe.

Utilising the regional economic strategies, this section has provided details of the key regional economic drivers and supporting knowledge transfer and innovation objectives and activities within each of the four regions represented by the PROTTEC project partnership. The report now goes onto explore areas of commonality across the regions.

Section Four: Identification of a Common Set of Innovation Objectives and Economic Sub-sectors Across the Regions.

4.1 Introduction

The purpose of this section is to explore the degree of commonality across the regions represented by the PROTTEC partnership with regards to the innovation objectives and key economic sub-sectors identified within the respective regional economic strategies. This will identify a core set of targets upon which cross-border activities developed within later PROTTEC Work Packages can be based.

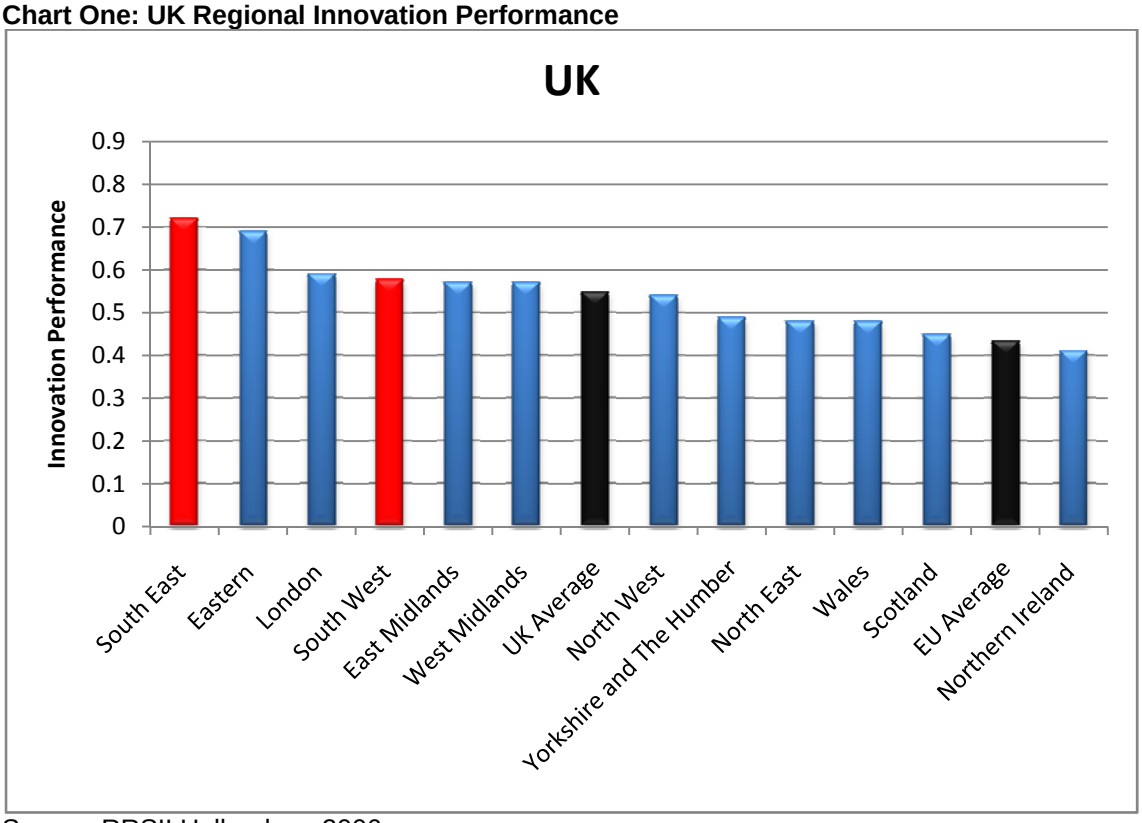
In line with this, Section 4.2 identifies common innovation objectives across the four regions utilising the innovation criteria identified by the IRE working group (IRE Working Group, 2008), outlined in Section 2.3. Section 4.3 identifies common economic sub-sectors across the regions.

4.2 Common Set of Innovation Objectives

As highlighted in Section Three, within the regional economic strategies, and related innovation and knowledge transfer strategies or programmes, each region identifies a number of overarching aims, priorities or objectives to help progress regional economic development. The Nord-Pas-de-Calais region of France is the most complex in terms of establishing the innovation and knowledge transfer objectives that the region supports, as there are a number of strategies and programmes with overlapping objectives. For the purposes of this exercise, where appropriate, overlapping objectives have been condensed into a single objective.

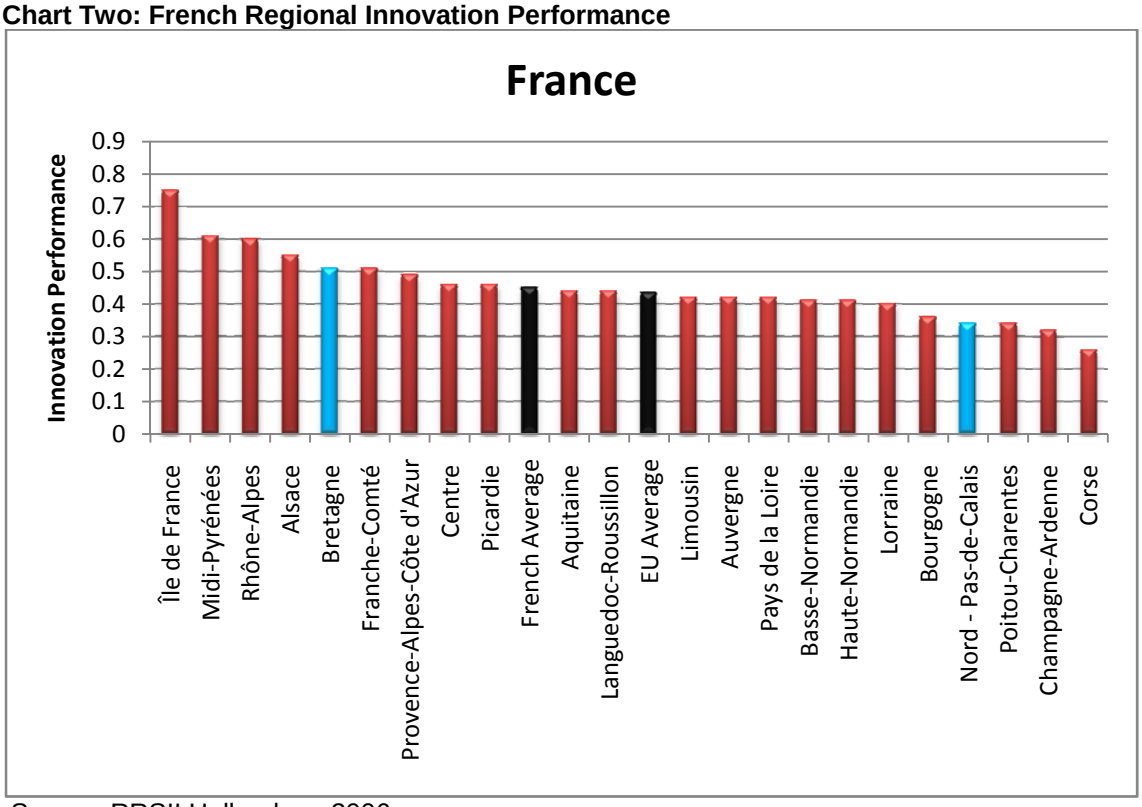
To contextualise the analysis of common innovation objectives it is important to understand where each region sits with regard to their innovation performance in a national context. Charts One and Two below show the innovation performance of the UK and French regions, respectively, in a national and EU context. The charts present information from the Revealed Regional Summary Innovation Index (RRSII), which takes into account a region's relative performance within the EU and their relative performance within the country (see Section 2.4.4).

Chart One: UK Regional Innovation Performance



Source: RRSII Hollanders, 2006

Chart Two: French Regional Innovation Performance



Source: RRSII Hollanders, 2006

As shown in Chart One above, within the UK, the innovation performance of both the South East and South West is higher than both the UK and EU average, with the South East being the best performing region in the UK. Chart Two highlights that, within France, whilst innovation performance within the Bretagne region is higher than both the French and EU average, the Nord-Pas-de Calais region performs below both the French and EU average.

The degree of commonality across the regions in terms of innovation objectives can be established through identifying, and cross matching, the regional objectives against the innovation criteria regarded as important within the context of regional economic development (IRE Working Group, 2008). Objectives falling within each of the IRE innovation criteria will have varying direct and indirect impacts on the EIS indicators of innovation (see Section 2.4.3).

Table Twenty-three highlights the innovation criteria that are represented as objectives contained in each region's economic strategy, as classified by the University of Plymouth research team.

Table Twenty-three: Common Innovation Objectives

Innovation Criteria	Region			
	South East of England	South West of England	Nord-Pas-de-Calais	Bretagne
Mechanisms for better coordination of the innovation system			✓	
Promotion of R&D activities	✓		✓	
Technology/knowledge transfer actions	✓		✓	✓
Development of clusters, supply chains and company networks			✓	✓
Supply of economic intelligence/ technology watch services			✓	✓
Internationalisation and foreign investment	✓	✓	✓	✓
Support to high-tech, high-growth entrepreneurship			✓	
Promotion of an innovation culture and entrepreneurial mindset	✓	✓	✓	✓
Provision of innovation financing			✓	
Boosting innovation in the public sector				
Promoting innovation in SMEs	✓		✓	✓
Provision of enhanced innovation support services and infrastructure		✓	✓	✓
Marketing the regional innovation profile			✓	✓
Workforce skills development	✓	✓	✓	✓

Source: SERIO 2009

Table Twenty-three shows that all four regions have objectives within their regional strategies that address: internationalisation and foreign investment; the promotion of an innovation culture and entrepreneurial mindset; and, workforce skills development.

Three of the regions have objectives that address; technology/knowledge transfer actions; the promotion of innovation in SMEs (South West of England being the exception); and, the provision of enhanced innovation support services and infrastructure (South East being the exception). Two of the regions have objectives that address the promotion of R&D activities (South East of England and Nord-Pas-de-Calais).

In addition, both regions of France have objectives within their regional strategies that address: the development of clusters, supply chains and

company networks; the supply of economic intelligence/technology watch services; and, marketing of the regional innovation profile.

Full details of these common objectives are detailed in Table Twenty-four, below.

Table Twenty-four: Common Regional Objectives Classified by Innovation Criteria

Innovation Criteria	Region			
	South East of England	**South West of England**	**Nord-Pas-de-Calais**	**Bretagne**
Internationalisation and foreign investment	Increase the percentage of businesses located in the South East operating internationally, maximising the South East's share of global Foreign Direct Investment	Compete in the global economy	Rethink the economic activities of the Nord-pas de Calais abroad	Enable SMEs to develop international partnerships
Promotion of an innovation culture and entrepreneurial mindset	Increase the business stock, including new businesses run by women	Encourage new enterprise	Support the creation of companies	Develop a culture of innovation and partnership in enterprises
		Promote innovation		Spread the culture of innovation in Bretagne
				Promote technology transfer and support the creation of new activities
Workforce skills development	Maximise the number of people ready for employment at all skill levels, and ensure they are continually equipped to progress in the labour market	Deliver skills for the economy	Change practices of regional SMEs by focusing on strategic analysis and human capital	Strengthen skills within companies
	Improve the productivity of the workforce and increase economic activity			
Technology/knowledge transfer actions	Increase the proportion of businesses in the South East reporting R&D links with universities and increase business expenditure on research and development in the South East		Strengthen the public and private research potential and increase technology transfer	Strengthen research collaborations between public and private sectors
			Work with public research and increase regional potential of technology transfer	Promote technology transfer and support the creation of new activities

Table Twenty-four: Common Regional Objectives Classified by Innovation Criteria (continued)

Innovation Criteria	Region			
	South East of England	**South West of England**	**Nord-Pas-de-Calais**	**Bretagne**
Promoting innovation in SMEs	Increase the percentage of total South East business turnover attributable to new products, and the percentage attributable to significantly improved products		Support innovative projects within companies and laboratories and increase quality, quantity and importance of these innovative projects	Encourage SMEs, laboratories and supporting structures to participate in European research and innovation programmes
			Innovative by and for services	
			Place innovation, research and development as a key priority to accelerate the transformation of the regional economy	
Provision of enhanced innovation support services and infrastructure		Support business productivity	Support the transmission of activities	Improve support of innovative projects within companies
Promotion of R&D activities	Increase the proportion of businesses in the South East reporting R&D links with universities and increase business expenditure on research and development in the South East		Place innovation, research and development as a key priority to accelerate the transformation of the regional economy	

Table Twenty-four: Common Regional Objectives Classified by Innovation Criteria (continued)

Innovation Criteria	Region			
	South East of England	**South West of England**	**Nord-Pas-de-Calais**	**Bretagne**
Development of clusters, supply chains and company networks			Structure the region around 15 centres of economic excellence	Develop and support inter-organisational cooperation
				Encourage innovative cross-sectoral approaches
				Develop a culture of innovation and partnership in enterprises
				Enable SMEs to develop international partnerships
Supply of economic intelligence/technology watch services			Assist the anticipation – the key to economic success	Anticipate future changes to enable proactive adaptation
Marketing the regional innovation profile			Develop the communication strategy	Create an innovative and attractive image of Bretagne to the world
			Promote the traditional fields	
			To highlight our strengths in higher education	

Source: SERIO 2009

Cross-border activities developed within future PROTTEC Work Packages should focus on these common innovation criteria in order to maximise the effect these activities have in contributing to the economic development priorities of the four partner regions. Activities should aim to fulfil areas covered by the following common innovation criteria:

- Internationalisation and foreign investment;
- Promotion of an innovation culture and entrepreneurial mindset;
- Workforce skills development;
- Technology/knowledge transfer actions;
- Promoting innovation in SMEs; and,
- Provision of enhanced innovation support services and infrastructure.

4.3 Common Set of Economic Sub-sectors

Within the regional economic strategies each region identifies a number of economic sub-sectors that they prioritise for a variety of reasons. The South East of England has recognised seven key sectors that it targets due to their potential to add value to the South East economy (see Section 3.2.1). The South West of England has identified eight priority sectors that are either strategically important to the region, show opportunities for future growth or are in need of additional support in order to adapt to industry change (see Section 3.3.1). The Nord-Pas-de-Calais region of France has identified three strategic sectors that already have a strong regional presence; however through further support the vision is that the region will become a European leader in these sectors by 2015 (see Section 3.4.1). The Bretagne region of France has identified four key sectors (see Section 3.5.1).

Table Twenty-five highlights the priority economic sectors for each of the four regions.

Table Twenty-five: Common Set of Economic Sub-sectors

	Region			
	South East England	**South West England**	**Nord-Pas-de-Calais**	**Bretagne**
Sector				
Advanced Engineering		✓		
Aerospace & Defence	✓			
Automotive				✓
Bio-medical		✓		
Construction	✓			
Creative Industries		✓		
Digital content	✓			
Environmental Technologies	✓	✓		
Food and Drink		✓		✓
Future Trade			✓	
Healthcare Technologies	✓		✓	
ICT		✓		✓
Land transport			✓	
Marine	✓	✓		✓
Security	✓			
Tourism		✓		

Source: SERIO 2009

Table Twenty-five shows that several of the sectors are common across a number of the regions. For example Environmental Technologies are identified as a priority sector for both the South East and South West of England; the Food and Drink sector is identified as a priority sector for both the South West of England and the Bretagne region of France; Healthcare Technologies are identified as a priority sector for both the South East of England and the Nord-Pas-de-Calais region of France; ICT is identified as a priority sector for both the South West of England and the Bretagne region of France; and, the Marine sector is identified as a priory sector for three regions, excluding Nord-Pas-de-Calais.

Five common priority economic sub-sectors have been identified across the four regions:

- Environmental Technologies;
- Food and Drink;
- Healthcare Technologies;
- ICT; and,
- Marine sector.

These common economic sub-sectors should be considered when developing cross-border activities through future PROTTEC Work Packages.

This section has identified areas of commonality across the four regions, in terms of common innovation and knowledge transfer objectives and priority economic sub-sectors. The aim is to ensure that activities developed in future Work Packages take into account these findings to fully maximise the impact of PROTTEC on regional economic development.

The following section conducts a performance match of the innovation and knowledge transfer activities identified in Section Three in order to identify opportunities for cross-border collaboration and sharing of knowledge and best practice to increase the efficiency of knowledge transfer.

Section Five: Performance Match of Innovation and Knowledge Transfer Activities

5.1 Introduction

The purpose of this section is to conduct a performance match particularly focusing on the degree to which activities supporting regional economic development align with key regional innovation objectives. The performance match also identifies commonality and gaps within the innovation and knowledge transfer activities supported by the four regions, and highlights areas where improvements could be pursued through the enhancement of existing activities or the development of new schemes through the PROTTEC project.

The section starts with an overview of the partner regions in terms of their regional objectives and supporting innovation and knowledge transfer activities (Section 5.2). Building on this, Section 5.3 provides a comparative analysis that explores the common objectives across the four regions, as identified within Section 4, comparing the different activities supported by the regions in order to fulfil these objectives. Finally Section 5.4 provides a summary.

5.2 Overview

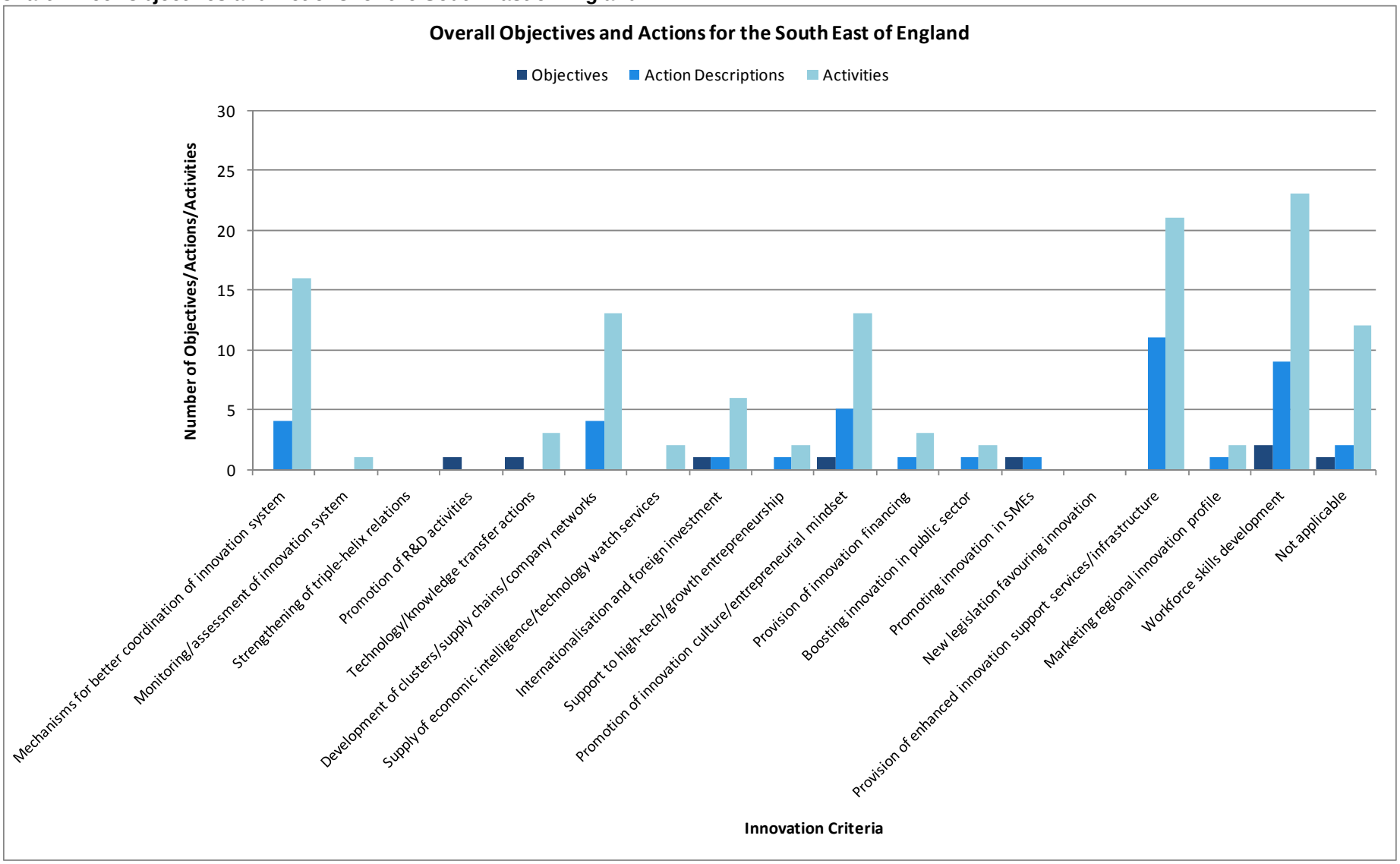
5.2.1 Introduction

By utilising the innovation criteria developed by the IRE Working Group (discussed in Section 2.3) it is possible to clearly identify the areas where each of the regions focus their attention when it comes to planning and undertaking activities to support innovation and knowledge transfer. This section of the report provides an overview of these areas of focus, in the context of the IRE innovation criteria, for the objectives and related activities supported within the regional economic strategies for each partner region. The objectives and activities, detailed in this section, have been categorised into the IRE innovation criteria by the University of Plymouth research team.

5.2.2 The South East of England

As highlighted in Section 3.2, within the RES, SEEDA have identified a number of objectives to help fulfil the overarching aims of ‘Global Competitiveness’ and ‘Smart Growth’. These objectives, alongside the supporting actions and activities, are detailed in Chart Three.

