

# **ECONOMIC TRANSFORMATION STRATEGIES SMART SPECIALISATION CASE STUDIES**

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### Introduction

This document presents the analysis of a set of European regions that in recent years have undertaken processes of economic transformation in line with the objectives of Europe 2020 (sustainable, inclusive and smart growth strategies). These policy strategies share various features and patterns, but also exhibit differences related to historical and economic environment. Certain aspects of the transformation processes developed in these regions (design, implementation, monitoring, and diagnosis) can be considered as good examples of what we now understand as smart specialisation policy strategies.

Smart specialisation strategies are framed in order to obtain the most efficient innovation results by means of effective spending public of resources, according to the principles of the Europe 2020 strategy. The idea of smart specialisation is based on the notion that regions cannot achieve everything in science technology and innovation, and therefore it is crucial to follow a thoughtful process of prioritisation, concentrating resources in certain domains of expertise based on the needs and available resources of each region.

These strategies should concentrate funding on a small number of priorities that are linked with the objectives of smart, sustainable, and inclusive growth, as defined by Europe 2020 and by the Innovation Union flagship initiative. They should also focus on assessing results and monitoring the progress towards agreed upon objectives in order to maximise policy returns. The regions analysed in the present study are the following, in no particular order:

1. Flanders, Belgium
2. Navarra, Spain
3. Lower Austria, Niederösterreich, Austria
4. Skåne, Sweden
5. Berlin-Brandenburg, Germany
6. West Midlands, United Kingdom
7. Lahti, Päijät-Häme, Finland
8. Silesia, Slaskie, Poland
9. Limburg, Netherlands
10. Nord-Pas-de-Calais, France
11. Emilia Romagna, Italy

In order to classify the selected regions in an objective manner, the OECD categorisation has been adopted, grouping regions on the basis of their innovation strategies (OECD, 2011). The following table shows the regional classification.

	Region	Country	OECD classification
1	Flanders	BE	Medium-tech manufacturing and service provider region
2	Navarra	ES	Medium-tech manufacturing and service provider region
3	Lower Austria (Niederösterreich)	AT	Traditional manufacturing region
4	Skåne County, South Sweden	SE	Knowledge and technology Hub
5	Berlin (I) – Brandenburg (II)	DE	(I) Knowledge-intensive city/capital district, (II) Structural inertia/(de)industrialising region
6	West Midlands	UK	Medium-tech manufacturing and service provider region
7	Lahti (Paijanne Tavastia)	FI	Knowledge and technology hub (Southern Finland)
8	Silesia (Podkarpackie)	PL	Structural inertia or de-industrialising region
9	Province of Limburg (NL)	NL	Service and natural resource region in knowledge-intensive country (Western Netherlands) and knowledge and technology hub (Southern Netherlands)
10	Nord-Pas de Calais	FR	Medium-tech manufacturing and service provider region
11	Emilia Romagna	IT	Traditional manufacturing region

Each of the regions presents interesting aspects regarding the different stages of the development of smart specialisation strategies for economic transformation. Some aspects of these policy processes and some regions that can be considered examples of smart specialisation are summarised below:

- 1. Evidence based process of discovery of the industrial engines of regional economic growth:** (a) identification of the *embedded sectors* in the region (technological domains) and (b) analysis of the *related industries and activities* that complement and improve the regional economic structure in order to define the best prioritisation of sectors based on the resources already available.

The discovery process should not identify the hottest topics in R&D but rather the domains where new research and development and innovation projects can complement the region's other productive assets to create future domestic capability and inter-regional competitive advantage.

This discovery process should be built on **regional historic strengths and existing assets**.

Interesting examples include Skåne (network analyses in order to identify the level of relatedness among the industries located in the region), Limburg (BAK Basel Economics analysis to map the regions at the TTR-ELAt region), and Lower Austria (SWOT analysis).