Chart Three: Objectives and Actions for the South East of England



Source: SERIO 2009

As can be seen, actions and activities supported by SEEDA are mainly focused around the following criteria:

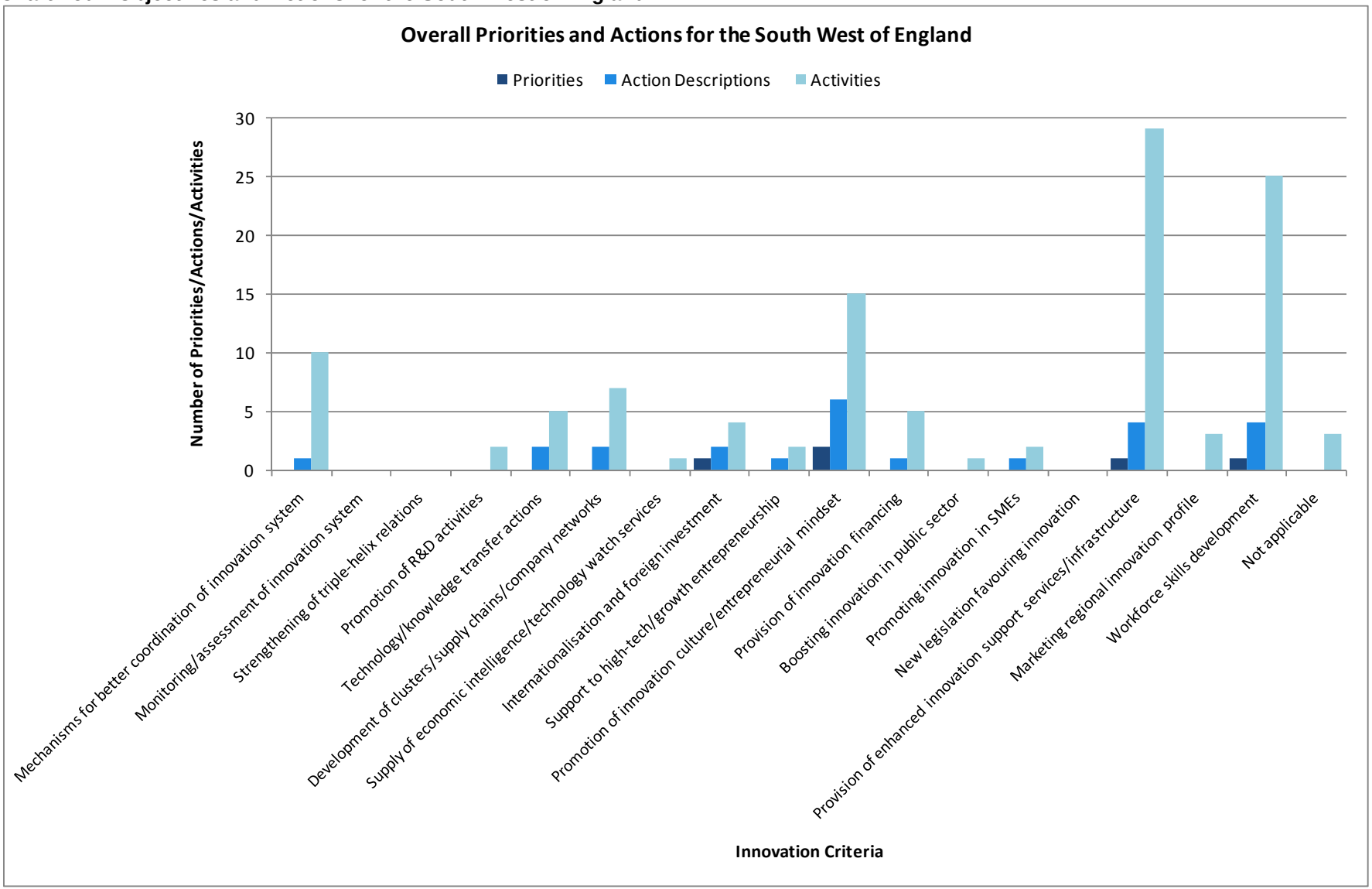
- Mechanisms for better co-ordination of the innovation system;
- The development of clusters, supply chains and company networks;
- The promotion of an innovation culture and entrepreneurial mindset;
- The provision of enhanced innovation support services and infrastructure; and,
- Workforce skills development.

Activities are spread through the criteria, with the notable exception of two, 'strengthening of triple-helix relations' and 'new legislation favouring innovation'. The Chart also shows that while the RES has an objective to promote R&D activities there are no supporting actions and activities directly within this criteria.

5.2.3 The South West of England

As highlighted in Section 3.3, within the RES, SWRDA have identified a number of priorities to help fulfil the strategic objective of 'Successful and Competitive Businesses'. These priorities, alongside the supporting actions and activities, are detailed in Chart Four.

Chart Four: Objectives and Actions for the South West of England



Source: SERIO 2009

As can be seen, actions and activities supported by SWRDA are mainly focused around the following criteria:

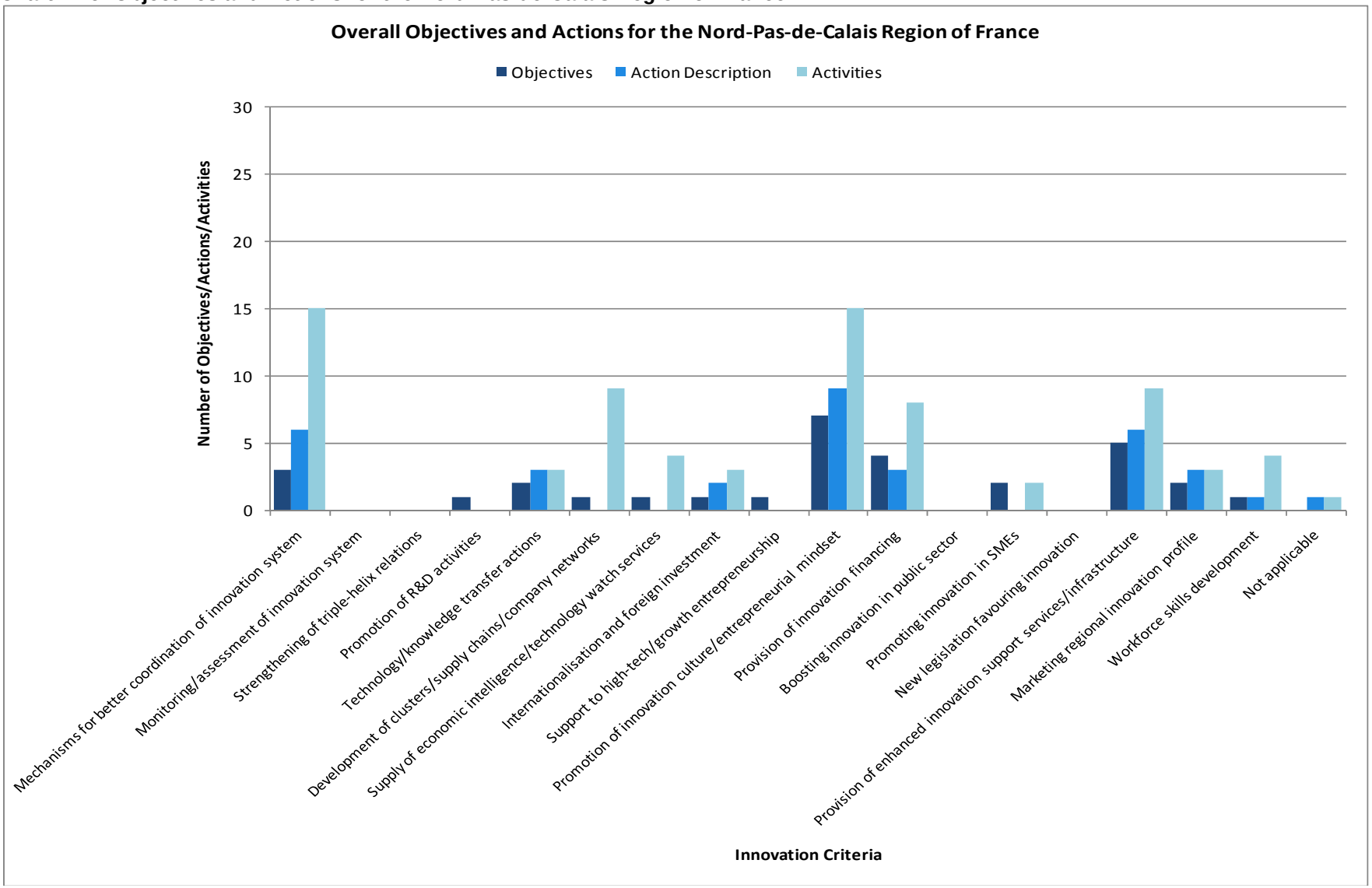
- Mechanisms for better co-ordination of the innovation system;
- The promotion of an innovation culture and entrepreneurial mindset;
- The provision of enhanced innovation support services and infrastructure; and,
- Workforce skills development.

Activities are spread through the criteria, with the notable exception of three, 'monitoring and assessment of the innovation system', 'strengthening of triple-helix relations' and 'new legislation favouring innovation'.

5.2.4 The Nord-Pas-de-Calais Region of France

As highlighted in Section 3.4, within the SRDE, the Regional Council has identified eight overarching objectives to help the region achieve its ambition to be a major economic region in Europe. In addition, the SRDE also organises and leads on a number of other strategies and programmes that aim to drive the economic development of the region (notably the PRCTE, the Regional Development Plan for Handicraft, the draft SRI and the Plan Innovation Valorisation de la Recherche) and these programmes have their own objectives. These objectives, alongside the supporting actions and activities, are detailed in Chart Five.

Chart Five: Objectives and Actions for the Nord-Pas-de-Calais Region of France



Source: SERIO 2009

As can be seen, actions and activities supported by the Nord-Pas-de-Calais Regional Council are mainly focused around the following criteria:

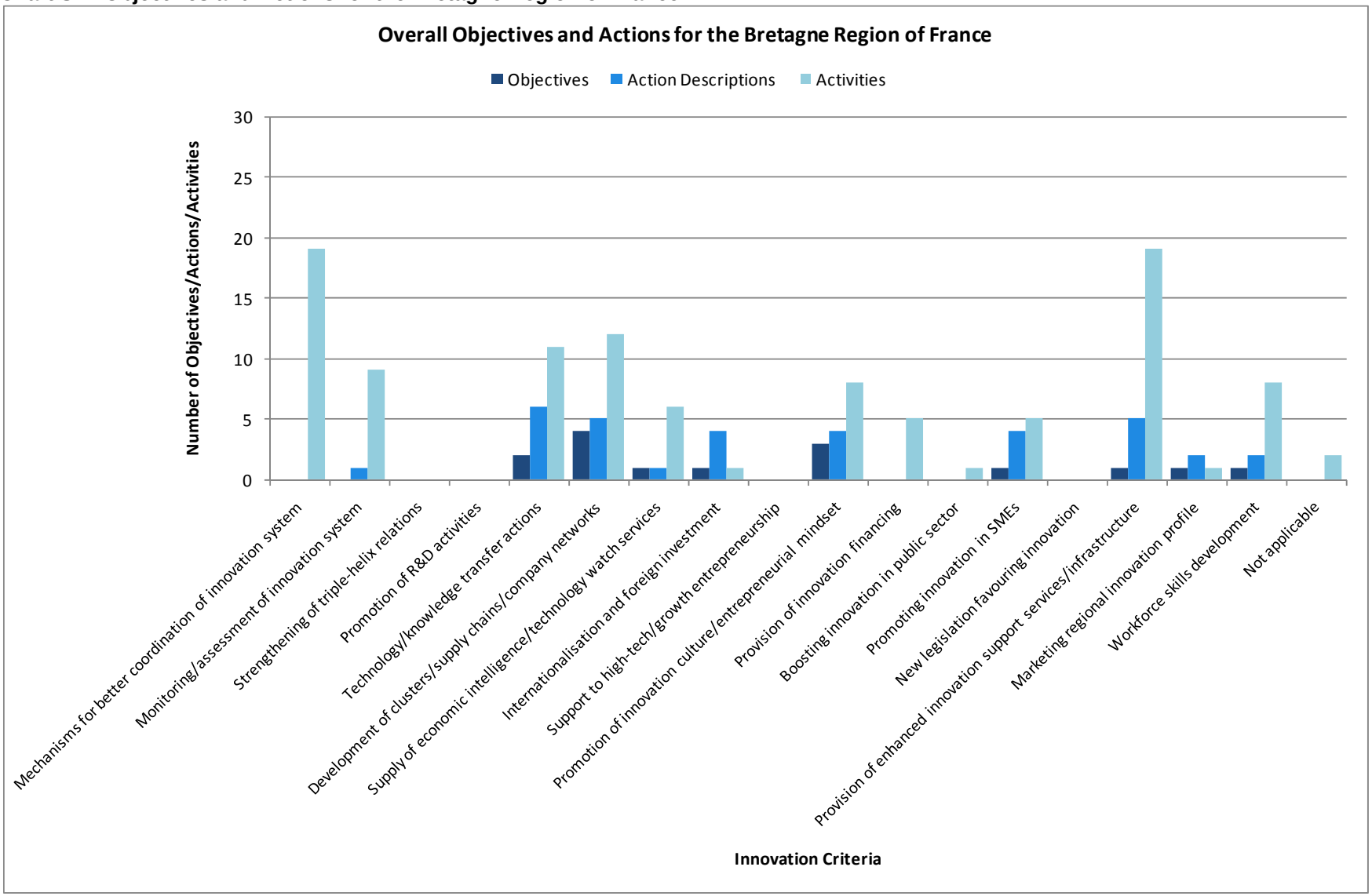
- Mechanisms for better co-ordination of the innovation system;
- The development of clusters/supply chains/company networks;
- The promotion of an innovation culture and entrepreneurial mindset;
- The provision of innovation financing; and,
- The provision of enhanced innovation support services and infrastructure.

Activities are spread through the criteria, with the exception of four, 'monitoring and assessment of the innovation system', 'strengthening of triple-helix relations', 'boosting innovation in the public sector' and 'new legislation favouring innovation'. The Chart also shows that, while the region has objectives to promote R&D activities and provide support to high-tech, high-growth entrepreneurship, there are no supporting actions and activities directly within these criteria.

5.2.5 The Bretagne Region of France

As highlighted in Section 3.5, within Bretagne innovation is driven by the SRI which identifies a number of sub-objectives to help fulfil the strategic objectives aiming to: 'Strengthen and consolidate the existing economy through innovation', 'Diversify the economy through innovation' and 'Promote the region to outside companies and other innovation actors'. These sub-objectives, alongside the supporting actions and activities, are detailed in Chart Six.

Chart Six: Objectives and Actions for the Bretagne Region of France



Source: SERIO 2009

As can be seen, actions and activities supported by the Bretagne regional council are mainly focused around the areas of:

- Mechanisms for better co-ordination of the innovation system;
- Technology/knowledge transfer actions;
- The development of clusters, supply chains and company networks; and,
- The provision of enhanced innovation support services and infrastructure.

Activities are spread through the criteria, with the notable exception of four, 'strengthening of triple-helix relations', 'promotion of R&D activities, 'support to high-tech, high-growth entrepreneurship' and 'new legislation favouring innovation'.

5.2.6 Common Actions and Activities

The analysis provided in Section 5.2.5 (above) has identified the key areas where each region focused their attention when it comes to economic development. Evidentially, there are some areas of commonality across the four regions. The main common criteria in which the regions are focusing their innovation and knowledge transfer actions and activities include:

- The provision of enhanced innovation support services and infrastructure;
- Workforce skills development;
- The promotion of an innovation culture and entrepreneurial mindset;
- Mechanisms for better co-ordination of the innovation system; and,
- The development of clusters, supply chains and company networks.

In light of this, it seems reasonable to suggest that these are the key areas in which individual regions could learn from each other through the sharing of best practice and expertise.

There are, however, interesting differences across the two countries in which partner regions are located. The two English regions support a larger number of actions and activities supporting the 'provision of enhanced innovation support services and infrastructure' and 'workforce skills development', compared to the two regions of France. In contrast, the two regions of France support a larger number of actions and activities to 'support

technology/knowledge transfer actions', 'mechanisms for better coordination of the innovation system' and 'monitoring and assessment of the innovation system'. These present areas of innovation and knowledge transfer activities which could benefit from cross border sharing of expertise.

In addition, there are two criteria of innovation that are not addressed by any of the regional economic strategies which highlight possible gaps in the area of economic development:

- Strengthening of triple helix relations; and,
- New legislation favouring innovation.

The following section of the report explores the similarities and differences between the regions in more detail by comparing the actions and activities supported by their respective economic strategies in order to fulfil common objectives.

5.3 Comparative Analysis

5.3.1 Introduction

This section of the report compares the different activities supported by the regions in order to fulfil common objectives in order to highlight any innovation gaps or areas where improvements in innovation and knowledge transfer could be pursued through the enhancement of existing schemes or the development of new schemes. The section also highlights opportunities for cross-border collaboration regarding innovation objectives and associated activities. It must be noted here that there are a wide range of potential opportunities for collaboration and sharing of best practice and expertise; however, this report focuses on the key areas where these opportunities appear to exist.

For each common objective, as identified in Section 4.2, the individual activities supported by the regions in order to fulfil each of the objectives are detailed and compared in the context of the IRE Working Group innovation criteria. The common objectives across the four partner regions fall into the following innovation criteria:

- Internationalisation and foreign investment;
- Promotion of an innovation culture and entrepreneurial mindset;
- Workforce skills development;
- Technology/knowledge transfer actions;
- Promoting innovation in SMEs;

- Provision of enhanced innovation support services and infrastructure;
- Promotion of R&D activities;
- Development of clusters, supply chains and company networks;
- Supply of economic intelligence and technology watch services; and,
- Marketing the regional innovation profile.

The categorisation of innovation and knowledge transfer activities into the innovation criteria in the following tables has been carried out by the University of Plymouth research team.

5.3.2 Internationalisation and Foreign Investment

All four regions have objectives within their regional strategies that address internationalisation and foreign investment. Table Twenty-six highlights their supporting activities, categorised according to the IRE innovation criteria.

Table Twenty-six: Activities to Support Objectives Addressing Internationalisation and Foreign Investment

Innovation Criteria	Region			
	South East of England	South West of England	Nord-Pas-de-Calais	Bretagne
Mechanisms for better coordination of the innovation system	✓		✓	
Technology/knowledge transfer actions				✓
Development of clusters, supply chains and company networks	✓	✓	✓	✓
Supply of economic intelligence/ technology watch services				✓
Internationalisation and foreign investment	✓	✓	✓	✓
Support to high-tech, high-growth entrepreneurship	✓			
Promotion of an innovation culture and entrepreneurial mindset			✓	
Provision of enhanced innovation support services and infrastructure		✓		✓
Workforce skills development		✓		

Source: SERIO 2009

As shown in Table Twenty-six above, activities across a range of innovation criteria support objectives addressing internationalisation and foreign

investment. In particular, all four regions support activities within the following innovation criteria:

- The development of clusters, supply chains and company networks; and,
- Internationalisation and foreign investment.

Two regions support activities within the 'mechanisms for better coordination of the innovation system' and 'provision of enhanced innovation support services and infrastructure' criteria, whilst activities within four criteria are supported by just one region.

The four regions support a similar range of activities to address internationalisation and foreign investment, with the region of Bretagne supporting activities spanning five of the innovation criteria and the remaining three regions supporting activities across four of the criteria.

Both the South East of England and Nord-Pas-de-Calais region of France propose to develop a strategy to support objectives addressing internationalisation and foreign investment. The South East's RES proposes to develop a Regional Trade and Investment Strategy to support a wider new approach to supporting global competitiveness, while the Nord-Pas-de-Calais's Regional Council highlights its plan to define a common strategy and shared communication to support internationalisation and foreign investment. The development of these strategies could benefit from cross border collaboration.

All four regions support activities around the development of clusters, supply chains and company networks. For example the South East's RES proposes to develop an International Network of Partners involving partners that the region could work with to promote the region's strengths, Bretagne's SRI proposes to strengthen the networking between interfaces supporting innovation and international development. The South West's RES aims to promote and support international joint ventures and supply chain initiatives while Nord-Pas-de-Calais's Regional Council aim to promote and support experience and knowledge through partnership. These networks and international partnerships and joint ventures could be enhanced through cross-border collaboration to enable regional companies' access to a network of international companies.

The South East and South West of England and the Bretagne region of France all adopt activities to support companies in transferring their technology and knowledge at an international level to improve their international competitiveness. For example, the South East's RES aims to identify innovative R&D companies and support the development of their international business, the South West's RES supports company's use of innovation, technology and research to improve their international competitiveness and Bretagne's SRI aims to develop pro-active support for

the transfer of technology and knowledge at an international level. Nord-Pas-de-Calais's Regional Council does not highlight any activities supporting this criteria, suggesting a potential gap in the application of innovation and knowledge transfer activities in this area.

The South West of England aims to support an 'aftercare' service to organisations investing in the region to help secure their long term future in the region. While the South East of England aims to assist recently established foreign owned companies with high growth potential to grow locally, the two regions of France do not identify any similar activities. This aftercare service is an activity that could be applied in other regions to develop more sustainable internationalisation and foreign investment.

The South West of England and Nord-Pas-de-Calais region of France both support activities to promote the region internationally in some way. The South West's RES aims to promote the region as a whole through a marketing campaign, coordinated with sub-regional activity, as well as targeted marketing and promotion in sectors supporting the region's long-term objectives. Nord-Pas-de-Calais's Regional Council aims to provide support for companies to attend regional, national and international trade fairs and also support participation in business conventions and international technology fellowships. These activities could be enhanced within each region to provide a more rounded promotional approach to internationalisation, and also be applied in other regions.

Details of the objectives that address internalisation and foreign investment and a comparison of the innovation and knowledge transfer activities supported by each region are detailed in Appendix One, Table Fifty-seven.

5.3.3 Promotion of an Innovation Culture and Entrepreneurial Mindset

All four regions have objectives within their regional strategies that address the promotion of an innovation culture and entrepreneurial mindset. Table Twenty-seven highlights their supporting activities, categorised according to the IRE innovation criteria.

Table Twenty-seven: Activities to Support Objectives Addressing the Promotion of an Innovation Culture and Entrepreneurial Mindset*

Innovation Criteria	Region			
	South East of England	South West of England	Nord-Pas-de-Calais	Bretagne
Mechanisms for better coordination of the innovation system	✓	✓		✓
Promotion of R&D activities		✓		
Technology/knowledge transfer actions	✓	✓		✓
Development of clusters, supply chains and company networks	✓	✓		✓
Supply of economic intelligence/ technology watch services		✓		✓
Internationalisation and foreign investment	✓			
Support to high-tech, high-growth entrepreneurship		✓		
Promotion of an innovation culture and entrepreneurial mindset	✓	✓		✓
Provision of innovation financing	✓	✓		✓
Boosting innovation in the public sector		✓		
Promoting innovation in SMEs		✓		✓
New legislation favouring innovation		✓		
Provision of enhanced innovation support services and infrastructure	✓	✓		✓
Marketing the regional innovation profile	✓	✓		✓
Workforce skills development	✓	✓		✓

Source: SERIO 200

*Please note, although Nord-Pas-de-Calais's regional economic strategies specify objectives relating to the promotion of an innovation culture, activities to support the objectives were not specified.

As shown in Table Twenty-seven above, activities across a wide range of innovation criteria support objectives addressing the promotion of an innovation culture and entrepreneurial mindset. All three regions identifying activities support activities within the following innovation criteria:

- Mechanisms for better coordination of the innovation system;
- Technology/knowledge transfer actions;
- The development of clusters, supply chains and company networks;
- The promotion of an innovation culture and entrepreneurial mindset;
- The provision of innovation financing;

- The provision of enhanced innovation support services and infrastructure;
- Marketing the regional innovation profile; and,
- Workforce skills development.

Two of the regions support activities within the 'supply of economic intelligence/technology watch services' and 'promoting innovation in SMEs'. Activities within the remaining five innovation criteria are supported by one region.

The South West of England supports the widest range of activities to address the promotion of an innovation culture and entrepreneurial mindset, with activities spanning 14 of the innovation criteria. Activities range across 10 innovation criteria within the Bretagne region and nine criteria within the South East of England.

Across all three regions, the majority of activities developed to support objectives addressing the promotion of an innovation culture and entrepreneurial mindset focus specifically on this area and on the provision of enhanced innovation support services and infrastructure.

For example, both English regions support a number of activities to promote an innovation culture amongst young people. The South East of England, for example, runs an annual Youth Enterprise Competition engaging year 9 and 10 students with local businesses across the region, promotes the national Enterprise Insight campaign to young people and aims to increase the capacity of the Further Education sector to support student enterprise creation. The South West of England supports activities to; deliver enterprise education within the school curriculum; develop initiatives to enhance the promotion of innovation and technology in schools and colleges; and, deliver information and advice on enterprise as a career option for young people. In addition, the South East of England and Bretagne region both support a number of activities to promote an innovation culture and entrepreneurial mindset through competitions. As already mentioned, the South East runs an annual Youth Enterprise Competition and Bretagne aims to implement an 'Innovative Ideas' competition and involve the public with a competition as part of the 'week of innovation' which is a week dedicated to promoting innovation and encouraging partnerships between research laboratories and companies. These similarities in the types of activities supported offer the opportunity for sharing experiences, best practice and expertise across the regions to maximise their impact in developing a culture of innovation.