2. **The design of the prioritisation** process should *avoid fragmentation, duplication, and imitation*. It should be based on the accumulation of *critical mass* on certain regional domains of expertise, combined with other activities with potential growth development. The prioritisation process should not be based on one single sector, but instead should be a cross-fertilisation process. In some cases, it could involve strategies beyond the regional level (inter-regional or international development strategies). The process could be based on:

a. Processes of **economic restructuring**. Particularly interesting examples are Lahti, Silesia, and West Midlands.

Region	Sector of origin	Reconverted
Lower Austria	Construction sector	Energy efficiency Core competencies: -Energy efficient construction and refurbishment (passive house, zero energy house) - Healthy interior environments
Silesia	Mining sector	Technologies for the energy and mining sector, e.g. coal combustion technologies, clean coal technologies, fuel cells, renewable energy sources, carbon storage, gas processing technologies, recognition and protection of coal reserves, ICT, nanotechnologies and medical technologies
Skåne	Shipbuilding industry	Moving media in Malmö Western Harbour
West Midlands	Automotive sector	Energy and the Environment, Healthcare and Health Sciences, and Process Industries

b. Processes of **modernisation and better development of embedded industries**. See: Navarra (prioritisation of basic sectors linked to the economic growth and development of the region), Flanders (prioritisation of the transportation-logistics services based on their privileged geographical location in Europe).

c. Processes of **technological diversification** from the embedded industries to a **related set of industries linked with the embedded ones**. See: Navarra, Nord-Pas de Calais and Skåne.

d. **Combination of different priorities** in the development and modernisation of certain sectoral environments: Navarra (distinction among basic, strategic, and future commitments) and Nord-Pas de Calais (strongly dependent growth potential and research excellence).

e. **Construction of new supporting infrastructures** to help industries develop and to facilitate Quadruple Helix collaboration. The creation of *technopols* and technology and knowledge parks and centres to support work in the region is

- f. **Connecting inter- and intra-regional knowledge flows.** See: Limburg and the TTR-ELAt strategy, Berlin-Brandenburg, and Skåne for international development strategy.

**3. Development of the strategy and monitoring of the process:**

- Lower Austria (Technopol program, 5 clusters)
- Navarra (Moderna plan, basic/strategic/future commitments set of sectors)
- Flanders (Pact2020, 6 clusters)
- Berlin-Brandenburg (InnoBB, 5 future fields)
- Lahti (3 lines of expertise)
- Nord-Pas de Calais (Poles of Competitiveness and Technopols, different stages in the prioritisation)
- Silesia (8 technological areas and 4 development pathways)
- Skåne (5 cluster development)

	<b>IDENTIFIED SECTORAL PRIORITIES</b>
FLANDERS	<p>Finally, as a basis for policy priorities (linked to ViA and the Pact 2020) six strategic clusters were redefined into the following “spearheads” for technology and innovation:</p> <ol style="list-style-type: none"> <li>1. Transportation-Logistics-Services-Supply chain management: coordinating the Flemish Logistics Knowledge Centre and Platform – Benefiting from the geographical location and the connectivity of the region</li> <li>2. ICT and Services in Healthcare (e-health):               <ol style="list-style-type: none"> <li>a. Interoperability of ICT-systems: test and validation bed</li> <li>b. Telemonitoring in Flanders</li> </ol> </li> <li>3. Healthcare:               <ol style="list-style-type: none"> <li>a. Transnational Medicine (Centre for Medical Innovation, CMI)</li> <li>b. Nutrition, breakthrough initiative on the Food-Health relationship (Fevia Vlaanderen)</li> </ol> </li> <li>4. New Materials-Nanotechnology-Manufacturing industry:               <ol style="list-style-type: none"> <li>a. Nano-electronics, COHESI – Complex heterogeneous systems integration (IMEC)</li> <li>b. New materials, SIM Strategic Initiative Materials (Agoria Vlaanderen)</li> <li>c. Manufacturing industry (Complex Integrated systems (Sirris-Agoria Vlaanderen)</li> <li>d. Chemistry, FISCH-Flanders Strategic Initiative for Sustainable Chemistry (Essenscia Vlaanderen)</li> </ol> </li> <li>5. ICT for Socio-economic innovation: Flemish enabling platform focusing on innovative services (e-health, e-gov, e-learning)</li> <li>6. Energy and Environment: Flemish Smart Grids Platform (intelligent energy networks) (Voka)</li> </ol> <p>Technique (SWOT analysis)</p>
LIMBURG	<p>Based on a study by BAK, Basel Economics:</p> <ol style="list-style-type: none"> <li>1. Chemicals and Advanced Materials</li> <li>2. Health Sciences</li> <li>3. High-Tech systems (Engineering)</li> </ol>