In terms of activities within the provision of enhanced innovation support services and infrastructure criteria, all three regions support activities to deliver business support. Within the two English regions this support is primarily provided through the Business Link service, within the South East

the service has a specific aim to develop a programme to encourage the development of home based businesses, particularly amongst identified target groups such as disabled people and women. The Bretagne region aims to strengthen support for the innovative entrepreneur. This presents an opportunity for the regions to share best practice in terms of the business support mechanisms they adopt.

Both the South East and South West of England have a focus on promoting woman's enterprise, within the South East the focus is specifically on woman's enterprise, while within the South West it is part of a broader remit to encourage wider participation in enterprise. Both regions, however, identify activities to deliver a strategy or strategic framework for woman's enterprise in the region. This offers the opportunity for sharing experiences to enhance each regions development of woman's enterprise.

The South West of England's RES supports a comparatively large number of activities focusing on technology and knowledge transfer actions in order to address the promotion of an innovation culture and entrepreneurial mindset compared to the other partner regions. For example, the South West supports a number of activities to encourage more education-business partnerships to promote enterprise including the Great Western Research Project, which aims to promote collaborations between the region's HEIs and forward thinking businesses through research fellowships and studentships in order to support economic growth, and Knowledge Escalator South West, which aims to deliver a range of activities to boost the capacity of HEIs to provide knowledge intensive support to South West businesses and stimulate new enterprise. The South East of England and Bretagne region of France do not identify activities that encourage more partnership working as a means of addressing objectives to promote an innovation culture and entrepreneurial mindset, however these regions could consider the impact such activities might have on addressing these objectives.

A number of the regions support the development of networks. For example the South West of England supports Sector Networks, the Beacon Network, which brings together companies from a variety of industries with a proven track record of success, in order to promote good practice and innovation, share ideas and exchange experiences, and the region also aims to encourage networks to support new social enterprises. Bretagne supports entrepreneurs' networks and aims to integrate innovation challenges into these networks. In addition the South East of England aims to build the capacity and share best practice among sustainable business partnerships. There is an opportunity for knowledge sharing regarding the structure, working practices and communication of these networks and partnerships between the regions to maximise their impact on business innovation.

All three regions support activities to market the regional innovation profile. The South East of England uses festivals to showcase creative and cultural talent to an international audience, the South West of England proposes to market enterprise and entrepreneurship in the region by identifying and promoting the region's most successful entrepreneurs, while the region of

Bretagne aims to develop regional communication activities. While the focus of the South East region is at the international level, there are still opportunities for sharing best practice and expertise across the regions to enhance each region's promotional activity with a view to promote a culture of innovation.

Details of the objectives that address the promotion of an innovation culture and entrepreneurial mindset and a comparison of the innovation and knowledge transfer activities supported by each region are detailed in Appendix One, Table Fifty-eight, with the exception of Nord-Pas-de-Calais.

5.3.4 Workforce Skills Development

All four regions have objectives within their regional strategies addressing workforce skills development. Table Twenty-eight highlights their supporting activities, categorised according to the IRE innovation criteria.

Table Twenty-eight: Activities to Support Objectives Addressing Workforce Skills Development*

Innovation Criteria	Region			
	South East of England	South West of England	Nord-Pas-de-Calais	Bretagne
Mechanisms for better coordination of the innovation system		✓		✓
Development of clusters, supply chains and company networks				✓
Promotion of an innovation culture and entrepreneurial mindset		✓		
Provision of innovation financing				✓
Promoting innovation in SMEs				✓
Provision of enhanced innovation support services and infrastructure	✓			
Workforce skills development	✓	✓		✓

Source: SERIO 2009
*Please note, although Nord-Pas-de-Calais's regional economic strategies specify objectives relating to workforce skills development, activities to support this objective were not specified.

As shown in Table Twenty-eight above, activities across a more limited number of innovation criteria support objectives addressing workforce skills development. All three regions identifying activities support activities within the 'workforce skills development' innovation and two regions support activities within the 'mechanisms for better coordination of the innovation system' criteria. Activities within the remaining five criteria are supported by just one region.

The Bretagne region supports the widest range of activities to address workforce skills development, supporting activities across five of the innovation criteria, while the South West of England supports activities falling across three criteria and the South East of England supports activities within two of the innovation criteria.

Across all three regions, the majority of activities developed to support objectives addressing workforce skills development focus specifically on the area of workforce skills development, with both English regions having a strong focus in this area, both supporting a wide range of activities.

The South East and South West of England both recognise the importance of engaging with HEIs to ensure they are providing the right skills to the labour market, each adopting activities to support this process. For example, the South East's RES proposes to enhance employer's engagement in curriculum development and delivery and engage with HE to ensure the skills needed for a globally competitive knowledge economy are provided. The South West's RES proposes to identify and respond to emerging skills gaps and shortages through the provision of appropriate FE, HE and private courses and support HEIs in developing an understanding of what the labour markets needs from graduates. Activities to engage with HEIs in this way could be applied within

the French regions to assist in the appropriate development of their workforce skills to compete in the global economy.

Both English regions also support the Train to Gain initiative, which is a national initiative offering expert skills advice to companies in order to improve business performance by supporting employers to improve the skills of their employees. Bretagne supports an activity to provide training for innovation actors, which could be enhanced through further development along the lines of the UK Train the Gain initiative.

Details of the objectives that address workforce skills development and a comparison of the innovation and knowledge transfer activities supported by each region are detailed in Appendix One, Table Fifty-nine, with the exception of Nord-Pas-de-Calais.

5.3.5 Technology/Knowledge Transfer Actions

Three of the regions have objectives within their regional strategies addressing technology/knowledge transfer actions (the South West of England being the exception). Table Twenty-nine highlights their supporting activities, categorised according to the IRE innovation criteria.

Table Twenty-nine: Activities to Support Objectives Addressing Technology/Knowledge Transfer Actions*

Innovation Criteria	Region		
	South East of England	Nord-Pas-de-Calais	Bretagne
Mechanisms for better coordination of the innovation system	✓		✓
Monitoring and assessment of the innovation system			✓
Technology/knowledge transfer actions	✓		✓
Development of clusters, supply chains and company networks	✓		✓
Internationalisation and foreign investment	✓		
Promotion of an innovation culture and entrepreneurial mindset			✓
Provision of innovation financing			✓
Provision of enhanced innovation support services and infrastructure	✓		✓
Marketing the regional innovation profile	✓		
Workforce skills development	✓		✓

Source: SERIO 2009
*Please note, although Nord-Pas-de-Calais's regional economic strategies specify objectives relating to the promotion of knowledge/technology transfer actions, activities to support this objective were not specified.

As shown in Table Twenty-nine above, activities across a range of innovation criteria support objectives to address technology/knowledge transfer actions. Both regions identifying activities support activities within the following innovation criteria:

- Mechanisms for better coordination of the innovation system;
- Technology/knowledge transfer actions;
- The development of clusters, supply chains and company networks;
- The provision of enhanced innovation support services and infrastructure; and,
- Workforce skills development.

Activities within the remaining five criteria are supported by just one region.

Both regions support a similar range of activities to address technology/knowledge transfer actions, with the region of Bretagne supporting activities falling across eight of the innovation criteria and the South East of England supporting activities falling across seven of the criteria.

The South East of England identifies an overarching activity to encourage knowledge exchange between large based companies and smaller companies within the region, while Bretagne's SRI highlights a number of activities that could encourage this activity. These include: developing industry liaison meetings; organising technical seminars; and, promoting cross partner working on projects. These types of activities could also be implemented within the South East of England in order to encourage knowledge exchange.

The South East of England highlights two activities around innovation networks, one of which aims to extend their innovation networks to the EU. This activity could be developed and enhanced by cross-border application through the PROTTEC project to benefit all partner regions.

The Bretagne region supports activities to financially support the initial R&D and proof of concept stage of business development through its maturation fund which aims to support technology transfer and the creation of new activities identified as having high commercial potential. The South East of England's RES does not highlight any financial support activities specifically in relation to developing technology/ knowledge transfer activities. While this might highlight a potential gap within their activities to support objectives within this area, the region does, however, support an activity to establish a funding escalator to increase innovation in the region.

Both regions adopt activities to develop a directory of their competencies. Within the South East of England the Research Excellence Directory is used to promote the regions' knowledge base nationally and internationally, while the Bretagne region uses their database of competencies on a more regional basis to share and disseminate information on projects and to promote cross partner working. This highlights an opportunity for both tools to be further developed through cross border collaboration to enable them to be utilised regionally, nationally and internationally.

Details of the objectives that address technology/knowledge transfer actions and a comparison of the innovation and knowledge transfer activities supported by each region are detailed in Appendix One, Table Sixty, with the exception of Nord-Pas-de-Calais.

5.3.6 Promoting Innovation in SMEs

Three regions, the South East of England, Nord-Pas-de Calais and Bretagne, have objectives within their regional strategies that address the promotion of innovation in SMEs. Table Thirty highlights their supporting activities, categorised according to the IRE innovation criteria.

Table Thirty: Activities to Support Objectives Promoting Innovation in SMEs

Innovation Criteria	Region		
	South East of England	Nord-Pas-de-Calais	Bretagne
Mechanisms for better coordination of the innovation system	✓	✓	✓
Development of clusters, supply chains and company networks	✓	✓	✓
Supply of economic intelligence/ technology watch services	✓		
Internationalisation and foreign investment	✓		
Support to high-tech, high-growth entrepreneurship	✓		
Promotion of an innovation culture and entrepreneurial mindset	✓	✓	
Provision of innovation financing	✓	✓	
Boosting innovation in the public sector			✓
Promoting innovation in SMEs			✓
Provision of enhanced innovation support services and infrastructure	✓		
Workforce skills development	✓		

Source: SERIO 2009

As shown in Table Thirty above, activities spanning eleven of the innovation criteria support objectives to promote innovation in SMEs. All three regions support activities within the following innovation criteria:

- Mechanisms for better coordination of the innovation system; and,
- The development of clusters, supply chains and company networks.

Two regions support activities within the 'promotion of an innovation culture and mindset' and 'provision of innovation financing' criteria. Activities within the remaining seven criteria are supported by just one region.

The South East of England supports the widest range of activities to support the promotion of innovation in SMEs, supporting activities falling across nine of the innovation criteria, while the Nord-Pas-de-Calais and Bretagne regions of France support activities falling across four of the innovation criteria.

The Nord-Pas-de-Calais region of France identifies an overarching activity to establish a pro-active attitude to regional enterprise, while through the RES the South East of England has adopted the 'Design Awards', a business award which forms part of the annual SEEDA business awards. This type of activity could be adopted by the Nord-Pas-de-Calais Regional Council as an activity to help establish a pro-active attitude towards regional enterprise.

Both the South East of England and Nord-Pas-de-Calais region support activities to financially support innovation in SMEs. The South East's RES aims to establish a funding escalator that will enable innovators to access funding at every stage of the business cycle. Nord-Pas-de-Calais's Regional Council aim to establish a regional fund to promote innovative projects. Bretagne's SRI does not highlight any financial support activities specifically in relation to promoting innovation in SMEs. While this might highlight a potential gap within their activities to support objectives within this area, the region does, however, support an activity to establish a maturation fund to support the initial R&D and proof of concept stage of business development.

The South East of England supports a number of activities to provide enhanced innovation support services and infrastructure in order to promote innovation in SMEs. For example, through the promotion of business support services, developing the Enhanced Manufacturing Advisory Service and developing the Innovation Advisory Service, recently replaced by South East Business Development Growth which consists of a regional network of eight Innovation and Growth Teams providing comprehensive and tailored business support at every stage of the business cycle across the region. However, neither region's in France adopt activities within this criteria, highlighting a potential gap in their innovation activities.

Details of the objectives that address the promotion of innovation in SMEs and a comparison of the innovation and knowledge transfer activities supported by each region are detailed in Appendix One, Table Sixty-one

5.3.7 Provision of Enhanced Innovation Support Services and Infrastructure

Three regions have objectives within their regional strategies that address the provision of enhanced innovation support services and infrastructure (the South East of England being the exception). Table Thirty-one highlights their supporting activities, categorised according to the IRE innovation criteria.

Table Thirty-one: Activities to Support Objectives Providing Enhanced Innovation Support Services and Infrastructure

Innovation Criteria	Region		
	South West of England	Nord-Pas-de-Calais	Bretagne
Mechanisms for better coordination of the innovation system	✓	✓	
Monitoring and assessment of the innovation system			✓
Development of clusters, supply chains and company networks	✓		
Supply of economic intelligence/ technology watch services		✓	✓
Support to high-tech, high-growth entrepreneurship	✓		
Promotion of an innovation culture and entrepreneurial mindset	✓	✓	
Provision of innovation financing	✓		✓
Provision of enhanced innovation support services and infrastructure	✓		✓
Workforce skills development	✓	✓	✓

Source: SERIO 2009

As shown in Table Thirty-one above, activities spanning a range of the innovation criteria support objectives to provide enhanced innovation support services and infrastructure. All three regions support activities within the 'workforce skills development' innovation criteria. Activities falling within the following innovation criteria are supported by two regions:

- Mechanisms for better coordination of the innovation system;
- The supply of economic intelligence/ technology watch services;
- The promotion of an innovation culture and entrepreneurial mindset;
- The provision of innovation financing; and,
- The provision of enhanced innovation support services and infrastructure.

Activities within the remaining three criteria are supported by just one region.

The South West of England supports the widest range of activities to support the provision of enhanced innovation support services and infrastructure, supporting activities falling across seven of the innovation criteria, while the region of Bretagne supports activities falling across five criteria and Nord-Pas-de-Calais supports activities within four of the innovation criteria.

Both the South West of England and the Bretagne region of France adopt activities that support financing. Through the RES SWRDA support the promotion and support of venture capital funds and also other regional initiatives that address market failure in the provision of business finance, while through the SRI Bretagne Regional Council support activities to strengthen and promote tools to help the financial and marketing aspects of commercialisation. There is potential for cross-border learning and sharing of best practice to further develop these financial tools to support innovation.

The South West of England directly supports a number of activities to provide enhanced innovation support services and infrastructure. These focus around the Business Link service, the primary gateway for SME support, delivering an information, diagnosis and brokerage service to SMEs at all stages of the business process. SWRDA also have a specific remit to ensure access to business support amongst rural businesses, which is delivered by the Business Link service through the Rural Enterprise Gateway. This service provides information, training and business development support to rural businesses with the aim to increase the economic performance and competitiveness of rural businesses, particularly farming and land based industries. Bretagne's Regional Council supports activities to place advisors within the Innovation Network and to develop tools and skills within the innovation structures that support companies through the innovation process. These activities could be enhanced through the sharing of best practice with established schemes operating within the South West of England.

The South West of England and Bretagne region of France also support similar activities addressing workforce skills development, focusing on facilitating access to targeted skills amongst different sectors, the focus being the priority sectors within the South West of England. The techniques used to do this could benefit from cross-border information sharing.

Details of the objectives that address the provision of enhanced innovation support services and infrastructure and a comparison of the innovation and knowledge transfer activities supported by each region are detailed in Appendix One, Table Sixty-two.

5.3.8 Promotion of R&D Activities

The South East of England and Nord-Pas-de-Calais region both have objectives within their regional strategies that address the promotion of R&D activities. Table Thirty-two highlights their supporting activities, categorised according to the IRE innovation criteria.

Table Thirty-two: Activities to Support Objectives Addressing the Promotion of R&D Activities

Innovation Criteria	Region	
	South East of England	Nord-Pas-de-Calais
Mechanisms for better coordination of the innovation system	✓	✓
Technology/knowledge transfer actions	✓	
Development of clusters, supply chains and company networks	✓	✓
Internationalisation and foreign investment	✓	
Promotion of an innovation culture and entrepreneurial mindset		✓
Provision of innovation financing		✓
Provision of enhanced innovation support services and infrastructure	✓	
Marketing the regional innovation profile	✓	
Workforce skills development	✓	

Source: SERIO 2009

As shown in Table Thirty-two above, activities spanning nine of the innovation criteria support objectives to promote R&D activities. Both regions support activities within the following innovation criteria:

- Mechanisms for better coordination of the innovation system; and,
- The development of clusters, supply chains and company networks.

The remaining seven criteria are supported by one of the two regions. The South East of England supports activities falling across seven of the innovation criteria, while Nord-Pas-de-Calais supports activities falling across four of the criteria.

The objective adopted by the South East of England to address the promotion of R&D activities has also been classified as addressing technology and knowledge transfer actions, therefore a number of the suggestions identified within that innovation criteria could also be adopted for this criteria. For example, the South East of England highlights two activities around innovation networks, one of which aims to extend their innovation networks to the EU. This activity could be developed and enhanced by cross-border application through the PROTTEC project to benefit all partner regions.

The Nord-Pas-de-Calais region supports activities to establish a Regional Fund to promote innovative projects. The South East of England's RES does not highlight any financial support activities specifically in relation to promoting R&D activities. While this might highlight a potential gap within their activities

to support objectives within this criteria the region does, however, support an activity to establish a funding escalator to increase innovation in the region.

Details of the objectives that address the promotion of R&D activities and a comparison of the innovation and knowledge transfer activities supported by each region are detailed in Appendix One, Table Sixty-three.

5.3.9 Development of Clusters, Supply Chains and Company Networks

Two French regions have objectives within their regional strategies that address the development of clusters, supply chains and company networks. Table Thirty-three highlights their supporting activities, categorised according to the IRE innovation criteria.

Table Thirty-three: Activities to Support Objectives Addressing the Development of Clusters, Supply Chains and Company Networks*

Innovation Criteria	Region	
	Nord-Pas-de-Calais	Bretagne
Mechanisms for better coordination of the innovation system		✓
Monitoring and assessment of the innovation system		✓
Technology/knowledge transfer actions		✓
Development of clusters, supply chains and company networks		✓
Supply of economic intelligence/ technology watch services		✓
Internationalisation and foreign investment		✓
Promotion of an innovation culture and entrepreneurial mindset		✓
Provision of innovation financing		✓
Promoting innovation in SMEs		✓
Provision of enhanced innovation support services and infrastructure		✓
Marketing the regional innovation profile		✓
Workforce skills development		✓

Source: SERIO 2009

*Please note, although Nord-Pas-de-Calais's regional economic strategies specify objectives relating to the development of clusters, supply chains and company networks, activities to support this objective were not specified.

As shown above, Bretagne supports a number of activities, ranging across twelve innovation criteria, related to the development of clusters, supply chains and company networks.

Please note that it is not possible for a comparison table to be included here showing activities to support this objective due to the fact that such activities were not identified in Nord-Pas-de-Calais regional economic strategies.

5.3.10 Supply of Economic Intelligence/Technology Watch Services

The two French regions have objectives within their regional strategies that address the supply of economic intelligence/technology watch services. Table Thirty-four highlights their supporting activities, categorised according to the IRE innovation criteria.

Table Thirty-four: Activities to Support Objectives Addressing the Supply of Economic Intelligence/Technology Watch Services

Innovation Criteria	Region	
	Nord-Pas-de-Calais	Bretagne
Mechanisms for better coordination of the innovation system		✓
Monitoring and assessment of the innovation system		✓
Supply of economic intelligence/ technology watch services		✓
Provision of enhanced innovation support services and infrastructure		✓

Source: SERIO 2009
*Please note, although Nord-Pas-de-Calais's regional economic strategies specify objectives relating to the supply of economic intelligence/technology watch services, activities to support this objectives were not specified.

As shown above, Bretagne supports a number of activities, ranging across four innovation criteria, related to the supply of economic intelligence/technology watch services.

Please note that it is not possible for a comparison table to be included here showing activities to support this objective due to the fact that such activities were not identified in Nord-Pas-de-Calais regional economic strategies.

5.3.11 Marketing the Regional Innovation Profile

Two French regions have objectives within their regional strategies that address the marketing of the regional innovation profile. Table Thirty-five highlights their supporting activities, categorised according to the IRE innovation criteria.

Table Thirty-five: Activities to Support Objectives Addressing the Marketing the Regional Innovation Profile*

Innovation Criteria	Region	
	Nord-Pas-de-Calais	Bretagne
Mechanisms for better coordination of the innovation system		✓
Monitoring and assessment of the innovation system		✓
Technology/knowledge transfer actions		✓
Promotion of an innovation culture and entrepreneurial mindset		✓
Provision of enhanced innovation support services and infrastructure		✓

Source: SERIO 2009

*Please note, although Nord-Pas-de-Calais's regional economic strategies specify objectives relating to the marketing of the regional economic profile, activities to support this objective were not specified.

As shown above, Bretagne supports a number of activities, ranging across five innovation criteria, related to marketing the regional innovation profile.

Please note that it is not possible for a comparison table to be included here showing activities to support this objective due to the fact that such activities were not identified in Nord-Pas-de-Calais regional economic strategies.

5.4 Summary

This section has highlighted the areas of common focus across the four regions in terms of the types of innovation and knowledge transfer activities supported by the regions. The areas of commonality provide opportunities for sharing best practice cross-border. The section has also highlighted potential gaps within the activities supported by the individual regions. Finally, this section has taken individual objectives and highlighted areas where the activities supported to address these objectives could be enhanced or applied cross border.

The following section conducts an analysis of the impact the innovation and knowledge transfer activities, identified in Section Three, are having within the regions to help identify regional strengths that could be utilised through cross border activities and highlight any areas where improvements to business supporting services and processes could be made.

Section Six: Impact Study of Innovation and Knowledge Transfer Activities

6.1 Introduction

The final element of Work Package One aims to investigate the impacts that the innovation and knowledge transfer activities, identified in Section Three, are having within the regions. The purpose of this is to identify any regional knowledge transfer strengths that could be utilised through cross border sharing of good practice, a fundamental objective of the PROTTEC project.

On closer investigation of the methods used by the regions to evidence the impact of the activities they support it is apparent that the actual impact of specific activities is not something that is currently evaluated. SWRDA acknowledge that it is very difficult to measure changes to the regional economy bought about directly by the economic strategy due to the wide range of other external factors at play and, while Bretagne Regional Council and SEEDA both plan to look into this in more depth in the future, determining impact is not something they currently do. As a result of this it is not possible to investigate the impacts that the innovation and knowledge transfer activities are having without additional primary research, which is beyond the scope of the current Work Package. However a number of the regions do systematically measure progress against the priorities and objectives within their regional economic strategies. From this it is possible to draw some inferences about the region's strengths that could be exploited through cross border sharing of good practice. The region's progress against their objectives must, however, be taken in the context of the global economic climate at the time of reporting, which is having a direct impact on the economic health of the four regions' local economy.

In line with this, this section of the report takes each region in turn and provides an indication of the progress the region is making against its economic development priorities and objectives, highlighting any areas of strengths. The section starts with the South East of England (Section 6.2), followed by the South West (Section 6.3), the focus then moves to France with Section 6.4 concentrating on the Nord-Pas-de-Calais region and Section 6.5 on the Bretagne region. Finally Section 6.6 provides a summary.