NAVARRA	<p>Moderna plan has defined four different types of clusters: basic, strategic, future commitments and complementary:</p> <ul style="list-style-type: none"> <li>• Basic (automobiles electric vehicles and sustainable construction <i>-green economics-</i> and healthcare services <i>-health care economics</i>): essential clusters for maintaining employment in Navarra at target levels (those that provide direct and indirect employment constituting the main core of Navarra’s economy, those that are embedded in the region). Moderna intends to reinvent them to make them more efficient.</li> <li>• Strategic (renewable energies, agro-food industries <i>-green economics</i>): clusters that benefit from significant global growth trends, where Navarra has a clear initial competitive advantage. Moderna intends to invest in the development of significant clusters.</li> <li>• Future commitments (biomedicine, medical appliances, customer service <i>-health care economics</i>, sustainable tourism, environment and waste <i>-green economics</i>, and mechatronics, design and creativity, safety <i>-talent economics</i>): a cluster that seems to benefit from major global growth trends, and where Navarra has an emerging presence and significant capabilities. Moderna wants to establish new roots for the future, consisting of new business opportunities as yet underdeveloped in the region.</li> <li>• Complementary or Leverage Clusters (business services, education and generation of knowledge <i>-talent economics</i>): clusters whose development is essential for securing a competitive position in the previous clusters. Clusters that could benefit from the development of the chosen clusters.</li> </ul>
BERLIN- Brandenburg	<p>The current innovation strategy focuses on the following pre-clusters or “Future Fields”:</p> <ul style="list-style-type: none"> <li>- Health Economy (integrating Berlin’s competence fields: biotechnology and medical devices)</li> <li>- Energy</li> <li>- Transportation, Mobility and Logistics</li> <li>- ICT/Media (including Creative Economies and Services)</li> <li>- Optics</li> </ul>
LAHTI	<p>Three lines of expertise were selected as top regional expertise areas: environment, design, and practice-based innovation.</p>
NORD-PAS DE CALAIS	<p>Prior strategies:</p> <ol style="list-style-type: none"> <li>1. The selection of 3 sectors to achieve internationally recognised research excellence. The selected sectors are: <ul style="list-style-type: none"> <li>- Railway transport (logistics and intelligent transports)</li> <li>- Commerce of the future (comprises logistics and technologic aspects)</li> <li>- Health-Nutrition-Food (agro products and health safety)</li> </ul> </li> <li>2. Focused on economic sectors that the region strongly depends upon in terms of employment but that will not create international recognition due to the lower level of scientific excellence involved in these activities. <ul style="list-style-type: none"> <li>- Automobile</li> <li>- Advanced materials (bio-sources, textiles and composites)</li> <li>- Building and eco-construction</li> <li>- Mechanics</li> </ul> </li> <li>3. Identification of sectors with strong growth potential that can be developed with the recognised scientific regional excellence. These sectors are not yet present in the region, but with development guidelines they could become engines for growth. <ul style="list-style-type: none"> <li>- Energy</li> <li>- Waste, sediments, soils treatments</li> <li>- Image and digital creation</li> <li>- E-health</li> </ul> </li> </ol>
LOWER AUSTRIA	<p>The operational programme 2007-2013 developed a cluster strategy based on the following priorities:</p> <ul style="list-style-type: none"> <li>- Automotive Cluster Vienna Region (ACVR).</li> </ul>