6.2 The South East of England

Within the South East of England SEEDA identifies targets against which progress towards delivering the RES will be measured and monitors these annually though the Annual Monitoring Report. This section provides evidence of the region's progress against the regional economic strategy utilising this resource, as a result of which some conclusions about the region's key strengths are made.

The most recent Annual Monitoring Report (SEEDA, 2009a) was published in November 2009 (focusing mainly on the period to the end of 2008) and assesses the region's progress against the three headline objectives in

relation to the overarching aims of Global Competitiveness, Smart Growth and Sustainable Prosperity (see Section 3.2.3). The Annual Monitoring Report also measures developments against the individual measurable objectives identified for each of these overarching aims, therefore providing an indication of where progress is being made. Tables Thirty-six and Thirty-seven, which build on the objectives and actions set out in Table Ten and Eleven (see Section 3.2.4), summarise the region's progress against objectives falling within Global Competitiveness and Smart Growth.

Table Thirty-six: Progress against Objectives – Global Competitiveness

Objective	Actions	Progress (Nov 2009)
Overall Objective: Achieve an average annual increase in GVA per capita of at least 3%.	N/A	GVA per capita 1.8% in 2007 and 0.3% in 2008, representing a 1.5% decrease. This is well below the RES target.
Global Businesses and Foreign Direct Investment. Increase the percentage of businesses located in the South East operating internationally from an estimated 8% in 2003 to 12% by 2016, maximising the South East's share of global Foreign Direct Investment.	• Fully exploit the opportunities presented by the single regional team (encompassing trade and investment), underpinned by a joint trade and investment international strategy. • Strengthen the international network of global partners from regions overseas. • Further develop a programme of aftercare support for investors. • Develop and utilise the offer of the Greater South East's collective strengths by working with regional partners.	The total number of exporting companies in the region decreased slightly from 9,058 in 2006 to 8,936 in 2008, however data is unavailable to allow a percentage figure to be calculated.
Knowledge Transfer and Business Expenditure on Research and Development. Increase the proportion of businesses in the South East reporting R&D links with universities from 11% in 2005 to 15% by 2016, and increase business expenditure on R&D in the South East from 3.2% of GVA in 2003 to 4% by 2016.	• Respond to the Government's 10-Year Investment Framework in Science and Innovation, through developing and delivering the Innovation Action Plan. • Promote the strengths of the South East's knowledge base, to regional, national and international businesses. • Assist foreign companies to access the innovative capabilities of the region's knowledge base and businesses. • Ensure a skills perspective to the 10-Year Framework for Science and Innovation.	The latest data shows that the proportion of businesses reporting R&D links with Universities has remained relatively stable in 2009. Total R&D expenditure as a proportion of GVA has been declining in the region since 2000, mainly due to a decline in R&D spending by the business sector.

Source: Adapted from SEEDA (SEEDA, 2006a) (SEEDA, 2009a)

Table Thirty-seven: Progress against Objectives – Smart Growth

Objective	Actions	Progress (Nov 2009)
Overall Objective: Increase productivity per worker by an average 2.4% annually, from £39,000 in 2005 to at least £50,000 by 2016.	N/A	Labour productivity increased strongly in 2006 by 3.7%, falling to 1.4% in 2007 and 1.1% in 2008, a growth rate below the RES target.
Enterprise. Increase the business stock by 35% from 35 businesses per 1,000 inhabitants in 2005 to 44 per 1,000 inhabitants by 2016, including 10,000 new businesses run by women by 2010.	• Implement an integrated approach to business support. • Implement improved support for women's enterprise. • Support new and growing businesses in the creative, cultural, leisure, sporting and visitor economy sectors. • Stimulate rural enterprise based on good market intelligence, making use of networks, collaborations and co-operatives and centres of excellence. • Support the development of home-based businesses, particularly targeting rural and women owned businesses. • Expand the Enterprise Gateway Network from nine to 20 Gateways by 2007. • Build sustainability and corporate social responsibility into everyday business practice. • Enhance the teaching of, and support for enterprise in schools, colleges and Higher Education. • Stimulate increased levels of enterprise among underrepresented groups.	Business stock increased from 36.7 businesses per 1,000 inhabitants in 2006 to 37.2 in 2007, however this data series has been superseded by a more comprehensive measure of business stock which indicates that the total number of businesses declined by 1,430 in the 12 months to March 2009. However, business density in the region is above the national average. Female self employment has fluctuated in recent years, falling by 3,800 between 2007 and 2008, following an increase of 18,800 in the 2006-2007 period.

Table Thirty-seven: Progress against Objectives – Smart Growth (continued)

Objective	Actions	Progress (Nov 2009)
Skills. Maximise the number of people ready for employment at all skill levels, and ensure they are continually equipped to progress in the labour market.	• Ensure education and training providers deliver skills provision and services to meet business requirements and stimulate the demand for higher level skills, including the use of Sector Skills Agreements. • Clarify and simplify the skills offer to businesses across the region and address skills deficits, particularly those at intermediate level. • (New Action). Increase the percentage of the working age population with qualifications at Level 2 or higher from 66% in 2003 to at least 80% by 2016, and the percentage with qualifications at Level 4 or higher from 28% in 2003 to at least 40% by 2016. • Ensure that all young people and adults of all ages in the region have access to relevant diplomas, vocational and work based learning opportunities, including the number, range and quality of apprenticeships and other vocational opportunities including foundation degrees – in skills centres and elsewhere. • Develop an action for communities model with providers and other partners.	In the past year there has been relatively limited progress in improving the qualification levels of the region's population, however the region remains a high performing region in this regard. More positively, the proportion of employers reporting skills gaps saw a significant decline between 2005 and 2007, reaching a figure below the national average.
Competition and Business Regulation. Increase the level of participation of South East businesses (especially small businesses and social enterprises) in tendering for public sector contracts.	• Improve business support available to help SMEs and social enterprises tender for contracts. • Identify areas of the public sector where there is potential for more procurement from local SMEs, and encourage alliances and collaboration to increase local procurement. • Develop the region's capability to influence legislation and regulations affecting the region's economy. • Develop a proactive approach to improving planning performance and speed.	Current data availability prevents SEEDA from reporting progress for the region in this area.

Table Thirty-seven: Progress against Objectives – Smart Growth (continued)

Objective	Actions	Progress (Nov 2009)
Employment. Improve the productivity of the workforce and increase economic activity from 82% to 85% by bringing 110,000 net additional South East residents of working age into the labour market by 2016 (as a step towards bringing up to 250,000 residents into the labour market by 2026).	• Work with employers to support in-work training schemes; provide vocational training and support in a range of learning styles; and target the support of FE and HE courses in industrial sectors that have significant skills gaps. • Encourage a culture of learning throughout business and community life. • Enable coverage and access to ICT support throughout the region, and promote the development of flexible working.	The region has the highest economic activity rate of any region, at approximately 82% since 2003, however this has fallen slightly in late 2008/early 2009.

Source: Adapted from SEEDA (SEEDA, 2006a) (SEEDA, 2009a)

Bearing in mind the time lag for some of the datasets, measurable progress can be seen against a number of the objectives. For example, within the Global Competitiveness objective the data indicates stability in the proportion of businesses reporting R&D links with universities, and the percentage of business turnover attributable to significantly improved products has seen an increase between 2004-2006. Within the Smart Growth objective the data highlights an overall increase in the number of woman-owned businesses since 2006 and progress in improving the qualification levels of the region's population. There has also been a decline in the proportion of employers reporting skills gaps. The region has the highest economic activity rate of any region.

Based on the evidence available, and utilising the innovation criteria regarded as important within the context of regional economic development (IRE Working Group, 2008), it can be inferred that the South East of England shows strengths in the following areas:

- Promotion of R&D activities;
- Technology/knowledge transfer actions;
- Promoting innovation in SMEs; and,
- Workforce skills development.

Whilst it is difficult to make causal links between actions, activities and impact, the indication is that actions and activities supporting the objectives within these criteria are driving the region's economic development.

Based on the evidence detailed above, it can also be inferred that the region shows weaknesses in the following areas:

- Internationalisation and foreign investment; and,
- Promotion of an innovation culture & entrepreneurial mindset.

6.3 The South West of England

Within the South West of England SWRDA benchmarks the region's economic progress in two ways, quantitatively through the South West Regional Economic Profile (SWREP), and more qualitatively through the region's annual Progress Report. This section provides evidence of the region's progress against the regional economic strategy utilising both of these resources, as a result of which some conclusions about the region's key strengths are made.

Firstly focusing on the key quantitative indicators, the most recent SWREP publication which focuses on progress against the RES for the region as a

whole was published in April 2008[39] (South West Observatory, 2008). The SWREP benchmarks the region's development against the three strategic objectives and eleven priorities identified within the RES (see Section 3.3.3), therefore providing an indication of where progress is being made. The region's progress against the priorities falling within the Successful and Competitive Business strategic objective, which are specifically targeted at businesses and innovation, are outlined in Table Thirty-eight below.

[39] While more recent SWREP reports have been published, these have had a sub-regional or topic specific focus.

Table Thirty-eight: Quantitative Progress against Priorities - Successful and Competitive Businesses

Priority	Progress (April 2008)
Support business productivity.	GVA in the region grew by 5.4% in 2006, higher than the UK average (5.1%), however this is a relative slow down when compared to the five and ten year averages for the region (5.7% per annum growth for both 2001 to 2006 and 1996 to 2006). While GVA per head in 2006 grew slightly faster in the region than nationally growth in GVA per head appears to be slowing down, with the ten year average growth rate being 2.5% per annum, the five year average being 2.1% and the 2006 growth rate being 1.9%.
Encourage new enterprise.	Overall, business stock in the region has been growing since 1996, with an average growth rate of 1.7% per annum. At the start of 2007, the region had 183,420 VAT registered businesses, with 15,745 businesses registering for VAT and 12,095 de-registering in 2006. The wider business stock, including small businesses that are not VAT registered, is estimated to comprise over 400,000 enterprises in total. The majority of growth has been in the finance and business services sector which has seen a net gain of 18,700 businesses between 1997 and 2007.
Deliver skills for the economy.	The South West region has a relatively well-qualified workforce, with the highest proportion in England of those qualified to NVQ4 level or higher outside of London and the South East. Rates of job related training in the region in 2006 were slightly higher than the UK average.
Compete in the global economy.	The region has a comparatively low propensity to export, accounting for around 5% of the UK's exports, compared to around 8% of economic output. The value of the region's goods exports was estimated at around £11 billion in 2007. The proportion of businesses involved in exporting has stood at around 3% since 2003, slightly lower than the UK figure of 4%. The proportion of businesses importing has also remained broadly level since 2004 at just under 5%, slightly lower than the UK figure of 6% UK. Within the region the number of both importing and exporting businesses increased substantially over the last decade, however while the number of importers doubled, exporting businesses increased by only 45%.
Promote innovation.	The region's rank position in terms of regional R&D expenditure as a proportion of economic output has increased from fifth in 1996 to third in 2006, suggesting the region is making relative progress in this measure. R&D expenditure in the region grew at around 6.3% per annum between 1996 and 2006, higher than the UK average of 4.4%. In addition the region's share of trademarks has remained fairly stable between 2002-2006, however its share of patents and designs has increased. In 2006, the South West accounted for 12% of UK patents and designs.

Source: Adapted from SWREP April 2008 (South West Observatory, 2008)

Secondly, complementing the SWREP, SWRDA produces an annual Progress Report which aims to provide an impartial qualitative narrative on the developments made against the eleven priorities identified within the RES,

therefore providing further evidence of where progress is being made. The most recent Progress Report covers the period from April 2007 to summer 2008 (SWRDA, 2008). As highlighted above, the priorities falling under the Successful and Competitive Business strategic objective are significant in terms of having an innovation and knowledge transfer focus. Tables Thirty-nine to Forty-three, which build on the priorities and actions set out in Table Thirteen (see Section 3.3.4), summarise the region's progress against the priorities falling within this objective.

Table Thirty-nine: Qualitative Progress against Priorities and Supporting Activities – Support Business Productivity

Priority	Action	Progress (2007/08)
Support business productivity.	Enhance business support for SMEs.	• The region has seen a significant increase in the number of business assisted by the Business Link network - 88,931 businesses were assisted during 2007/08, an increase of 26.7%.
	Improve access to finance.	• Publically funded advice on access to finance is now accessed through the Business Link network via the Access2Fianance programme (A2F), making it available for all businesses across the region. • RISE (the regional network supporting social enterprises) has been working with Business Link to develop specific advice for social enterprises on accessing finance. • With RDA support, the regional independent Community Development Finance Institutions, who provide loan finance to growth SMEs, have established a single portal to simplify access for companies looking for finance. • The South West Angel and Investor Network (SWAIN) completed 21 risk capital investment deals during 2007/08.
	Develop specialist support for high growth businesses.	• The region has seen a substantial increase in the number of high growth business receiving 'intensive assistance' from the Business Link network – 7,626 businesses received assistance during 2007/08, an increase of 28%. • The Beacon Network awarded Beacon status to a further eight companies, bringing the total membership to 215.
	Ensure rural access to business support services.	• The Business Link network operates the South West Rural Enterprise Gateway (SW-REG) which provides access to information, training and development support to rural businesses. Over 5,000 rural businesses received assistance through this route in the last year. • In addition, the South West Chamber of Rural Enterprise (SW CORE), which SWRDA supports, provides advice to business support providers on the needs of rural businesses and helps ensure companies are aware of relevant policy changes.

Table Thirty-nine: Qualitative Progress against Priorities and Supporting Activities – Support Business Productivity (continued)

Priority	Action	Progress (2007/08)
	Support resource efficiency in business.	• The Envision initiative, which was set up to help businesses become more efficient and environmentally friendly, delivered resource efficiency advice to 1,134 businesses in the region in 2007/08, up from 527 businesses in 2006/07. An appraisal of the initiative indicates that participating businesses have made cost savings of £20 million and reduced carbon dioxide output by over 32,000 tonnes between 2005 and 2008 as a result of support from the initiative. • £400,000 was invested in 2007/08 to train Business Link front-line staff to identify environmental and resource efficiency issues when working with businesses.
	Promote regional sourcing and the development of supply chains.	• A number of industry leaders are already involved with 'Supply Chains for the 21st Century' (SC21) and the South West Manufacturing Advisory Service (SWMAS) is encouraging suppliers of these companies to also get involved, to date they have worked with 44 companies. SC21 aims to remove duplication in the accreditation process, increase efficiency, remove waste and improve collaboration and innovation throughout the supply chain. • A new part of the SWMAS portfolio of support is the Strategic Management Programme which aims to spread practices from lean manufacturing to broader management functions. To date 60 businesses have benefited from this, safeguarding or creating 750 jobs and leading to additional investments of nearly £5 million in new products and processes. • SWMAS is also working with the West of England Aerospace Forum (WEAF) to help aerospace and defence companies compete more effectively in the global marketplace. It is offering a free review to help regional companies identify areas for improvement, opportunities for innovation, and to explore how supply chain communication and collaboration can be enhanced.
	Deliver sustainable sites and premises for business growth.	• The final Regional Spatial Strategy aims to guide local authorities and other partners on the development of appropriate sites. • The Regional Infrastructure Fund, run by the RDA, was launched in March 2008, providing seed investment to ensure major infrastructure projects are delivered in a timely manner.
	Implement the Strategy for Sustainable Food and Farming.	• A revised Sustainable Farming and Food Delivery Plan was published in March 2008 which includes specific indicators to measure progress on implementation.

Source: Adapted from SWRDA (SWRDA, 2006) (SWRDA, 2008)

Table Forty: Qualitative Progress against Priorities and Supporting Activities – Encourage New Enterprise

Priority	Action	Progress (2007/08)
Encourage new enterprise.	Develop a culture of enterprise.	• The School's Enterprise Education Network (S'EEN), which is a network of 51 specialist enterprise hubs run by networks of schools, has been established. There are 7 enterprise hubs in the South West providing enterprise programmes for teachers and in schools across the region. The hubs encourage schools to embed an enterprise culture into teaching and learning pedagogy and school leadership practices. • The region's annual Enterprise Week contributes to the promotion of enterprise in schools, colleges and universities. Enterprise Week 2007 saw a greater number of events held in schools across the region and more businesses participating in the activities compared to the previous year. • The region took part in the annual 'Enterprising Britain' programme, a nationwide activity to find the most enterprising place in the UK. In 2007 the Archimedia Project in Bristol was selected as regional winner, and in 2008 the Plymouth Chamber of Commerce won the regional award, reflecting its role in promoting enterprise in the city. • Business Link is strengthening links with HE and FE institutions to promote entrepreneurship amongst 16-21 year olds. (E.g. the development of 'Enterprise experience days' for young people, promotion of Education Business Partnerships, and running awareness sessions in FE colleges and schools to promote self-employment.)
	Promote and encourage the creation of new enterprises.	• The main publicly funded route to support new enterprises is through the Business Link gateway. During 2007/8, 12,227 people who wanted to start a business were helped by Business Link through workshops, telephone information, postal information and face-to-face meetings. This represents a slight decrease from the previous year.
	Support new social and community enterprises.	• RISE has piloted new support services for social enterprises through the Business Link Gateway. The regions work on this area has been praised nationally and lessons from the pilot are informing the development of new services that will be rolled out across the region. • Expertise within Business Link on the needs of social enterprise are being strengthened. A Small Firms Enterprise Development Initiative (SFEDI) training package for business support advisors has increased the number of accredited business support advisers from 5 to 30 over the last two years. • RISE and the South West Forum are working together to build capacity to support new social enterprises which is likely to be prioritised through the Government's Capacity Builders initiative. • RISE has developed a Social Enterprise Mark, which aims to show the benefits of social enterprises to customers in the South West. RISE supports a network of Social Enterprise Mark bearers.

Table Forty: Qualitative Progress against Priorities and Supporting Activities – Encourage New Enterprise (continued)

	Action	**Progress (2007/08)**
Priority	Promote enterprise in disadvantaged areas.	• The main gateway to support in disadvantaged areas will be through Business Link with Local Area Agreements promoting enterprise at the appropriate level in their area. The Convergence and Competitiveness Funds will complement this support. • In Cornwall the enhanced Information, Diagnostic and Brokerage (IDB) service was launched in autumn 2008, and an 'Enterprise for all' Manager will help ensure entrepreneurs in disadvantaged areas are accessing support. • The rest of the region is covered by the Competitiveness programme which has a specific priority called Urban Enterprise which will promote new approaches to encouraging enterprise in disadvantaged areas. • A key element of the Working Neighbourhoods Fund (WNF), provided by the Department for Communities and Local Government (CLG), is to encourage enterprise in deprived areas. While West Somerset is the only local authority to qualify for the WNF, Penwith, Bristol and Plymouth are set to receive some transitional funding to manage out the closure of the Neighbourhood Renewal Fund.
	Promote enterprise in rural areas.	• The South West Rural Enterprise Gateway (SW-REG), which operates through the Business Link network, continues to provide support for new and existing businesses in rural areas. Last year around 2,700 farming and rurally based businesses were supported, with an additional 2,500 companies using knowledge transfer activities run through the Gateway.
	Encourage wider participation in enterprise.	• SWRDA and Business Link are charged with widening participation to publically funded business support services. Examples of activities taken forward during 2007/8 include: o The Regional Advisory Group for Women's Enterprise informing the development of new programmes of support o Procurement events for the 2012 Olympic games (CompeteFor) targeted at women and Black and Minority Ethnic (BME) entrepreneurs o Workshops on Access to Finance targeted at particular groups such as women and social enterprises

Source: Adapted from SWRDA (SWRDA, 2006) (SWRDA, 2008)

Table Forty-one: Qualitative Progress against Priorities and Supporting Activities – Deliver Skills for the Economy

Priority	Action	Progress (2007/08)
Deliver skills for the economy.	Encourage an efficient and adaptable labour market.	• In January 2008, the Regional Skills Partnership (RSP) reviewed priorities for delivery in the current regional skills strategy. It was concluded that the region needed to place greater emphasis on innovation and creative skills; STEM skills; leadership and management development; enterprise skills for all; and higher level vocational skills. These priorities are now guiding the work of delivery partners. • The RSP also focuses on improving the coordination of sector-specific skills provision. The Sector Operations Group (SOG) has been working closely with the business-led sector skills councils to align skills demand and supply. Specific additional capacity will be provided to help align regional sector priorities, and spatial priorities articulated in local and Multi Area Agreements (MAAs). • The RSP is also responsible for identifying regional priorities for the European Social Fund (ESF). In terms of the Competitiveness programme (covering all of the South West except Cornwall), priority has been given to basic and Level 2 skills provision through Jobcentre Plus and the LSC. In Cornwall, additional flexibility is available to support the development of higher level skills, linking with other initiatives such as the Combined Universities of Cornwall. • The RES and the work of the RSP both recognise the importance of strengthening alignment between higher (graduate) level skills, and current and future needs of the regional economy. There are a range of specific initiatives supporting this aim: o Graduates for Business' Programme which aims to increase graduate-level employment in the region. In 2007/8, 222 graduates were placed with regional businesses. o The 'Higher Level Skills Pathfinder' project aims to raise awareness of the opportunities that HE can offer business in terms of skills development. 325 workplace learners were supported in 2007/8. o The 'Higher Skills Development' Fund is a £1.3 million fund for the region, open to all HE institutions for projects providing accredited training solutions that meet the needs of an identified employer demand. • The region's further education institutions continue to play a major role in delivering vocational skills. During the year, the Association of Colleges South West (AoC) and SWRDA have collaborated on work to help colleges understand and develop their contribution to the local and regional economy.

Table Forty-one: Qualitative Progress against Priorities and Supporting Activities – Deliver Skills for the Economy (continued)

Priority	Action	Progress (2007/08)
	Develop workplace skills and training.	• Train to Gain is the national service for supporting businesses through skills brokerage and subsidised training. While it is managed regionally by the LSC the skills brokerage element of the service is delivered to SMEs by Business Link to ensure alignment with other business support products. Customer satisfaction with the Train to Gain service in the region remains high at 91%, and a number of targets for the programme have been significantly exceeded – including the number of hard to reach groups assisted. • The Train to Gain programme is supplemented by a number of regional initiatives, such as the 'Learning Works for All' programme which supports joint working between employers and trade unions to strengthen basis skills and NVQ Level 2 qualifications. To date 40 companies have partnered trade unions to deliver workforce development training to 1,600 employees. An initial evaluation suggests the approach has made a significant impact on the learning culture in the participating businesses. • In response to the RSP's focus on leadership and management the LSC has commissioned a new Leadership and Management Advisory Service to be delivered through the Business Link network in the region. This builds on earlier regional leadership and management development scheme, which an evaluation showed 80% of participating companies improved their business performance as a result of the scheme. • The RSP is working to ensure that the development of the new 'Vocational Diplomas' provide sufficient routes into higher education. • Progress on increasing the number of apprenticeships in the region has been good, with take-up standing at 1,239 more than the previous year – an increase of around 8%. • 'Local Employment Partnerships' have been established between Jobcentre Plus and five major retailers in the region. Companies commit to a range of measures such as work trials, mentoring, or innovative recruitment processes to help enable people who have been out of the labour market for some time fill vacancies in these companies.
	Inspire people to improve their employability skills.	• A new initiative designed to increase STEM literacy amongst the South West's future workforce is being developed. The project will constitute three strands of activity: research; provision of information; and targeted interventions aimed at addressing identified STEM issues. In addition, Computer Aided Design (CAD) and Computer Aided Manufacturing (CAM) pilot programmes have been trialled over the last year with secondary schools, their feeder primary schools and employers to engage students directly in the application of STEM subjects. These two programmes will be progressively rolled out with the support of businesses and SWRDA. • The RES highlights the importance of effective careers advice. Progress has been made in strengthening advice for people over 20: the 'Nextsteps' programme, resourced by the LSC, will support adults who do not have a Level 2 qualification. From 2010 a new Adult Advancement and Careers Service (AACS) will be put in place as part of the new Skills Funding Agency. In the region a new AACS service is being led by the LSC and Jobcentre Plus with other RSP partners.

Table Forty-one: Qualitative Progress against Priorities and Supporting Activities – Deliver Skills for the Economy (continued)

	Ensure high quality and flexibility training provision.	• An overarching objective of the RSP is to create a demand led approach to skills and training that supports a productive economy in the South West. A performance monitoring framework has been produced by SLIM that will be used to measure progress against the new priorities.

Source: Adapted from SWRDA (SWRDA, 2006) (SWRDA, 2008)

Table Forty-two: Qualitative Progress against Priorities and Supporting Activities – Compete in the Global Economy

Priority	Action	Progress (2007/08)
Compete in the global economy.	Encourage and support regional businesses to trade internationally.	• The South West International Trade 'Dual Key' Action Plan, agreed annually between UKTI and SWRDA, sets out priorities for publically funded support to businesses that want to trade internationally. • Through the 'Passport to Export' programme, which is the main source of initial support for companies new to exporting, UKTI and SWRDA funded 327 Passport clients to sign up to the programme in 2007/08. Of these, 83% reported that the programme had improved their business performance. UKTI also provided Significant Assistance (outside the passport programme) to an additional 422 companies with 62% reporting an improvement in their performance as a result of the support. • As part of the 'European Enterprise Network' Project, Enterprise Europe South West will provide advice and hands-on support to businesses throughout the region in relation to Europe and the Single Market.
	Attract and retain domestic and foreign direct investment.	• During 2007/8, regional partners helped secure 65 new inward investment successes. The region currently has over 1,500 foreign-owned companies. • SWRDA's inward investment team has been restructured, with closer working with Strategic Economic Partnerships (SEPs) and local authorities, and the region has opened a new office in India to attract investment as a joint venture with SEEDA.

Source: Adapted from SWRDA (SWRDA, 2006) (SWRDA, 2008)

Table Forty-three: Qualitative Progress against Priorities and Supporting Activities – Promote Innovation

Priority	Action	Progress (2007/08)
Promote innovation.	Develop a culture of innovation in the region.	• The South West Science and Industry Council (SWSIC) is steering the development of a revised science and innovation strategy for the region, which will inform and guide regional stakeholders as they plan and invest. This has involved bringing together a steering group, engaging regional businesses, academics and other research and technology organisations, and business support providers to assist the development of the strategy. • The region piloted the 'Designing Demand' initiative which aims to increase businesses' understanding of how design can make a real impact on increasing their sales and profitability; and supporting them to make investments in design for the first time. • Work on the Bristol and Bath Science Park (Spark), which is the physical manifestation of Science City Bristol, has progressed and will provide a focus for a more connected science and technology community, linking businesses to each other and to higher education.
	Increase the contribution that science and technology makes to the economy.	• SWRDA have made significant investments to promote innovation in key regional sectors (e.g. the establishment of PRIMaRE in Plymouth – Peninsular Research Institute for Marine Renewable Energy – which, alongside the Wave Hub Marine Energy test facility, and the supply chain, will build world-class capacity in the marine renewable energy industry). • As the largest investor in R&D in the region, innovation in the aerospace sector continues to be supported. • SWSIC has undertaken a number of events to ensure regional businesses understand the opportunities available to them through the Technology Strategy Board's activities, including Knowledge Transfer Networks, Knowledge Transfer Partnerships, collaborative research and development funding and Innovation Platforms.
	Encourage collaboration between business and the region's knowledge base.	• KESW2, which finished in April 2008, reached all its targets, having supported around 2,000 learning opportunities, established new collaborations between the regions knowledge base and businesses. Other benefits included creating over 70 jobs and promoting increased collaboration between the regional HEIs. • The Great Western Research (GWR) project continued to provide businesses with access to world-class research at regional universities through the joint sponsorship of 3-year research studentships. The project awarded 129 studentships, almost a quarter of which are in partnership with SMEs.
	Maximise the take-up and exploitation of ICT for business.	• The 2006 Regional ICT Strategy provides the framework for activity to support the take up and exploitation of ICT, with one it its key objectives being to improve productivity. • The Connecting South West Programme, which came to an end in 2008, supported over 24,000 SMEs during its seven year existence, to improve their productivity and competitiveness by adopting broadband technology. • SWRDA funded the online Business IT Guide service which provides free, impartial advice to SMEs, helping them to improve their use of IT and e-business and encouraging them to seek further development assistance from the Business Link service.

Source: Adapted from SWRDA (SWRDA, 2006) (SWRDA, 2008)

Utilising the data contained within the SWREP and the annual Progress Report it is possible to identify broad areas of strength within the South West region and draw some inferences about the activities that might be impacting upon these.

The South West region appears to be making progress in terms of supporting business productivity, with GVA growing slightly faster in the region than nationally in 2006. Activities to enhance business support for SMEs seem to be having an impact, with the region seeing a significant increase in the number of businesses assisted by the Business Link network and a substantial increase in the number of high growth businesses receiving 'intensive assistance' from the Business Link network. In addition, access to advice on funding appears to have been streamlined.

The region is also making progress in terms of encouraging new enterprise, including social and community enterprises, with business stock continuing to grow. The Business Link service plays a significant role in this process, continuing to support a large number of people who want to start a business, although numbers have declined slightly in 2007/08, as well as being the main gateway for supporting enterprise in disadvantaged areas and rural areas. The region has established the School's Enterprise Education Network (S'EEN) and the annual Enterprise Week which contribute to developing a culture of enterprise. The most recent Enterprise Week saw a greater number of events held in schools across the region and more businesses participating in the activities compared to the previous year.

The region also has a relatively well qualified workforce, having the highest proportion of the workforce qualified to NVQ4 level or higher amongst the English regions, with the exception of London and the South East, and rates of job related training being slightly higher than the UK average in 2006. The development of workplace skills and training is supported through the Train to Gain initiative, current targets for the programme have been significantly exceeded and satisfaction for the service is high. An initial evaluation also indicates that regional initiatives to supplement the Train to Gain service have made a significant impact on the learning culture in the participating businesses and the region has seen an increase in the number of apprenticeships in the region. Through the RES the region has also developed a number of successful initiatives to help strengthen the alignment between higher level skills and current and future needs of the regional economy.

The region appears to be making good progress in the area of promoting innovation, having seen its rank position in terms of regional R&D expenditure as a proportion of economic output increase from 5th in 1996 to 3rd in 2006. R&D expenditure in the region has also grown at a rate higher than the UK average and the region's share of patents and designs has increased.

The region performs less well in terms of competing in the global economy. Businesses in the region have a relatively low propensity to export, with slightly lower proportions of businesses involved in exporting and importing

compared to the UK average. However the number of businesses both exporting and importing has increased substantially over the last decade, suggesting that activities to encourage and support regional businesses to trade internationally, such as the Passport to Export programme, are having a positive impact.

Based on the evidence available, and utilising the innovation criteria regarded as important within the context of regional economic development (IRE Working Group, 2008), it can be inferred that the South West of England shows strengths in the following areas:

- Promotion of an innovation culture & entrepreneurial mindset;
- Provision of enhanced innovation support services and infrastructure; and,
- Workforce skills development.

As already highlighted, although it is difficult to make causal links between activities and impact, the indication is that activities supporting the objectives within these criteria are driving the region's economic development.

Based on the evidence detailed above, it can also be inferred that the region shows a weakness in the following area:

- Internationalisation and foreign investment.

6.4 The Nord-Pas-de-Calais Region of France

The Nord-Pas-de-Calais region of France reports on its economic progress through the strategic committee of Regional Innovation. Evidence of the region's progress against the region's SRDE and the various other strategies and programmes that aim to drive the economic development of the region are presented below.

The strategic committee of Regional Innovation is jointly managed by the Regional Council and the State. The committee meets on a biannual basis to monitor the implementation of the economic strategies supported by the region (outlined in Section 3.4.3) and validate the results of any actions and activities that have been implemented, therefore providing an indication of where progress is being made. Findings are presented through the standing conference of the SRDE (*Conference Permanente du SRDE*). The most recent publication is from the 9th standing conference, held in December 2009, from which an overview of progress to date is summarised below (SRDE Committee, 2009).

As highlighted in Section 3.4.3, the region's SRDE organises and leads on various other strategies and programmes that aim to drive the economic

development of the region; the Regional Program for the Creation and Transmission of Business (PRCTE); the Regional Development Plan for Handicraft; the Strategie Regionale Innovation (SRI); and, the Plan Innovation Valorisation de la Recherche. Progress against each of these strategies and programmes are outlined in the following tables.

The activities of the PRCTE fall within the SRDE's first strategic objective to "support business creation and communication". Table Forty-four, which builds on the objectives set out in Table Fourteen (see Section 3.4.3.2), summarises the region's progress against the PRCTE's three overarching objectives.

Table Forty-four: Progress against PRCTE Objectives

Objective	Progress (September 2009)
Support the creation of companies.	• The region recorded 17,405 new businesses between January-September 2009, an increase of 69% for the same period in 2008. This is just below the national figure of 70%. • In September 2009 the region recorded more than double the number of business creations compared with the previous year (117% increase). • The programme has contributed 40,070 hours of coaching, 23,314 hours of management, supported 16,526 individual interviews and provided 986 incentive awards for sustainability. • The programme has raised awareness in 193 rural schools, reaching 3,211 students and learners.
Support the transmission of companies.	• Continue to meet with individual managers.
Develop the communication strategy.	• The jecree.com campaign has been resumed through a media plan involving film, television, advertising, the press, websites, email and an SMS campaign.

Source: Adapted from 9th Standing Conference of the SRDE 2nd Dec 2009 (SRDE Committee, 2009)

Also falling within the SRDE's first strategic objective to "support business creation and communication" are the activities of the Regional Development Plan for Handicraft. Building on the five overarching objectives of this plan set out in Table Fifteen (see Section 3.4.3.3), Table Forty-five outlines the region's progress against these.

Table Forty-five: Progress against the Regional Plan for Handicraft

Objective	Progress (September 2009)
Encourage the creation of companies.	• A total of 1,943 new businesses were created, which is below the 2009 target of 5,025.
Encourage the transmission and recovery of companies.	• 589 companies were transferred, slightly below the target of 656 for 2009.
Develop traditional, small scale companies.	• 1,775 companies were helped and encouraged in their activities, which exceeds the 2009 target of 1,450.
Provide financial support.	• A number of financial tools are operational including: • Guarantee fund for crafts • Refundable advances
Promote the traditional fields.	• A new campaign will be developed in 2010.

Source: Adapted from 9th Standing Conference of the SRDE 2nd Dec 2009 (SRDE Committee, 2009)

Progress against a number of the SRDE's other strategic objectives are highlighted in Tables Forty-six to Fifty, which build on Table Sixteen (see Section 3.4.4.1).

Table Forty-six: Progress against the SRDE – Objective Three

Objective	Action	Objectives 2009	Progress (September 2009)
Place innovation, R&D at the very heart of priorities to accelerate transformation of the regional economy.	Establish a forum for innovation and research exploitation.	Strengthen regional actors' sense of belonging and involvement with the innovation forum. Help Competitive Clusters and Regional Excellence Centres to define and implement their innovation and research exploitation plans. Promote the Platform and its services to target companies. Finalise the SRI (Regional Innovation Strategy).	• 64 regional member organisations have joined the forum. • 18 exhibitors at the CREATE show under the banner "J'Innove en Nord Pas de Calais" – 665 new contacts established. • The Week of Innovation took place in November involving 30 events held by 47 partners from 21 localities. • 13 Competitive Clusters and Regional Excellence Centres received support. • 6,000-8,000 monthly visitor on the website Jinnove.com. • Work on the SRI is still being finalised: - An Innovation and Research Exploitation plan has been created - Five thematic working groups have been established • Several studies have been launched in order define the priority action areas for the region.
	Appointment of key staff in charge of innovation and research exploitation.	Identification of staff skills relevant to the projects (Development staff, business development managers, innovation managers, transferable skills etc).	• The appointment of 8 staff working on development activities, 5 business development managers and 6 innovation managers. • Identification of 4 relevant structures with transferable skills: ADIT, INPI, CCI International and ARIST.
	Construct a resource for regional technology on the website Jinnove.com.	Links to Centres for Scientific and Technological Resources (CREST) on the website Jinnove.com. Launch of the CREST animation.	• 36 organisations recognised as CREST. • Database of CREST organisations with 36 entries in 3 languages online at Jinnove.com.

Table Forty-six: Progress against the SRDE – Objective Three (continued)

Objective	Action	Objectives 2009	Progress (September 2009)
	Establish a pro-active approach to regional enterprise.	A minimum of 230 projects to be supported financially. Continue the project system with two new calls for proposals: "Collective Actions for the forum". "Creation of innovative enterprise with national purpose".	• 262 innovation projects confirmed totalling €14.9M. • 3 winners in a national competition supporting the establishment of innovative technology businesses – under the Emergence category. • 3 winners in a national competition for supporting the establishment of innovative technology businesses – under the creation-development category. • A continuation of collective action: Europe, Innovation Management, Cassioppée, 3POD (design) and InoPME. • Launch of a call for project proposals in May 2009 named "Creation of innovative enterprise" with a national purpose. • 47 proposals were submitted and 21 were successful in achieving financial support. • Launch in early 2009 of a call for project proposals (MAUD) and of a call for expression of interest (I-Trans).
	Establish a Regional Fund to promote the set-up of innovative projects.	50 projects to be financed with up to €4,5 M from the Regional Innovation Fund.	• 94 projects were supported, of which 19 were laboratory projects. • 72 projects were confirmed totalling €2 M. • 79 Technological Network Services were launched.

Source: Adapted from 9th Standing Conference of the SRDE 2nd Dec 2009 (SRDE Committee, 2009)

Table Forty-seven: Progress against the SRDE – Objective Four

Objective	Action	Objectives 2009	Progress (September 2009)
Rethink the economic activities of the Nord-Pas-de-Calais abroad.	Attract foreign investment.	Create 3,000 jobs by establishing new businesses.	• 173 new projects opened. • 8 projects won. • 902 jobs to be created or maintained (676 new + 226 maintained). • €243.2 M investments are projected.
	Internationalise SMEs.	Support 400 SMEs to reach foreign markets and identify 200 new exporters.	• ***New Exporters Program*** • 80 Eval'Export projects (advice for new exporters). • 27 projects underway in the integrated program for international development. • ***Training*** • 210 partners trained in international business, representing 202 different companies. • ***Company Support*** • 837 companies given individual advice or attended larger meetings. • 253 companies given support concerning their commercial approach to foreign markets. • ***Groups*** • 13 companies were given tailored support within 3 interest groups.
	Decentralized economic cooperation.	International Volunteers in Enterprise (VIE): overall objective up to 2011: 300 VIE in the Region and 100 VIE projects in SME/SMI.	• 227 VIE had a job (on 1st October 2009). • 60 VIE projects in SME/SMI have received support from the region (€10,000 per project).
	Promote the Nord-Pas de-Calais region internationally.	Equity loan development abroad.	• 19 projects complete totalling €1.4 M.

Source: Adapted from 9th Standing Conference of the SRDE 2nd Dec 2009 (SRDE Committee, 2009)

Table Forty-eight: Progress against the SRDE – Objective Five

Objective	Action	Objectives 2009	Progress (September 2009)
Mobilize and coordinate the financial tools for regional economic development.	Bring together financial tools where public authorities (such as the Regional Council) are shareholders.	Implement complementary tools for regional security. For example, the Regional Guarantee Fund (Fond Régional de Garantie - FRG) secures bank loans for new businesses. Continue the construction of a comprehensive regional finance framework for funding SMEs. Strengthen financial tools for social enterprise.	• The Regional Guarantee Fund's business plan is currently being finalised for approval before the end of 2009. • Partnership has been signed between "FRG Finorpa" and "France Active" in order to guarantee up to 80% loans (an increase from 65%). • Development of the partnership with OSEO in line with the SME Consolidation Plan. • Creation of the Capital Investment Platform on the 19th of June 2009.
	Link with other regional financial tools.	Building a partnership charter on the cooperative tools for capital intensive and/or high risk projects. Work towards a comprehensive annual report of regional financial tools.	• Creation of the Capital Investment forum, whose charter of ethics will be signed the 2nd December. • A report on tools for which the region is a shareholder has been completed.
	Support associations aiming to promote private investment and links with other systems	Work towards a regional response to high-risk projects.	• Financial Participation of the Eurasante Development club to improve the partnership with the Business Angels in the Biology-health domains.

Source: Adapted from 9th Standing Conference of the SRDE 2nd Dec 2009 (SRDE Committee, 2009)

Table Forty-nine: Progress against the SRDE – Objective Six

Objective	Action	Objectives 2009	Progress (September 2009)
Make Nord-Pas-de-Calais a highly progressive region in Information Communication Technologies (ITCs).	Ensure the accessibility of broadband throughout the region, eliminating areas of partial coverage.	***Regional Observatory of the ICT:*** • First mapping in September 2009. • Implementation of "Town Planners Club" for the Economical Business Park (ZAE), development plan for the ZAE.	• Regional Observatory of the ICT: • Award of contracts to societies and TACT GEOSIGNAL in 2009.
		Areas with only partial coverage: Implementation of the latest projects before the end of the program.	• Areas with only partial coverage: • 47 projects completed (in 92 areas for 9,618 subscribers). • 19 projects are still in progress (in 40 areas for 3,856 subscribers). • Awareness raised in 24 groups (for 1,840 subscribers).
		Business Park: Continue to follow the actual projects (13).	• Business Park: • 18 economic activity areas were equipped. • Development: implementation of the Regional Digital Conference which will be in charge of the regional broadband strategy.

Table Forty-nine: Progress against the SRDE – Objective Six (continued)

Objective	Action	Objectives 2009	Progress (September 2009)
	Develop ICT services for businesses and residents.	Maintain the creation of 10 "cyber centres" in areas without any internet communication network.	• 3 projects creating or officially designating "cyber centres".
		Strengthening the role of "cyber centres" in awareness campaigns for new users.	• Operation BOUTIC: cyber-centres are becoming a place with high added value for companies in rural areas, becoming partners of local authorities.
		Development protocols to support local authorities in: • Giving individual technical advice • The organisation of awareness campaigns Implementation of shared tools.	• The Créatic program continues to be structured to offer the best support service to local authorities. • An advanced discussion paper on the creation of an administrative association is currently being written.
		Encouraging districts and local authority areas to improve service to the public and to create new services.	• 12 territories received support to develop a digital strategy (usually with an economic component). • 12 local authorities areas were helped to reorganise or innovate in order to improve public service.
	Structure the ICT sector.	The event Les Fabriques Numériques 2009 (www.lesfabriquesnumeriques.org) will be organised again in 2009.	• "Les Fabriques Numériques": in 2008 this event showcased the ICT know-how, innovation and digital creativity of the region. The coastal areas, the area around Lille and Valence, federated their efforts. This event was repeated in 2009 during Regional Innovation Week.
	Disseminate ICT to businesses.	40 Public Institutes (EPIC) should be in the program.	• System BOUTIC: 28 Public Institutes (EPIC) are now supported by the group of local authorities in a programme promoting the use of ICT in rural areas.

Source: Adapted from 9th Standing Conference of the SRDE 2nd Dec 2009 (SRDE Committee, 2009)

Table Fifty: Progress against the SRDE – Objective Seven

Objective	Action	Objectives 2009	Progress (September 2009)
Promote a united region attentive to balance between districts.	Disseminate the values and practice of social enterprise.	Participation of social enterprises at the Create exhibition. Awareness campaigns by APES and CRESS for students, business, regional and political networks. Participate in an ARF taskforce for improving the visibility of the sector.	• Some stands at the Create exhibition were dedicated to the creation and development of social enterprise. • During 2009, the APES and the CRESS have campaigned to raise awareness among students, elected officials and those working in social enterprise in certain areas (public awareness was increased in six areas). • A website "The ESS in the Region" (www.essenregion.org) has been constructed by the ARF. It highlights the initiatives of social enterprises, in each region of French.
		Set up of the Regional Observatory for Social Enterprise (CRESS) and the production of quantitative data.	• The CRESS supplies quantitative data for the region.
		Support for 3 innovative projects backed by social enterprise.	• Backing given to plans for an "ESS – IRIS" incubator for the Saint-Omer area. A call for project proposals (company creation or revival) under cooperative status was launched in June 2009. • Support for the establishment of the "Terre de Liens" association in the region. The aim of this association is to help ecologically responsible, socially beneficial and economically viable, in food provision. • Testing "Boosting the regions through activities and projects – STAP" in the area Pays de la Lys Romane. Its aim is to foster leadership and to offer tailored support to each project identified.
	Assist the sector to restructure to support local development strategies.	Actions taken under the existing 10 Local Development Plans (PLDE). Advocacy in all regions with a view to implementing a component of social enterprise in each PLDE.	• 6 districts include a social enterprise element in their PLDE. • 10 districts have identified social enterprise as an objective in their PLDE and are currently working on a social enterprise strategy. • 6 territories were made aware of and are considering the possibility of a social enterprise component.

Table Fifty: Progress against the SRDE – Objective Seven (continued)

Objective	Action	Objectives 2009	Progress (September 2009)
	Support the development of social activities.	Agreement between bodies for support across districts. Renewal of the MPA system (Micro Associative Projects). 7 FIDESS projects (FIDESS is a financial support of the "Caisse des Dépôts et Consignations").	• To continue collaborative work carried out in 2008 on the redefinition of support tasks, an agreement of objectives lasting several years has been agreed with each of the supporting bodies. • The MPA system was renewed thanks to support from the State, the region and the Nord Pas de Calais department in mobilising €1,636,000 in funds from the European Social Fund (ESF) for projects in the region. In 2009 25 projects received support. • 13 studies/activities received support (7 in 2009). 9 of these projects are underway with an average of 5 jobs at commencement and 12 in the next 3 years.
		Support for 17 creation or development projects. Mutual Investment Funds: 30 projects supported by "Nord Actif" and 22 projects by "Inseraction62". Acquisition of capital holdings and investment in stockholders' equity for 30 projects. Investors clubs "Cigales": 35-40 investments and 12 new clubs.	• "Creation agreement" (start-up support): 8 projects have received support, 43 jobs will be created within 3 years. • Agreement to support the development of social enterprises: 8 projects have received support, 67 jobs will be created within 3 years. • "France Active" financial tools (capital stock provision and by repayable advances): €2.9M raised which permitted the consolidation of 42 organisations, involving 1,700 jobs. • Venture capital firm "Autonomie et Solidarite': 27 projects, €1,053M raised, involving 551 jobs. • Investors clubs "Cigales": 60 active clubs including 6 new schemes, involving 70 companies. • Support for the social enterprise structures for strategic changes or a complete reversal. This is the protective component of PRDESS which has been running since 22nd October 2009. It is a body put together by "Nord Actif" and "Inseraction62" for financial support and intervention.
	Encourage development of local plans for economic development (PLDE).	***C2RA*** (Centre Régional of Resources and Animation): implementation of 350 DLA. (Local support systems).	• System of local support: 121 organisations received support, involving 4,708 jobs.