	<p>The automotive cluster Vienna region was co-founded in 2001 by Vienna and Lower Austria. The ACVR supports companies in the areas of internationalisation, qualification and cooperation with research facilities.</p> <ul style="list-style-type: none"> <li>- Food Cluster of Lower Austria. Created as a project platform for the support of the native food industry, from agriculture to retail food processing, in cooperation with native companies and operation projects, mainly in the areas of food quality and safety, but also in organic and regional food products.</li> <li>- Logistic Cluster of Lower Austria. This has become the first point of contact and service centre for all innovative companies that seek to confront the logistics challenges of the future head on. Shippers, transporters and logistics services providers who aim to exploit the full potential of logistics through innovative collaborations are to be found. Priority activities in Lower Austria include promotion of the logistics competence of native companies, the bundling of transports, reduction in the number of empty runs and more efficient transport planning and shifting.</li> <li>- Plastics cluster. This is performed through cooperation among the provinces of Lower Austria, Upper Austria and Salzburg. It has become the largest network for plastic technology in all of Europe. Priority topics specific to Lower Austria include organic plastics and fibre composites. An expansion of the cluster is planned to include medical technology and recycling.</li> </ul> <p>As a complement to the clusters, the creation of technopols is also developed under the economic development strategy:  The Technopol for Medical Biotechnology (located in Krems)  The Technopol for Agro- and Environmental Biotechnology (located in Tulln)  The Technopol for Modern Industrial Technologies (located in Neustadt)  The Technopol for Bioenergy, Agriculture and Food Technology (located in Weiselburg).</p>
SKÅNE	<p>The international innovation strategy for Skåne contemplates the development of a competitive strategy from an international standpoint in order to fulfil global needs and benefit from international cooperation in the following selected sectors according to their internal regional strengths: food, life science, ICT, moving media and Cleantech.</p>

**4. Diagnosis and evaluation of the strategy.** The diagnosis process may be based on a detailed internal process of evaluation or the subcontracting of an objective process to evaluate the success of the strategy. The evaluation process should include a **well-defined list of realistic objectives and a set of indicators in which each objective can be reflected.** The principles and details of the construction of appropriate indicators are given in Barca and McCann (2011).<sup>1</sup> Interesting examples of descriptions of evaluation detailed strategies can be found in the cases of Navarra (with a detailed analysis of the objectives, based on a broad set of indicators, with the intention of performing at certain points in the future), Lower Austria (with the process of project, programme to region) and Nord-Pas de Calais.

<sup>1</sup> Barca, F., and McCann, P., 2011, "Outcome Indicators and Targets – Towards a Performance Oriented EU Cohesion Policy," and complementary Notes: "Meeting climate change and energy objectives" and "Improving the conditions for innovation, research and development", *DGRegio Website*. Available at: [http://ec.europa.eu/regional\\_policy/sources/docgener/evaluation/performance\\_en.htm](http://ec.europa.eu/regional_policy/sources/docgener/evaluation/performance_en.htm)

## **Potential questions to be addressed in the regions under the context of regional innovation smart specialisation strategies**

- 1) What are the key challenges and main competitive advantages of the region? This can be linked to a short description of the region's historic strengths, existing assets and geographical location.
- 2) What is the (short) history and current status of the regional innovation strategy (is it being implemented, what funds are allocated to it)?
- 3) What is the focus and what are the domains of expertise that the region has decided to put forth? If possible, please explain how the identification process for selecting priorities in certain technological domains has been undertaken (internally, with an external consultancy company, based on a SWOT analysis).
- 4) Who are/were the key players involved in the strategy development (stakeholders, different levels of government, universities, and non-governmental institutions, among others)? How were they selected and through what methods?
- 5) In particular, what are/were the methods and tools foreseen for entrepreneurial search processes to drive a bottom-up strategy development and buy-in?
- 6) What is the role of clusters and technology networks in the strategy?
- 7) How does it intent to stimulate interactions and cooperation between the public and private sector (technological parks, knowledge centre organisations, university-industry links, other examples of the public-private nexus)?
- 8) What is the role of SMEs in the strategy?
- 9) How does the strategy include/address cross-border and trans-regional activities and cooperation, networking processes, inter-regional government interactions and coordination across borders?
- 10) What are the intended outcomes and results of the strategy at the level of stakeholders, regional and national development and growth? How is the strategy implementation being monitored?