Source: Adapted from 9th Standing Conference of the SRDE 2nd Dec 2009 (SRDE Committee, 2009)

Utilising the data presented at the 9th standing conference of the SRDE it is possible to identify broad areas of strength within the Nord-Pas-de-Calais region and draw some inferences about the activities that might be impacting upon this.

The Nord-Pas-de-Calais region appears to be making progress in terms of supporting business creation and communication, having seen a 117% increase in the number of new businesses in 2009 compared to the same period in 2008. However, this increase has not been seen across the traditional crafts, whereby 1,943 new businesses were created, well below the 2009 target of 5,025. A significant number of businesses have been supported through both the PRCTE and Regional Plan for Handicraft, with the latter exceeding its target in this area.

The region has also performed well with regard to placing innovation and R&D at the very heart of priorities to accelerate the transformation of the economy. A total of 262 projects of innovation were supported financially compared to a target of 230, while the Regional Innovation Fund supported 94 projects compared to a target of 50. In addition a number of Competitive Clusters and Regional Excellence Centres have been helped with regard to the definition and implementation of their innovation and research action plans.

The region appears to be making good progress in developing financial tools to support regional economic development. For example the Capital Investment forum has been created and a partnership agreed to increase loan guarantees up to 80%.

The region has seen some progress in terms of the development of ICT. A large number of projects to ensure the accessibility of high flow and eliminate grey areas throughout the region have been completed, however 19 projects are still in progress. In addition the creation of 10 cyber centres were planned in areas without any network, however only three have been created.

The region has performed less positively in terms of its international activities. While the region has attracted a number of foreign investments which have resulted in 902 jobs being created or safeguarded, this is well below the target of 3,000 new jobs. In addition, although a large number of organisations received support to help them export, only a small number have gone on to export. More positively 227 International Volunteers in Enterprise (VIE) already had a job compared to the target of 300 for 2011.

Based on the evidence available, and utilising the innovation criteria regarded as important within the context of regional economic development (IRE Working Group, 2008), it can be inferred that the

Nord-Pas-de-Calais region of France shows strengths in the following areas:

- Mechanisms for better coordination of the innovation system;
- Promotion of R&D activities;
- Promotion of an innovation culture & entrepreneurial mindset;
- Promoting innovation in SMEs;
- Provision of enhanced innovation support services and infrastructure; and,
- Workforce skills development.

Whilst it is difficult to make causal links between actions, activities and impact, the indication is that the actions and activities supporting the objectives within these criteria are driving the region's economic progression.

Based on the evidence detailed above, it can also be inferred that the region shows a weakness in the following area:

- Internationalisation and foreign investment.

6.5 The Bretagne Region of France

The impact assessment is recognised as an essential aspect of the SRI in Bretagne, and one that is currently under redress and development (Bretagne Innovation, 2008). To date, there is no systematic measure of the region's progress against the objectives identified within their regional economic strategies (outlined in Section 3.5), or of the impact the supporting actions and activities are having. This is, in the main, due to difficulties in the need to collect data from an inherently large number of variables, resulting in a lengthy and costly process. As a result it has not been possible to systematically identify the progress the region is making against its economic development objectives.

An additional barrier to the assessment of the impact of the competitive clusters specifically (see Section 3.5.1) stems from a lack of formalisation of specific objectives for the clusters when they were integrated into the regional economic strategies. As a result, there is a lack of cohesion between the cluster strategy and the regional economic strategy (Bretagne Regional Council, 2008).

The most relevant document to provide an indication of the impact the innovation strategies are having in the Bretagne region is that carried out by a recent Interreg project, IMPACTSCAN[40]. The project, co-financed by the European Union, produced a method and tool for regional policy-makers to analyse and evaluate the impact of their regional innovation policy[41].

During the development of the IMPACTSCAN tool Bretagne Innovation carried out a business survey to establish companies' perception of the regional innovation scheme and to understand the impact this has on their ability to innovate. This survey assessed the impact of the main innovation actors and networks of the Bretagne region, including technology transfer centres, technology parks, and technological centres.

The results highlighted the strength of the Bretagne region in technological support. For example technical centres, which aim to stimulate regional SMEs innovation policies and give them access to technology skills and infrastructures for their projects, were found to be creating impact in the following ways: existing skills and knowledge on their specific themes; ability to gather collaborative partners and funding and to provide critical support in the realisation and operational phases of innovation; and, financial intermediation.

Within technology parks the implementation of innovation was perceived as the most important factor, with financial resources, research collaboration and access to technology/ knowledge through training for the development of entrepreneurship skills, being perceived as highly important activities for impact.

The assessment identified that improvements were needed in areas such as marketing support, access to information, industrialisation, project management, human resource management, financial support, and commercialisation of innovative products/ services.

The solutions and tools identified as a result of IMPACTSCAN proposed that future studies of impact should include the development of an evaluation culture, whereby an outside consultant would carry out an evaluation of implementation once every three years. It was also highlighted that the evaluation should include an impact assessment which compares results to priorities, carries out benchmarking with other regions and provides feedback for continuous improvement.

[40] See: http//www.impactscan.net Accessed January 2009.
[41] Other regions involved in the project included Lower Austria, Slovenia, Madrid, Lower Silesia, Flanders and Limburg.

6.6 Summary

This section has identified that the actual impact of specific activities supported by the regional economic strategies is not something that is currently evaluated by the partner regions. However, three of the regions, Bretagne being the exception, do systematically measure progress against their regional economic priorities and objectives; although there is a lack of consistency between these approaches.

As a result of this, this section has explored the three region's progress against the priorities and objectives identified within their respective economic strategies. From this analysis, and utilising the innovation criteria regarded as important within the context of regional economic development (IRE Working Group, 2008), a number of strengths and weaknesses have been identified across the regions, as highlighted in Tables Fifty-one and Fifty-two.

Table Fifty-one: Regional Strengths

Innovation Criteria	Region		
	South East of England	South West of England	Nord-Pas-de-Calais
Mechanisms for better coordination of the innovation system			✓
Promotion of R&D activities	✓		✓
Technology/knowledge transfer actions	✓		
Promotion of an innovation culture and entrepreneurial mindset		✓	✓
Promoting innovation in SMEs	✓		✓
Provision of enhanced innovation support services and infrastructure		✓	✓
Workforce skills development	✓	✓	✓

Source: SERIO 2009

Table Fifty-two: Regional Weaknesses

Innovation Criteria	Region		
	South East of England	South West of England	Nord-Pas-de-Calais
Internationalisation and foreign investment	✓	✓	✓
Promotion of an innovation culture and entrepreneurial mindset	✓		

Source: SERIO 2009

As highlighted throughout this section, causal links between actions, activities and impact are difficult to ascertain. Nevertheless, evidence does imply that actions and activities supporting objectives within a region's area of strength are driving the region's economic development. Considering this, the areas where the regions demonstrate strengths related to the innovation criteria offer opportunities for the other partner regions to learn and benefit through cross border sharing of best practice in relation to the activities the successful regions support. Drawing on Table Fifty-one, the regional strengths, and related innovation criteria, that could be exploited in this way are summarised below:

- The Nord-Pas-de-Calais region demonstrates strengths in the mechanisms for better coordination of the innovation system;
- Both the South East of England and Nord-Pas-de-Calais region of France demonstrate strength in the promotion of R&D activities and the promotion of innovation in SMEs;
- The South East of England shows a particular strength in technology and knowledge transfer;
- The South West of England and Nord-Pas-de-Calais region of France show strengths in the promotion of an innovation culture and entrepreneurial mindset, however this is a weakness within the South East of England. This suggests that the South East of England could particularly benefit from cross border learning and sharing of best practice in this area;
- Both the South West of England and Nord-Pas-de-Calais region of France demonstrate strengths in the provision of enhanced innovation support services and infrastructure.

As Table Fifty-two highlights, all three regions demonstrate a weakness in progress within objectives supporting internationalisation and foreign investment, suggesting this is an area in need of further development across all regions.

The following section of the report draws together the key findings from all aspects of Work Package One and makes a number of recommendations to take the findings forward to inform future PROTTEC Work Packages.

Section Seven: Discussion and Recommendations

7.1 Introduction

This section brings together the key findings from Work Package One, and presents a number of recommendations to inform the focus of future PROTTEC Work Packages are made.

7.2 Discussion and Recommendations

The purpose of Work Package One was to identify the key economic drivers and their supporting innovation and knowledge transfer objectives and activities within the four regions. Any commonalities or differences between the regions were highlighted in order to identify opportunities for cross-border collaboration and sharing of knowledge and best practice to increase the efficiency of knowledge transfer and innovation.

Within the two English regions the responsibility for strengthening the regional innovation infrastructure, developing strategies, and bringing together partnerships to address local and regional innovation challenges lies with the Regional Development Agencies (RDAs). The RDAs provide a strategic framework for economic growth and regeneration through Regional Economic Strategies (RES).

Within the two French regions the Regional Councils (*Conseils Régionaux*) are responsible for economic development, with policy design and planning in matters of research being developed mostly within Regional Councils. This is achieved through the development of a Regional Economic Development Strategy (*Stratégie Régionale de Développement Economique – SRDE*). More recently, the EC has required that all the regions of France develop a Regional Innovation Strategy *(Strategie Regionale Innovation - SRI)* to determine the use of ERDF funds over the period 2007-2013, some of which is managed by the Regional Council.

Within the regional economic strategies, and any related innovation and knowledge transfer strategies or programmes, each region identifies a number of overarching aims, priorities or objectives to help progress regional economic development. Alongside these each region identifies a number of actions and activities it supports in order to achieve the aims and objectives.

Within the regional economic strategies each region identifies a number of economic sub-sectors that they prioritise for a variety of reasons, several of which are common across a number of the regions. Five

common priority economic sub-sectors have been identified across the four regions, as highlighted in Table Fifty-three.

Table Fifty-three: Common Economic Sub-sectors

	Region			
	South East England	**South West England**	**Nord-Pas-de-Calais**	**Bretagne**
Sector				
Environmental Technologies	✓	✓		
Food and Drink		✓		✓
Healthcare Technologies	✓		✓	
ICT		✓		✓
Marine	✓	✓		✓

Source: SERIO 2009

These common economic sub-sectors should be considered when developing cross-border activities through future PROTTEC Work Packages, such as Work Package Four, to ensure that the activities fit within the priority sub-sectors commonly identified within the regional economic strategies.

Utilising the innovation criteria regarded as important within the context of regional economic development (IRE Working Group, 2008) further exploration of the regional economic strategies identified a degree of commonality across the aims and objectives supported by the four partner regions. Objectives falling within six of the innovation criteria were identified as being common across the partner regions, as highlighted in Table Fifty-four

Table Fifty-four: Common Innovation Objectives

Innovation Criteria	Region			
	South East of England	South West of England	Nord-Pas-de-Calais	Bretagne
Technology/knowledge transfer actions	✓		✓	✓
Internationalisation and foreign investment	✓	✓	✓	✓
Promotion of an innovation culture and entrepreneurial mindset	✓	✓	✓	✓
Promoting innovation in SMEs	✓		✓	✓
Provision of enhanced innovation support services and infrastructure		✓	✓	✓
Workforce skills development	✓	✓	✓	✓

Source: SERIO 2009

Further analysis of the region's progress against their individual aims and objectives identified a number of strengths and weaknesses across the regions within the innovation criteria. By combining these findings innovation criteria that are both common across the regions and a strength of at least one region can be identified. These are highlighted in Table Fifty-five.

Table Fifty-five: Common Innovation Criteria where Region's Demonstrate Strengths

Common Innovation Criteria	Region			
	South East of England	South West of England	Nord-Pas-de-Calais	Bretagne
Technology/knowledge transfer actions	✓			
Promotion of an innovation culture and entrepreneurial mindset		✓	✓	
Promoting innovation in SMEs	✓		✓	
Provision of enhanced innovation support services and infrastructure		✓	✓	
Workforce skills development	✓	✓	✓	

Source: SERIO 2009
*Please note, conclusions cannot for the Bretagne region as currently there is no systematic measure of the region's progress against the objectives identified within their regional economic strategies

Table Fifty-five illustrates that objectives falling within five of the innovation criteria are identified as being both common objectives across the regions, and areas of regional strengths:

- Technology/knowledge transfer actions;
- Promotion of an innovation culture and entrepreneurial mindset;
- Promoting innovation in SMEs;
- Provision of enhanced innovation support services and infrastructure; and,
- Workforce skills development.

Cross-border activities developed through future PROTTEC Work Packages should consider these innovation criteria in order to ensure the impact the activities have in contributing to the economic development priorities of the four partner regions are maximised, and to exploit the opportunities to learn from and build on the areas of strength.

Through their regional economic strategy each region identifies a number of actions and activities it supports in order to achieve their respective aims, objectives or priorities. Whilst it is difficult to make causal links between actions, activities and impact, the indication is that the actions and activities a region supports in its areas of strength are linked to the region's economic progression. Actions and activities falling within these criteria offer opportunities for learning and sharing of good practice between the four partner regions. Examples of potential opportunities that could be explored through future PROTTEC Work Packages are outlined below[42]:

- The South East of England demonstrates a particular strength in technology/knowledge transfer. Within this objective the region supports activities to encourage knowledge exchange between large based companies and smaller companies within the region. The region has also established a funding escalator to increase innovation in the region and developed the Research Excellence Directory which aims to promote the regions' knowledge base nationally and internationally.
- The South West of England demonstrates strengths in the promotion of an innovation culture and entrepreneurial mindset. Within this objective the region supports a comparatively large number of activities focusing on technology and knowledge transfer actions. These include activities to encourage more

[42] While the Nord-Pas-de-Calais region demonstrates areas of strength within objectives addressing the promotion of an innovation culture and entrepreneurial mindset and workforce skills development supporting activities were not specified within the regional economic strategy.

education-business partnerships to promote enterprise such as the Great Western Research (GWR) Project and Knowledge Escalator South West (KESW). The GWR project aims to promote collaborations between the region's HEIs and forward thinking businesses through research fellowships and studentships in order to support economic growth. KESW aims to deliver a range of activities to boost the capacity of HEIs to provide knowledge intensive support to South West businesses and stimulate new enterprise. The region also supports activities to deliver enterprise education within the school curriculum, develop initiatives to enhance the promotion of innovation and technology in schools and colleges, and deliver information and advice on enterprise as a career option for young people. The region also supports the development of networks, including the Beacon Network, which brings together companies from a variety of industries with a proven track record of success, in order to promote good practice and innovation, share ideas and exchange experiences. In addition the region markets enterprise and entrepreneurship by identifying and promoting the region's most successful entrepreneurs. There is potential for learning from activities supported within this area to be applied to the summer schools being developed through Work Package Three.

- Both the South East of England and Nord-Pas-de-Calais region of France demonstrate strength in the promotion of innovation in SMEs. Interestingly both regions support activities to financially support innovation in SMEs. Within the South East of England this is through the establishment of a funding escalator that will enable innovators to access funding at every stage of the business cycle and within the Nord-Pas-de-Calais region of France this is through the establishment of a regional fund to promote innovative projects. In addition the South East of England supports a number of activities to provide enhanced innovation support services and infrastructure in order to promote innovation in SMEs. For example, through the promotion of business support services, developing the Enhanced Manufacturing Advisory Service and developing the Innovation Advisory Service, recently replaced by South East Business Development Growth which consists of a regional network of eight Innovation and Growth Teams providing comprehensive and tailored business support at every stage of the business cycle across the region.

- The South West of England demonstrates strengths in the provision of enhanced innovation support services and infrastructure. Within this objective the region supports the promotion and support of venture capital funds and also other regional initiatives that address market failure in the provision of

business finance. The region also directly supports a number of activities to provide enhanced innovation support services and infrastructure. These focus around the Business Link service, the primary gateway for SME support, delivering an information, diagnosis and brokerage service to SMEs at all stages of the business process.

- Both English regions demonstrate strengths in workforce skills development. Within this objective both regions recognise the importance of engaging with HEIs to ensure they are providing the right skills to the labour market, each adopting activities to support this process. For example, the South East's RES proposes to enhance employer's engagement in curriculum development and delivery and engage with HE to ensure the skills needed for a globally competitive knowledge economy are provided. Within the South West emerging skills gaps and shortages are identified and responded to through the provision of appropriate FE, HE and private courses and support HEIs in developing an understanding of what the labour markets needs from graduates. Both English regions also support the Train to Gain initiative, which is a national initiative offering expert skills advice to companies in order to improve business performance by supporting employers to improve the skills of their employees.

Utilising the same technique as described above, Table Fifty-six highlights objectives falling within the innovation criteria where there is a degree of commonality across the regions, and regional weaknesses.

Table Fifty-six: Common Innovation Criteria where Region's Demonstrate Weaknesses

Common Innovation Criteria	Region			
	South East of England	South West of England	Nord-Pas-de-Calais	Bretagne
Internationalisation and foreign investment	✓	✓	✓	
Promotion of an innovation culture and entrepreneurial mindset	✓			

Source: SERIO 2009

*Please note, conclusions cannot for the Bretagne region as currently there is no systematic measure of the region's progress against the objectives identified within their regional economic strategies

Table Fifty-six illustrates that objectives falling within two of the innovation criteria are identified as being both common objectives across the regions, and areas of regional weaknesses:

- Internationalisation and foreign investment; and,
- Promotion of an innovation culture and entrepreneurial mindset.

Cross-border activities developed through future PROTTEC Work Packages should consider these innovation criteria in order to maximise the effect the activities have in contributing to the economic development priorities of the four partner regions in areas of weakness.

Work Package One has identified the scope and range of innovation activities pursued within the partner regions. Leading on from this Work Package Two seeks to develop a best practice portfolio of knowledge transfer activities, in particular identifying those that could be piloted cross-border and therefore contribute to inter-regional innovation and economic growth. Work Package Four aims to practically apply these good practices of technology transfer through innovative cross border collaborative projects. As a result of the activities of Work Package One it is recommended that these future PROTTEC Work Packages consider the following when developing activities:

- The five **common economic sub-sectors** that have been identified.
- The six **common innovation objectives** that have been identified.
- The five **common innovation criteria** with **regional strengths**.
- The two **common innovation criteria** with **regional weaknesses**.

In doing so, the impact of future activities will be maximised across all four regions economic development priorities.

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Section Nine: Glossary of Key Terms

AERES	-	Agency for Evaluation of Research and Higher Education (Agence d'Evaluation de la Recherche et de l'Enseignement Supérieur)
AII	-	Agency for Industrial Innovation (Agence de l'Innovation Industrielle)
ANR	-	National Agency for Research (L'Agence Nationale de la Recherché)
ANVAR	-	National Agency for Innovation (Agence Nationale de Valorisation de la Recherche)
BERD	-	Business Enterprise Expenditure on Research and Development
BERR	-	Department for Business, Enterprise and Regulatory Reform
BIS	-	Department for Business, Innovation and Skills
CIP	-	Competitiveness and Innovation Programme
CIR	**-**	Research Tax Credit scheme (Credit d'Impot Recherche)
CIRST	-	Inter-Ministerial Committee for Scientific and Technical Research (Comité Interministériel de la Recherche Scientifique et Technologique)
CIS	-	Community Innovation Survey
CREST	-	Centres of Scientific and Technologic Resources
CRITT	-	Regional Innovation and Technology Transfer Centres (Centre Regionaux d'Innovation et de Transfert de Technologie
CSA	-	Chief Scientific Advisor
DCLG	-	Department for Communities and Local Government
DGCIS	-	General Directorate for Competitiveness, Industry and Services

DGRI	-	Directorate General for Research and Innovation
DIUS	-	Department for Innovation, Universities and Skills
DRIRE	-	Regional Directorates for Industry, Research and Environment (Division Régionale de l'Industrie, la Recherche et de l'Environnement)
DRRT	-	Regional Delegation for Research and Technology (Délégation Régionale de la Recherche et de Technologie)
DTI	-	Department for Trade and Industry
EC	-	European Commission
EGKTM	-	Expert Group on Knowledge Transfer Metrics
EIP	-	Entrepreneurship and Innovation Programme
EIS	-	European Innovation Scoreboard
EIT	-	European Institute of Innovation and Technology
EQF	-	European Qualification Framework
EPIC	-	Etablissements Publics à caractère Industriel et Commercial
EPO	-	European Patent Office
EPSRC	-	Engineering Physical Sciences Research Council
EPST	-	Etablissements Publics à caractère Scientifique et Technologique
ERA	-	European Research Area
ERDF	-	European Regional Development Fund
ESF	-	European Social Fund
ESRC	-	Economic and Social Research Council
EU	-	European Union
EVCA	-	European Venture Capital Association

FE	-	Further Education
FP	-	Framework Programme
FRESA	-	Framework for Regional Employment and Skills Action
FSE	-	Finance South East
GBAORD	-	Government Budget Appropriations or outlays for Research and Development
GDP	-	Gross Domestic Product
GERD	-	Gross Domestic Expenditure on R&D
GIS	-	Global Innovation Scoreboard
GVA	-	Gross Value Added
HCST	-	High Council for Science and Technology (Haut Conseil de la Science et de la Technologie)
HEEG	-	The Higher Education Entrepreneurship Group
HE	-	Higher Education
HEI	-	Higher Education Institution
HERDA –SW	-	The Association of Higher Education Institutions in the South West
IAS	-	Innovation Advisory Service
ICT	-	Information Communications Technology
IGT's	-	Innovation and Growth Teams
IMF	-	International Monetary Fund
INSEE	-	National Institute of Statistics and Economic Studies (Institut National de la Statistique et des Etudes Economiques)
IPR	-	Intellectual Property Rights
IRE	-	Innovation Regions in Europe

IRS	-	Integrated Regional Strategy
JEI	-	Young Innovative Company (Jeune Entreprise Innovante)
JTI	-	Joint Technology Initiative
KESW	-	Knowledge Exchange South West
KIC	-	Knowledge and Innovation Communitie
LSC	-	Learning and Skills Council
MAS	-	Manufacturing Advisory Service
MSTI	-	Main Science and Technology Indicators
NESTA	-	National Endowment for Science, Technology and the Arts
NVQ	-	National Vocational Qualification
OECD	-	Organisation for Economic Co-operation and Development
OHIM	-	Office of Harmonization for the Internal Market
PLDE	-	Local Plans for Economic Development
PRCTE	-	Regional Program for the Creation and Transmission of Business
PRES	-	Research and Higher Education Clusters (Pôles de Recherche et d'Enseignement Supérieur)
PRO	-	Public Research Organisation
R&D	-	Research and Development
RDA	-	Regional Development Agencies
RED	-	Research Excellence Data
RES	-	Regional Economic Strategy
RIS	-	Regional Innovation Strategy
RIS	-	Regional Innovation Scoreboard
RRC	-	Regional Resource Centre

RRSII	-	Revealed Regional Summary Innovation Index
RSP	-	Regional Skills Partnership
RSPA	-	Regional Skills for Productivity Alliance
RTRA	-	Thematic Advanced Research Networks (Réseaux Thématiques de Recherche Avancée)
SBRI	-	Small Business Research Initiative
SEEDA	-	South East of England Development Agency
SESETAC	-	South East Science, Engineering and Technology Advisory Council
SGAR	-	Secretariat General for Regional Affairs (Secrétariat Général pour les Affaires Régionales)
SIC	-	Science and Industry Council
SII	-	Summary Innovation Index
SIIF	-	Science and Innovation Investment Framework
SME	-	Small and Medium Sized Enterprise
SMS	-	Short Message Service
SRDE	-	Regional Economic Development Strategy (Stratégie Régionale de Développement Economique)
STEM	-	Science, Technology, Engineering and Mathematics
S&T	-	Science and Technology
SWRDA	-	South West Regional Development Agency
SWREP	-	South West Regional Economic Profile
SWSIC	-	South West Science and Industry Council
TBP	-	Technology Balance of Payments
TSB	-	Technology Strategy Board
UK-IPO	-	UK Intellectual Property Office

UKTI - United Kingdom Trade & Investment

UMR - Mixed Research Units (Unités Mixtes de Recherché)

VAT - Value Added Tax

VIE - International volunteers in enterprise

Appendices

Appendix One: Comparative Analysis Tables

Appendix One

Comparative Analysis Tables

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Table Fifty-seven: Comparison of Activities to Support Objectives Addressing Internationalisation and Foreign Investment

	Region			
	South East of England	**South West of England**	**Nord-Pas-de-Calais**	**Bretagne**
Objective	Global Businesses and Foreign Direct Investment. Increase the percentage of businesses located in the South East operating internationally from an estimated 10% in 2003 to 15% by 2016, maximising the South East's share of global Foreign Direct Investment.	Compete in a global economy.	Rethink the economic activities of the Nord-pas de Calais abroad.	Enable SMEs to develop international partnerships.
Activities (Categorised by Innovation Criteria)				
Mechanisms for better coordination of the innovation system	Regional Trade & Investment Strategy. Develop a strategy to reflect a wider new approach to supporting Global Competitiveness. Promoting Key Sectors. Develop a highly targeted, sector approach to inward investment and trade activity by developing industry led strategies with SEEDA's Sector Consortia.		Define a common strategy and shared communication.	
Technology/knowledge transfer actions				Development of pro-active support for the transfer of technology and knowledge at an international level.

Table Fifty-seven: Comparison of Activities to Support Objectives Addressing Internationalisation and Foreign Investment (continued)

Activities (Categorised by Innovation Criteria)	Region			
	South East of England	**South West of England**	**Nord-Pas-de-Calais**	**Bretagne**
Development of clusters, supply chains and company networks	International Network of Partners. Continually review where the best opportunities exist and partners to work with to promote the region's strengths.	Promote and support international joint ventures and supply chain initiatives.	Promote and support experience and knowledge through partnership.	Strengthening of networking between interfaces supporting innovation and international development.
	Greater South East. Build links with fellow Regional Development Agencies in Greater South East in early stage investment, cluster & supply chain development, inward investment & trade, innovation, knowledge transfer and skills.			
Supply of economic intelligence/ technology watch services				Organisation of the collection, processing and use of information from persons located abroad.
				Secure the 'Interex Bretagne', a free platform containing information on international markets.
				Strengthen and share the monitoring tools of Bretagne International and the EEN actors.

Table Fifty-seven: Comparison of Activities to Support Objectives Addressing Internationalisation and Foreign Investment (continued)

Activities (Categorised by Innovation Criteria)	Region			
	South East of England	**South West of England**	**Nord-Pas-de-Calais**	**Bretagne**
Internationalisation and foreign investment	International Partnering. Develop a programme to support international business to business partnering opportunities.	Deliver international trade support services for regional businesses including: • the Passport programme • export focused sector and supply chain initiatives • support for the full spectrum of business models including joint ventures, technology partnerships and joint R&D • regional coordination of international trade promotion and support services and events.	Support 400 SMEs each year moving abroad and increase the number of exporting firms in the region by 200 a year, or 15 per cluster.	Development of pro-active support for the transfer of technology and knowledge at an international level.
	Internationalising Innovating Companies. Identify innovative Research & Development companies and support them in developing their international business.	Support companies' use of innovation, technology and research to improve their international competitiveness, through initiatives such as: • the EUREKA and Framework 6 programmes • global watch international technology service • HEI-Business initiatives.		
	Internationalise the Investor Development Programme. Develop closer links with parent companies of foreign-owned South East companies.	Deliver an effective enquiry service for potential investors to the region.	Reach new markets.	
		Promote and support international joint ventures and supply chain initiatives.		

Table Fifty-seven: Comparison of Activities to Support Objectives Addressing Internationalisation and Foreign Investment (continued)

Activities (Categorised by Innovation Criteria)	Region			
	South East of England	**South West of England**	**Nord-Pas-de-Calais**	**Bretagne**
Support to high-tech, high-growth entrepreneurship	Recent Investors. Assist recently established foreign owned companies with high growth potential to grow locally and internationally.			
Promotion of an innovation culture and entrepreneurial mindset			Support 400 SMEs each year moving abroad and increase the number of exporting firms in the region by 200 a year, or 15 per cluster.	
Provision of enhanced innovation support services and infrastructure		Increase take-up and use of broadband to support international trade.		Support and communication on the International Volunteers in Business (VIE).
		Deliver an appropriate 'aftercare' service to investing organisations to help secure their long-term future in the region.		Support participation in business conventions and international technology fellowships.
		Undertake targeted marketing and promotion in sectors that support the region's long-term objectives.		
		Implement generic regional investment promotion through the South West England marketing campaign, coordinated with sub-regional promotional activity.		Provide support for companies to attend regional, national and international trade fairs.
Workforce skills development		Ensure appropriate supply of language and cultural skills training to support businesses to trade internationally.		

Source: SERIO 2009

Table Fifty-eight: Comparison of Activities to Support Objectives Addressing the Promotion of an Innovation Culture & Entrepreneurial Mindset

	Region		
	South East of England	**South West of England**	**Bretagne**
Objective	Enterprise. Increase the business stock by 35% from 35 businesses per 1,000 inhabitants in 2005 to 44 per 1,000 inhabitants by 2016, including 10,000 new businesses run by women by 2010.	Encourage new enterprise.	Develop a culture of innovation and partnership in Enterprises.
			Promote technology transfer and support the creation of new activities.
		Promote innovation.	Spread the culture of innovation in Bretagne.
Activities (Categorised by Innovation Criteria)			
Mechanisms for better coordination of the innovation system	Business Support Simplification. Simplify regional business support to make it easier for businesses to access publicly funded business support and reduce administration costs and simplify delivery. Including the development of a regional Customer Information and Management system.	Implement the Strategic Framework for Women's Enterprise in the region.	Consolidation of individual and collective actions and supporting structures.
	Women's Enterprise Strategy. Deliver a South East Women's Enterprise Strategy 2005-2010.	Revise the Regional Innovation Strategy to reflect progress and changing context for activity.	Communicating FAQs regarding innovation issues through BV website.
	Women's Enterprise Advocate. Recruit women's enterprise advocates to deliver a marketing strategy and campaign.	Develop the South West Science and Industry Council to: • provide leadership and advice on how the contribution of science and technology to the regional economy can be increased • provide an industry perspective on how economic development activities can be enhanced • represent the interests of the region on science and innovation programmes and priorities at a national and international level • advise on improving capacity and stimulating demand for science and technology in the region's businesses.	Redefining the structure and aims of the network.

Table Fifty-eight: Comparison of Activities to Support Objectives Addressing the Promotion of an Innovation Culture & Entrepreneurial Mindset (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South East of England	**South West of England**	**Bretagne**
	Regional Youth Enterprise Strategy. Develop a coherent regional strategy will support the Young Enterprise agenda.	Develop a coordinated regional approach to the provision of Science Parks, incubators and incubation services to meet proven needs and opportunities.	Reaffirmation of the operating rules.
		Develop and deliver the regional ICT strategy to: • promote importance of ICT skills and the use of e-learning • promote improvements in e-government procurement • ensure that the modernisation of rural delivery is supported by ICT • encourage the use of ICT initiatives to support the regeneration of deprived areas • deliver a broadband content programme for key sectors.	Improving network tools.
			Strengthening the roles of business actors within Bretagne.
Promotion of R&D activities		Increase R&D through increased regional participation in initiatives including the DTI's Technology Programme, Framework Programme 7 and other national and international programmes.	
		Increase HE capacity within the region: • Raise levels of HE R&D undertaken within the region • Deliver Combined Universities for Cornwall (CUC) Phase Two.	

Table Fifty-eight: Comparison of Activities to Support Objectives Addressing the Promotion of an Innovation Culture & Entrepreneurial Mindset (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South East of England	**South West of England**	**Bretagne**
Technology/knowledge transfer actions	Build Capacity of Sustainable Business Partnerships. Build capacity and share best practice among sustainable business partners through a co-ordinated Regional Steering Group for Sustainable Business.	Encourage education-business partnerships as a means to promote enterprise.	Implement the Charter of regional technology transfer.
		Deliver the Great Western Research Project to increase collaborative research between the region's universities and businesses.	
		Deliver initiatives to improve business awareness and use of the region's knowledge base (e.g. HEIs and research establishments) including: • Knowledge Exploitation South West (KESW) • knowledge4business web resource.	Development of 'quasi-life sized' experiments in order to prove new products and processes.
		Develop graduate/business placement initiatives to encourage graduate employment by SMEs including: • Knowledge Transfer Partnerships • the STEP programme.	
		Provide brokerage services between the knowledge base & tenant businesses.	
Development of clusters, supply chains and company networks	Rural Gateway Hubs. Develop rural based Gateway Hubs to develop new business.	Encourage networks to support new social enterprises, including those developing from voluntary and community organisations.	Integration of innovation challenges in entrepreneurs' networks.
	Rural Industry Champions. Develop industry Champions for particular sectors within the agriculture/horticulture/energy. Champions to develop and facilitate networks that stimulate new enterprise through collaboration and co-operation.		Establishment of communications with businesses about the new network.
		Deliver business networks which encourage business innovation e.g. Beacon's and Sector Networks.	Supporting the missions of competitiveness clusters.

Table Fifty-eight: Comparison of Activities to Support Objectives Addressing the Promotion of an Innovation Culture & Entrepreneurial Mindset (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South East of England	**South West of England**	**Bretagne**
	Build Capacity of Sustainable Business Partnerships. Build capacity and share best practice among sustainable business partners through a co-ordinated Regional Steering Group for Sustainable Business.	**Proposed Activity.** Develop initiatives to enhance promotion of innovation and technology in schools and colleges Develop a regional network to consider implementation of innovative approaches to sustainability.	Support for collaborative project.
			Develop new partnerships between CCSTI and educational institutes (primary, secondary and higher/further).
Supply of economic intelligence/ technology watch services		Deliver regional ICT research programme to understand impact of future technologies on business development and economic inclusion.	Dissemination of external environmental (i.e. technological, market and legal) data to companies.
Internationalisation and foreign investment	Creative and Cultural Festivals. Use festivals to showcase creative and cultural talent to an international audience.		
Support to high-tech, high-growth entrepreneurship		Develop and deliver a coaching support programme for high growth businesses.	
Promotion of an innovation culture and entrepreneurial mindset	Social Enterprise. Promote start-up and growth of social enterprise (especially within key sectors: culture, rural, creative, sport and leisure, health and regeneration) and disadvantaged communities.	Deliver information and advice on enterprise as a career option for pupils at schools, colleges and universities.	Organisation of meetings during the innovation week.
		Promote specific opportunities and initiatives that encourage new business development within colleges and universities, e.g. Young Enterprise Graduate Programme.	Implement 'Innovative Ideas' competition.
	Promote Sustainable Business Practices. Utilise regional business support networks and sustainable business partnerships to promote the adoption of sustainable businesses practices.	Deliver enterprise education within the school curriculum at Key Stage 4.	

Table Fifty-eight: Comparison of Activities to Support Objectives Addressing the Promotion of an Innovation Culture & Entrepreneurial Mindset (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South East of England	**South West of England**	**Bretagne**
	Youth Enterprise Competition. Run an annual Enterprise competition engaging year 9 and 10 students with local businesses and communities across the region.	Encourage education-business partnerships as a means to promote enterprise.	Involve public with competition through 'Week of Innovation'.
	Enterprise Insight. Promote the national Enterprise. Insight campaign to young people aged 14-30.	**Proposed Activity.** Market enterprise and entrepreneurship in the region through identification and promotion of the region's most successful entrepreneurs.	
	Up-skill and Education of Teachers. Raise awareness within education sector of importance of enterprise education. Up-skill primary and secondary school teachers and lobby to include enterprise within Teacher Training, support a National Teaching Award for Enterprise.	Deliver enterprise as the core element of successful area regeneration through Local Area Agreements.	
		Implement national programmes to promote enterprise in identified disadvantaged areas including: • Local Enterprise Growth Initiative (LEGI) • Enterprise Areas.	Dissemination of information via the portal of innovation.
	Increase capacity of Further Education sector to support student enterprise creation. Ensure total coverage of Further Education sector across the region during lifetime of RES. Develop 'Action for Enterprise' kitemark using Action 4 Business model to colleges that meet the requirement. Introduce Higher Education Entrepreneurship Group model when colleges have built up confidence and trust.	Encourage social enterprise to address market failure in disadvantaged areas.	
		Promote a culture of innovation through sector based initiatives focused on the region's key industries.	

Table Fifty-eight: Comparison of Activities to Support Objectives Addressing the Promotion of an Innovation Culture & Entrepreneurial Mindset (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South East of England	**South West of England**	**Bretagne**
	Improve delivery of Enterprise Education in Higher Education. Embed enterprise education within the Higher Education curriculum and in vocational Degrees. Support the Higher Education Entrepreneurship Group and National Council for Graduate Entrepreneurship to co-ordinate and deliver regional enterprise education to students.	Develop demonstrator projects to illustrate the potential of innovation and technology including Wave Hub and the Aerospace Composites Centre. **Proposed Activity.** Develop initiatives to enhance promotion of innovation and technology in schools and colleges Develop a regional network to consider implementation of innovative approaches to sustainability.	Promote the 'Regional Index of Innovation.
	Promote Enterprise to underrepresented groups. Promote enterprise and self employment amongst key underrepresented groups including: 18-30 years old who are educational under-achievers, in or leaving care, unemployed or ex-offenders, Black & Minority Ethnic communities, disabled people, women, etc.	Identify opportunities for the region to support, and benefit from, the designation of Bristol as a 'science city'.	
	Pre-start capacity building. Stimulate start up amongst disadvantaged groups through intensive capacity building pre-start programmes, linked to the Business Links brand.	**Proposed Activity.** Ensure that the region's broadband infrastructure continues to develop in line with international benchmarks for bandwidth. Develop demonstrator projects to show the potential of digital technologies and applications.	
Provision of innovation financing	Access to Finance. Develop funding mechanisms for the creative and cultural entrepreneur, focusing on new work and new talent.	Promote and deliver DTI Grants for Research and Development programmes in the region.	Creation of business grants and target communications to promote engagement with reluctant SMEs.

Table Fifty-eight: Comparison of Activities to Support Objectives Addressing the Promotion of an Innovation Culture & Entrepreneurial Mindset (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South East of England	**South West of England**	**Bretagne**
	Access to Finance. Develop and deliver an enterprise finance product universally accessible to all financially excluded groups in the region.		Financially support the initial R&D and proof of concept phase.
			Create a funding mechanism for seed stage of innovative enterprises.
Boosting innovation in the public sector		Develop innovative approaches to the delivery of services by the public sector.	
Promoting innovation in SMEs		Identify opportunities for the region to support, and benefit from, national initiatives and pilots designed to encourage enterprise.	Raising awareness in SMEs of issues and collaborative approaches and partnerships based on network of innovation in Brittany (RBI).
		Develop the ConnectingSW programme to support SME use of broadband.	Creation of business grants and target communications to promote engagement with reluctant SMEs.
New legislation favouring innovation		Improve access to support for new rural enterprises.	
Provision of enhanced innovation support services and infrastructure	Business Link. Deliver business support to Small. & Medium Enterprises, including: a regional start-up offer; access to sustainable business practices; and equalities and diversity aiming to achieve parity on take up of services across the region.	Deliver the Business Link Information, Diagnosis and Brokerage (IDB) service as an effective gateway for individuals seeking advice on developing new enterprises.	Development of supporting structures within academia.
	Sectoral Business Support. Deliver a step change in the performance of the creative, cultural, leisure, sporting and visitor economy sectors.	Deliver a suitable supply of employment land and business premises to meet the needs of new or growing businesses.	
	Workspace. Use creative workspace to embed creative practitioners in under- performing areas to create sustainable communities.	Develop a regional model for the delivery of social enterprise support in the South West.	Strengthen support for the innovative entrepreneur.
		Develop accredited business support for social enterprises.	
		Mainstream advice for social enterprises through the IDB & 'Train to Gain' systems.	

Table Fifty-eight: Comparison of Activities to Support Objectives Addressing the Promotion of an Innovation Culture & Entrepreneurial Mindset (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South East of England	**South West of England**	**Bretagne**
	Rural Social Enterprises. Support the development of rural social enterprise businesses and provide the community infrastructure to support other businesses to start-up.	Deliver targeted sector support for new enterprises to support diversification in rural areas.	Support regional incubator Emergys.
		Promote development of black and minority ethnic (BME) owned new enterprises through tailored training and 'pathways' to mainstream support.	
		Promote development of new businesses by people with disabilities through tailored training and 'pathways' to mainstream support.	
	Business Link. Develop a programme to encourage the development of home based business, to be delivered through Business Links.	Develop the regional PRIME initiative to support new business start-ups by helping people aged over 50 to set up in business.	Support spin-outs from large groups.
		Develop and implement programmes to assist young people to establish new enterprises, e.g. Princes Trust Business Start-Up support programmes and the Shell Livewire initiative.	
	Home based working. Support the adoption of home based business start-up to key target groups including: carers, disabled people, women; as a solution to economic exclusion.	Enhance support available for SMEs to access knowledge and innovate including: • provision of advice on innovation through Business Link IDB service • Knowledge Exploitation South West initiative.	Analyse and optimise real estate investment programmes for start-ups.
		Mainstream best practice from Inspire SW programme into business support activity, e.g. Design for Business, Quickmark, Strategic Alliances.	

Table Fifty-eight: Comparison of Activities to Support Objectives Addressing the Promotion of an Innovation Culture & Entrepreneurial Mindset (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South East of England	**South West of England**	**Bretagne**
	Enterprise Gateways. Develop a further 4 Enterprise Gateways to achieve target of 20 Enterprise Gateways (currently 16 established). Ensure that Enterprise Gateways have the capacity and capability to deliver to excluded communities of geography and interest and social enterprises.	Deliver a comprehensive business support service to tenant businesses within incubators.	Support innovative activities within existing SMEs.
		Complete initial (500 kbps+) broadband coverage across the region.	
		Identify opportunities for the region to support, and benefit from, national initiatives and pilots to support the roll out and use of ICT.	
	Pre-start capacity building. Stimulate start up amongst disadvantaged groups through intensive capacity building pre-start programmes, linked to the Business Links brand.	**Proposed Activity.** Ensure that the region's broadband infrastructure continues to develop in line with international benchmarks for bandwidth. Develop demonstrator projects to show the potential of digital technologies and applications.	
Marketing the regional innovation profile	Creative and Cultural Festivals. Use festivals to showcase creative and cultural talent to an international audience.	**Proposed Activity.** Market enterprise and entrepreneurship in the region through identification and promotion of the region's most successful entrepreneurs.	Development of regional communication activities.
Workforce skills development	Skills Support. Work with key bodies to ensure creative, cultural, leisure, sporting and visitor economy skills are identified and met.	Promote development of black and minority ethnic (BME) owned new enterprises through tailored training and 'pathways' to mainstream support.	Promotion of training and consulting to assist companies in finding solutions to problems inherent in the consortium agreements.
			Strengthening collaboration between business and the UEB through the development of training opportunities taking better account of SME needs.

Table Fifty-eight Comparison of Activities to Support Objectives Addressing the Promotion of an Innovation Culture & Entrepreneurial Mindset (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South East of England	**South West of England**	**Bretagne**
	Up-skill and Education of Teachers. Raise awareness within education sector of importance of enterprise education. Up-skill primary and secondary school teachers and lobby to include enterprise within Teacher Training, support a National Teaching Award for Enterprise.	Promote development of new businesses by people with disabilities through tailored training and 'pathways' to mainstream support.	Development of specific and continuous training.
			Support training in innovation management for engineers, PhD students and postdocs.

Source: SERIO 2009

Table Fifty-nine: Comparison of Activities to Support Objectives Addressing Workforce Skills Development

Innovation Criteria	Region		
	South East of England	**South West of England**	**Bretagne**
Objective	Skills. Maximise the number of people ready for employment at all skill levels, and ensure they are continually equipped to progress in the labour market. Employment. Improve the productivity of the workforce and increase economic activity from 82% to 85% by bringing 110,000 net additional South East residents of working age into the labour market by 2016.	Deliver skills for the economy.	Strengthen skills within companies.
Activities (Categorised by Innovation Criteria)			
Mechanisms for better coordination of the innovation system		Ensure 'Train to Gain' system links seamlessly with the Business Links IDB service.	Identification of the innovation actor or conductor of innovation within the enterprise. Development of a dialogue between innovation actor and RBI.
Development of clusters, supply chains and company networks			Training and networking for innovation actors.
Promotion of an innovation culture and entrepreneurial mindset		Raise demand for leadership and management skills.	
Provision of innovation financing			Promotion of mechanism for financing innovative projects, taking into account the costs associated with integration and training.
Promoting innovation in SMEs			Informing the innovation actor.

Table Fifty-nine: Comparison of Activities to Support Objectives Addressing Workforce Skills Development (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South East of England	**South West of England**	**Bretagne**
Provision of enhanced innovation support services and infrastructure	ICT Advice and Support. Ensure that on-line and face to face specialist ICT advice, brokerage and support services, including those for teleworking, are available region wide. This will include advice and guidance to home based and rural businesses.		
Workforce skills development	Higher Education. Engage with Higher Education to ensure that they are providing the right skills needed for a globally competitive knowledge economy.	Identify and deliver the elements of Sector Skills Agreements that are relevant to the South West.	Training and networking for innovation actors.
	Action for Business Programme. Ensure training providers are capable of delivering the skills and training solutions to meet business need. This will include accreditation through the Action for Business College Network and incorporate activity of Sector Skills Councils and developing a Provision Matrix.	Deliver appropriate generic skills development within sector focused programmes (e.g. CONSTRUCTIVE series of projects).	
		Improve efficiency of graduate labour market: • Support Higher Education Institutions in developing understanding of labour market graduate needs • Increase the number of graduates employed at graduate level in the South West.	
	Train to Gain. Provide funding to improve the delivery of skills development and training, including specialist sector brokerage provided by Sector Skills Councils. Subsequently pilot the delivery of higher level skills (for example, the technology skills managers).	Identify and provide coordinated responses to emerging skills gaps and shortages through the provision of appropriate FE, HE and private courses.	Enhanced communication and support for the integration of students into SMEs.
		Raise demand for, and take up of, higher level skills training (NVQ Level 3 and above).	
		Develop and deliver appropriate sustainable development modules within vocational and academic courses.	

Table Fifty-nine: Comparison of Activities to Support Objectives Addressing Workforce Skills Development (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South East of England	**South West of England**	**Bretagne**
	Regional Resource Centres. Develop resource centres to address the supply of Science, Technology, Entrepreneurship and Management skills in priority sectors. Each Regional Resource Centre provides single point of access to high quality technical training.	Develop an integrated brokerage system ('Train to Gain') for employers which offers skills advice and training.	
		Implement the 'Skills for Life' (SfL) workplace strategy.	
	Training Pools. Funded support to employer-led partnerships to address Level 3 skills issues within their sector and/or supply chain.	Enhance the provision and take up of CPD (continuing professional development) by organisations and individuals.	
	Understanding Progression. Research and promotion of progression routes from apprenticeships to Foundation Degrees (including work to identify skills and provision need gaps in Children's workforce).	Deliver additional apprenticeship schemes that address regional needs.	
	Adult Learner Grant/Learner Accounts. Provide financial assistance to adults on low incomes studying for a Level 2 or 3 qualifications to facilitate access to the labour market (includes Adult Level 2 entitlement and jumpers) and higher level technical /professional qualifications.	Match demand and supply for workforce skills: • Employer needs are expressed clearly and directly to providers • Training is delivered following a 'right time and right place' philosophy.	
	Sustainable Employer-led consortia. Developing and delivering vocational training and support for work-based learning to help meet level 4/5 targets and inform work to develop higher level skills.	Encourage adoption of the Investors in People standard by employers.	

Table Fifty-nine: Comparison of Activities to Support Objectives Addressing Workforce Skills Development (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South East of England	**South West of England**	**Bretagne**
	Information Advice & Guidance. Develop and deliver effective information advice and guidance to young people through Connexions and Next Steps. This to Include development of a regional bulletin, skills festivals as part of work to make the most of opportunities arising from 2012 Olympics. Secondly to provide young people with advice for the Entry to Employment programme.	Deliver Skills for Life Programmes to improve levels of literacy, language and numeracy.	
	Enhancing Employer Engagement in Curriculum Development. Co-ordinate employer engagement in the development and delivery of the 14-19 Curriculum. This includes supporting the delivery of the 14-19 specialist diplomas and Sector Skills Council career and qualification pathways. Also, extending opportunities for 14-16 year olds through Learning & Skills Councils support for Colleges aimed at the hard to reach groups in this area.	Support schools and education authorities to improve basic skills and employability for school leavers.	
		Increase opportunities for employers to engage in collaborative activity with education.	
	Inspire Youth through 2012. Promote and facilitate work with schools and colleges to promote vocational opportunities and careers linked to the delivery of the 2012 Olympics, including activities related to *WorldSkills* competitions in 2011.	Deliver IAG (information, advice and guidance) services to provide advice on routes to, and progression within, employment and learning, including vocational routes.	

Table Fifty-nine: Comparison of Activities to Support Objectives Addressing Workforce Skills Development (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South East of England	**South West of England**	**Bretagne**
	Action for Communities Model. Deliver a pilot programme aimed at disadvantaged adult learners, including Black & Minority Ethnic groups, in the community, to provide them with appropriate skills to enter the labour market in the light of the European Review of the social agenda.	**Proposed Activity**. Deliver improved levels of ICT skills in the workforce.	
	Grow our own. Deliver a community based pathways model providing an inclusive package of learning, training, skills, Information Advice & Guidance and support to economically inactive to return to employment.	Deliver the SWESA to improve the match between the skills needs of employers and provision in the region, and to ensure that public funding is aligned with the regional priorities.	
	Employer based learning. Develop local delivery initiatives with employers and partners to support employer work- based learning. Supporting development of the local workforce, including those entering the workforce, and encourage higher level skills contributing to future productivity in the workforce.	Ensure joint planning of regional training and skills development activity.	
		Develop a tailored supply of skills training to meet the needs of businesses and employees in rural areas.	
	Skills for Life Strategy Board. Develop a regional strategy board of key agencies to co-ordinate agency work to tackle skills for life needs at all levels.	Deliver specialist rural programmes to support equality of access to training, employment, enterprise and sustainability skills.	

Source: SERIO 2009

Table Sixty: Comparison of Activities to Support Objectives Addressing Technology/Knowledge Transfer Actions

	Region	
	South East of England	**Bretagne**
Objective	Knowledge Transfer and Business Expenditure on Research and Development. Increase the proportion of businesses in the South East reporting R&D links with universities from 11% in 2005 to 15% by 2016, and increase business expenditure on research and development in the South East from 3.2% of Gross Value Added in 2003 to 4% by 2016.	Strengthen research collaborations between public and private sector.
		Promote technology transfer and support the creation of new activities.
Activities (Categorised by Innovation Criteria)		
Mechanisms for better coordination of the innovation system	Develop South East Innovation Action Plan. Research, identify and then focus on priority market led technologies, sectors and companies.	Maintain an awareness of research players, including CCRRDT, economic issues associated with key sectors within Bretagne and develop links between the 'learned societies' and work economic development.
	Technology Strategy Board. Engage with the national Technology Strategy Board to lever national resources to assist us to meet the RES target, ensure integration between SEEDA's innovation support, our global market priorities and the national Innovation Platforms and alignment with national strategy for procurement and for skills.	
Monitoring and assessment of the innovation system		Assessing the contribution made by all actors.
Technology/knowledge transfer actions	Business to Business Collaboration and Knowledge Exchange. Lever in the resources of the top 500 companies to identify innovation opportunities in their wider supply chains and skills base. Encourage knowledge exchange between large knowledge based companies and smaller companies within the region	Develop and promote regular or ad hoc industry liaison meetings, to which companies bring their research problems for solutions.
		Organisation of technical seminars with common themes.
		Organise 'site visits' between public laboratories and businesses.
		Sharing and dissemination of information on projects and visits by officers.

Table Sixty: Comparison of Activities to Support Objectives Addressing Technology/Knowledge Transfer Actions (continued)

Activities (Categorised by Innovation Criteria)	Region	
	South East of England	**Bretagne**
	Open Innovation. Promote Open Innovation to strengthen the "Knowledge Supply Chain"; develop Corporate Venturing and Partnering in the Region.	Establish and share databases of research units visited and information on existing tools for innovation.
		Promoting cross partner working on projects.
		Implement the Charter of regional technology transfer.
		Development of 'quasi-life sized' experiments in order to prove new products and processes.
Development of clusters, supply chains and company networks	European Funding for Innovation. Support Small & Medium Enterprise and university bids for Framework Programme 7 and extend South East Innovation Networks to European Union.	Organise an annual meeting within the 'Innovation Week'.
		Setting up meetings and balance sheet indicators.
	Innovation Networks. Facilitate the formation of innovation networks across all sub-regions – connecting people with a shared interest in innovation.	Supporting the missions of competitiveness clusters.
		Support for collaborative project.
Internationalisation and foreign investment	Attract New Research & Development Inward Investment. Work with the UK Trade & Investment to assist in attracting new Research & Development investment into the South East through encouraging international collaborations with the region's universities.	
Promotion of an innovation culture and entrepreneurial mindset		Ensure SMEs are aware of various events.
Provision of innovation financing		Financially support the initial R&D and proof of concept phase.
		Create a funding mechanism for seed stage of innovative enterprises.

Table Sixty: Comparison of Activities to Support Objectives Addressing Technology/Knowledge Transfer Actions (continued)

Activities (Categorised by Innovation Criteria)	Region	
	South East of England	**Bretagne**
Provision of enhanced innovation support services and infrastructure	European Funding for Innovation. Support Small & Medium Enterprise and university bids for Framework Programme 7 and extend South East Innovation Networks to European Union.	Optimisation of the support and guidance offered in achieving collaborative projects.
		Provide support for engineering projects identified by advisors.
		Strengthen support for the innovative entrepreneur.
		Support regional incubator Emergys.
		Support spin-outs from large groups.
		Analyse and optimise real estate investment programmes for start-ups.
		Support innovative activities within existing SMEs.
Marketing the regional innovation profile	Develop the Research Excellence Directory. As a communications tool to promote the region's knowledge base and business strengths, both nationally and internationally.	
Workforce skills development	Regional Science, Technology, Entrepreneurship and Management Support Centre. Work with regional partners to address strategic subject shortages and to increase the number of students studying and starting careers in strategic shortage subjects.	Support training in innovation management for engineers, PhD students and postdocs.

Source: SERIO 2009

Table Sixty-One: Comparison of Activities to Support Objectives Addressing the Promotion of Innovation in SMEs

	Region		
	South East of England	**Nord-Pas-de-Calais**	**Bretagne**
Objective	Innovation and Creativity. Increase the percentage of total South East business turnover attributable to new products from 12% in 2004 to 20% by 2016, and the percentage attributable to significantly improved products from 18% in 2004 to 25% by 2016.	Place innovation, research and development as a key priority to accelerate the transformation of the regional economy. Innovative by and for services.	Encourage SMEs, laboratories and supporting structures to participate in European research and innovation programmes.
Activities (Categorised by Innovation Criteria)			
Mechanisms for better coordination of the innovation system	Integration of Business Services. Ensure that lean, innovation and design services are fully integrated so as to offer businesses a total innovation package.	Establish key people in charge of valorisation (business developer).	Structuring support for SMEs and interfaces.
	Develop a South East Framework for the Creative Industries. Establish a creative industries consortia and develop and outreach programme.	Construct a Regional Technology offer on the site Jinnove.com.	Sharing of support actions at regional level through the NOE framework.
	Pan-Regional Collaboration on Innovation. Collaborate with other RDAs and Devolved Administrations to share intelligence and develop good practice, for example, piloting Knowledge Transfer Partnerships regionalisation with London Development Agency.		
Development of clusters, supply chains and company networks	Develop New Sector Consortia. Informed by our qualitative and quantitative research, identify gaps in current provision. Develop new sector consortia where necessary.	Establish an innovation platform on research and valorisation.	Support actions by NOE network aimed at SMEs and laboratories.
	Networking Opportunities. Deliver regional, national and international sectoral and crosssectoral networking opportunities and specialist events for consortia businesses		

Table Sixty-One: Comparison of Activities to Support Objectives Addressing the Promotion of Innovation in SMEs (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South East of England	**Nord-Pas-de-Calais**	**Bretagne**
	Develop a South East Framework for the Creative Industries. Establish a creative industries consortia and develop and outreach programme.		
	Interim Management Networks. Develop an interim management pool to work with targeted companies in return for a percentage of the equity of the firm.		
	Consolidate Enterprise Hub Network. Enterprise Hubs teams will be merged to create more critical mass and to deal effectively with a larger number of companies. This will allow acceleration in the development of new ideas.		
Supply of economic intelligence/ technology watch services	Capability Mapping. Research, identify and then prioritise the most important Global market opportunities for the South East and then target the Sector Consortia with these opportunities.		
Internationalisation and foreign investment	Global Innovation Opportunities. Deliver a regional programme to get more innovation targeted at major global business opportunities. Lever in the resources of larger companies to increase innovation through the wider supply chains and develop a support and brokering system specifically targeted at these opportunities.		
Support to high-tech, high-growth entrepreneurship	High Growth Coaching. Deliver coaching to companies capable of high growth.		

Table Sixty-One: Comparison of Activities to Support Objectives Addressing the Promotion of Innovation in SMEs (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South East of England	**Nord-Pas-de-Calais**	**Bretagne**
Promotion of an innovation culture and entrepreneurial mindset	Design Awards. SEEDA will create, in partnership with the Design Council a business award to be part of the wider annual SEEDA business awards.	Establish a pro-active attitude to regional enterprise.	
Provision of innovation financing	Funding Escalator. Establish a Funding Escalator to provide a continuous pipeline for innovators to access funding at every stage as they progressed their business ideas from concept, to commercialisation, through development growth and expansion.	Establish a Regional Fund to promote innovative projects.	
Boosting innovation in the public sector			Support current public research laboratories, under the lead of UEB.
Promoting innovation in SMEs			Develop specific actions for advisors so that they will be vectors of 'Europe' for enterprises.
			Develop a 'European' section on the innovation portal.
Provision of enhanced innovation support services and infrastructure	Global Innovation Opportunities. Deliver a regional programme to get more innovation targeted at major global business opportunities. Lever in the resources of larger companies to increase innovation through the wider supply chains and develop a support and brokering system specifically targeted at these opportunities.		
	Promoting Business Support Services. The Sector Consortia will work with the region's business support organisations and industry partners to promote their services to consortia memberships.		

Table Sixty-One: Comparison of Activities to Support Objectives Addressing the Promotion of Innovation in SMEs (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South East of England	**Nord-Pas-de-Calais**	**Bretagne**
	Commercialisation of New Ideas. Deliver a structured support framework to help entrepreneurs analyse their progress through the commercialisation process.		
	Manufacturing Advisory Service. Deliver the current Manufacturing Advisory Service contract (April 2005- March 2008) focused on "lean production" techniques to remove waste and increase growth within manufacturing businesses.		
	Enhanced Manufacturing Advisory Service. Develop the South East version of Enhanced Manufacturing Advisory Service which will extend the existing "core Manufacturing Advisory Service offering" to helping businesses improve operational efficiencies.		
	Innovation Advisory Service. Develop the Innovation Advisory Service to spend more time working with those businesses with the most capacity for sustained innovation and the potential to influence others through their supply chains.		
	Support to Small & Medium Enterprises. The development of a centrally managed, regional Business Link Information, Diagnosis and Brokerage innovation service for Small & Medium Enterprises.		

Table Sixty-One: Comparison of Activities to Support Objectives Addressing the Promotion of Innovation in SMEs (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South East of England	**Nord-Pas-de-Calais**	**Bretagne**
Workforce skills development	Design Workshops. Deliver workshops to Small & Medium Enterprises to improve design capability within their business.		
	Leadership for Global Competitiveness. Deliver a programme to improve businesses ability to innovate through Leadership Development Advisers; a Leadership Academy; a web-portal, focussed on leadership activities and providers; and seed corn funding for small companies to invest in Leadership.		

Source: SERIO 2009

Table Sixty-two: Comparison of Activities to Support Objectives Addressing the Provision of Enhanced Innovation Support Services and Infrastructure

<table>
<tr><td rowspan="2"></td><td colspan="3">Region</td></tr>
<tr><td>South West of England</td><td>Nord-Pas-de-Calais</td><td>Bretagne</td></tr>
<tr><td rowspan="5">Objective</td><td rowspan="5">Support business productivity.</td><td>Supporting the creation and transfer of activities.</td><td rowspan="5">Improve support of innovative projects within companies.</td></tr>
<tr><td>Make the Nord-Pas de Calais region highly advanced in Information Technology and Communication.</td></tr>
<tr><td>Support the transmission of companies.</td></tr>
<tr><td>Encourage the transmission and recovery of companies.</td></tr>
<tr><td>Support innovative projects within companies and laboratories and increase quality, quantity and importance of these innovative projects: be more ambitious.</td></tr>
<tr><td colspan="4">Activities (Categorised by Innovation Criteria)</td></tr>
<tr><td rowspan="2">Mechanisms for better coordination of the innovation system</td><td>Transform wider business support infrastructure through: • better alignment of public funding where support is required • rationalisation of delivery mechanisms to reduce confusion in the marketplace leading to greater engagement with private sector providers, intermediaries and SMEs.</td><td rowspan="2">Establishment of regional digital criteria around a coherent strategy among several themes (e-business, e-commerce, digital content and several regional sites.</td><td rowspan="2"></td></tr>
<tr><td>Ensure that the IDB service is developed with full compatibility with ‘Train to Gain’ (the workforce skills gateway).</td></tr>
</table>

Table Sixty-two: Comparison of Activities to Support Objectives Addressing the Provision of Enhanced Innovation Support Services and Infrastructure (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South West of England	**Nord-Pas-de-Calais**	**Bretagne**
	Proposed Activity. Develop proposals for a Regional Procurement Executive (RPE) to encourage public sector organisations to source competitively priced goods and services from regional companies. Implement changes to public sector tendering requirements that encourage competitive bids from SMEs and social enterprises. Establish regional sustainability criteria/guidelines for public sector procurement.		
	Implement agreed activity to address the economic priorities identified in the SSFF, including: • Improving efficiency and effectiveness of the food chain • Integrating activity to support environmental and economic objectives • Strengthening knowledge base to support business diversification.		
Monitoring and assessment of the innovation system			Analyse the difficulties faced during financing and marketing phases of commercialisation.
			Review aid mechanisms for financing the industrialisation phase.
Development of clusters, supply chains and company networks	Enhance opportunities for business to business networking (e.g. Sector and industry groups; Beacon companies network).		
	Develop and support peer to peer networks for high growth businesses, including the Beacon Companies initiative.		
	Work with 'primes' in the region's key sectors to strengthen competitiveness in their regional supply chains.		

Table Sixty-two: Comparison of Activities to Support Objectives Addressing the Provision of Enhanced Innovation Support Services and Infrastructure (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South West of England	**Nord-Pas-de-Calais**	**Bretagne**
Supply of economic intelligence/ technology watch services		Determine technology needed and rate setting about telecommunications in economic development section. Define with professionals which infrastructures are needed in terms of informatics and telecommunications technologies.	To learn more about supporting this type of innovation, especially within private organisations, and identify gaps in business needs.
Support to high-tech, high-growth entrepreneurship	Develop and deliver a coaching support programme for high growth businesses.		
Promotion of an innovation culture and entrepreneurial mindset	**Proposed Activity.** Develop approaches to encourage increased levels of business investment.	Improve territorial development and relationship between citizens, its elected administrators, and public organizations about communication technologies.	
Provision of innovation financing	Promote and support venture capital funds, including: • South West Ventures Fund • Finance Cornwall • Finance South West. Promote and support other regional initiatives that address identified market failure in the provision of business finance, including: • 'Investment Readiness' • South West Angels and Investors Network • DTI Grant for R&D • SFI • Enterprise Capital Funds. Deliver and develop finance initiatives for community and social enterprises (e.g. South West Investment Group; Women in Business Fund; CEED).		Strengthening and promotion of tools to help the finance and marketing aspects of commercialisation.

Table Sixty-two: Comparison of Activities to Support Objectives Addressing the Provision of Enhanced Innovation Support Services and Infrastructure (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South West of England	**Nord-Pas-de-Calais**	**Bretagne**
	Proposed Activity. Expand provision of risk capital funding to meet gaps identified by research.		
Provision of enhanced innovation support services and infrastructure	Successful transition of the Business Link network to an Information, Diagnosis and Brokerage (IDB) service as the primary gateway for all SME support.		Development of tools and skills within the innovation structures supporting the company throughout the innovation process.
	Transform wider business support infrastructure through: • better alignment of public funding where support is required • rationalisation of delivery mechanisms to reduce confusion in the marketplace leading to greater engagement with private sector providers, intermediaries and SMEs.		
	Develop new and strengthen existing delivery criteria to provide the Business Link IDB services to rural businesses.		
	Deliver the Rural Enterprise gateway.		
	Develop innovative ways to improve access to business support in rural areas.		Placement and encouragement of advisors within the Innovation network of Bretagne.
	Support SMEs to recognise and respond to competitive pressures in their supply chains through the Manufacturing Advisory Service and sector based initiatives.		
	Deliver a suitable supply of employment land and business premises to meet the needs of new or growing businesses at the market rate.		Identification, strengthening communication and providing guidance on the phases of industrialisation and commercialisation.

Table Sixty-two: Comparison of Activities to Support Objectives Addressing the Provision of Enhanced Innovation Support Services and Infrastructure (continued)

Activities (Categorised by Innovation Criteria)	Region		
	South West of England	**Nord-Pas-de-Calais**	**Bretagne**
	Implement measures to address market failure in delivering sites and premises in a way that encourages the private sector back in to the market.		
	Develop regional strategic sites to help meet the region's employment and housing needs.		
	Deliver additional targeted skills and business support in the identified priority sectors: • Advanced engineering; ICT; Marine; Food and drink; Tourism; Creative industries; Environmental technologies; Bio-Medical • Health and Social Care; Retail; Construction; Engineering.		
Workforce skills development	Deliver additional targeted skills and business support in the identified priority sectors: • Advanced engineering; ICT; Marine; Food and drink; Tourism; Creative industries; Environmental technologies; Bio-Medical • Health and Social Care; Retail; Construction; Engineering.	Develop training about telecommunications technologies with regional partners.	Identification and development of appropriate expertise within the innovation support network.
			To launch initiatives that address these issues, through facilitating access to appropriate skills within different sectors or industries.

Source: SERIO 2009

Table Sixty-three: Comparison of Activities to Support Objectives Addressing the Promotion of R&D Activities

	Region	
	South East of England	**Nord-Pas-de-Calais**
Objective	Knowledge Transfer and Business Expenditure on Research and Development. Increase the proportion of businesses in the South East reporting R&D links with universities from 11% in 2005 to 15% by 2016, and increase business expenditure on research and development in the South East from 3.2% of Gross Value Added in 2003 to 4% by 2016.	Place innovation, research and development as a key priority to accelerate the transformation of the regional economy.
Activities (Categorised by Innovation Criteria)		
Mechanisms for better coordination of the innovation system	Develop South East Innovation Action Plan. Research, identify and then focus on priority market led technologies, sectors and companies.	Establish key people in charge of valorisation (business developer).
	Technology Strategy Board. Engage with the national Technology Strategy Board to lever national resources to assist us to meet the RES target, ensure integration between SEEDA's innovation support, our global market priorities and the national Innovation Platforms and alignment with national strategy for procurement and for skills.	Construct a Regional Technology offer on the site Jinnove.com.
Technology/knowledge transfer actions	Business to Business Collaboration and Knowledge Exchange. Lever in the resources of the top 500 companies to identify innovation opportunities in their wider supply chains and skills base. Encourage knowledge exchange between large knowledge based companies and smaller companies within the region.	
	Open Innovation. Promote Open Innovation to strengthen the "Knowledge Supply Chain"; develop Corporate Venturing and Partnering in the Region.	

Table Sixty-three: Comparison of Activities to Support Objectives Addressing the Promotion of R&D Activities (continued)

Activities (Categorised by Innovation Criteria)	Region	
	South East of England	**Nord-Pas-de-Calais**
Development of clusters, supply chains and company networks	European Funding for Innovation. Support Small & Medium Enterprise and university bids for Framework Programme 7 and extend South East Innovation Networks to European Union.	Establish an innovation platform on research and valorisation.
	Innovation Networks. Facilitate the formation of innovation networks across all sub-regions – connecting people with a shared interest in innovation.	
Internationalisation and foreign investment	Attract New Research & Development Inward Investment. Work with the UK Trade & Investment to assist in attracting new Research & Development investment into the South East through encouraging international collaborations with the region's universities.	
Promotion of an innovation culture and entrepreneurial mindset		Establish a pro-active attitude to regional enterprise.
Provision of innovation financing		Establish a Regional Fund to promote innovative projects.
Provision of enhanced innovation support services and infrastructure	European Funding for Innovation. Support Small & Medium Enterprise and university bids for Framework Programme 7 and extend South East Innovation Networks to European Union.	
Marketing the regional innovation profile	Develop the Research Excellence Directory. As a communications tool to promote the region's knowledge base and business strengths, both nationally and internationally.	
Workforce skills development	Regional Science, Technology, Entrepreneurship and Management Support Centre. Work with regional partners to address strategic subject shortages and to increase the number of students studying and starting careers in strategic shortage subjects.	

Source: SERIO 2009