## CASE STUDY 1 - Flanders in Action / Pact2020

### LOCATION

- REGION/CITY
  - o Name: Flanders
  - o OECD Classification Innovation regions: Medium-tech manufacturing and service provider region
- COUNTRY: BELGIUM

### Background information on the region

- o Population: 6.28m
- o Area: 13.521km<sup>2</sup> (45% of Belgium)
- o Language: Dutch
- o Export: 100.3% of GDP (=73.3% of Belgium)
- o GDP: €220 billion (=57% of Belgium)
- o GERD/GDP: 2.12% (2009), target of 3% for 2020.
- o Total public budget STI: €1.9bn of which €1.23bn is R&D expenditure
- o Innovation Follower according to the Innovation Union Regional Scoreboard.

### OBJECTIVE

Main objective (in line with Europe 2020 – sustainable, smart, inclusive growth): Flanders developed the policy programme **Flanders in Action** and **Pact2020** in 2006-2009, which closely mirrors the smart growth objectives of the Europe 2020 strategy. The Pact2020 combines a **science policy with social added value**.

It contains **twenty objectives**, each with clearly defined targets, aimed at achieving real progress on five major issues, namely: prosperity and welfare; a competitive and sustainable economy; the number, quality and longevity of employment opportunities; living standards; and efficient and effective public administration. A new innovation pact was agreed upon by business and commercial sectors, research and educational institutions and public authorities, which aimed to achieve the Barcelona target of raising R&D expenditure to 3% of GDP, of which two-thirds is private sector R&D.

Over the course of the last few years, additional programmes have been developed in innovation and industrial regional policies in line with the set objectives of the policy programmes Flanders in Action and Pact2020.

### SUMMARY

- Year of establishment: 2001
- Development period:
  - o 2006-2009 “Flanders in Action and “ Pact 2020”
  - o 2011: Six “Innovation Crossroads”
  - o 2010-2011: Transformation processes for future markets: A new industrial policy
  - o 2012: A targeted cluster policy

### LEVEL OF GOVERNANCE

Multi-level governance:

The Flemish authorities have intentionally adopted a multi-annual and multi-level

approach to policy delivery entitled “Decisive Governance”, which emphasises the dimensions of efficiency, cooperation, quality and effectiveness of service delivery and policy implementation. The approach is based on a number of strategic objectives embodied in specific projects, requiring explicit cooperation between the Flemish government and local administrations.

## **OUTCOMES**

Expected:

- A year-on-year increase in the number of patent applications;
- Flanders to be amongst the EU’s top-5 regions for public spending on eco-innovation;
- An increase in the turnover from new or improved products and services;
- A higher share of spearhead areas, such as ICT, health, logistics and smart electricity networks (GRID), in the economy.

## **History**

The specific institutional and governance arrangements of Flanders within the Belgian state provide for regional control over most direct policy support and policy advice systems. While the framework conditions and norms are the responsibility of the federal government, the regional and local authorities have high levels of autonomy and discretion for developing policies, which are tailored to the local context and supported by detailed local data and intelligence. Since the 1990s, this has allowed the Flemish government, in conjunction with a range of social partners, to develop a broad policy mix, a diverse set of policy instruments and the efficient allocation of related budgets. In particular, public funding allocations to R&D have increased markedly.

The Flanders in Action (ViA) objective is to place Flanders in the top-5 EU regions by 2020, based on the prioritisation of potential strategic breakthroughs, which are regarded as being crucial for the future wealth and wellbeing of all people in Flanders. These breakthroughs have been identified as: the open entrepreneur; the fostering of Flanders as a learning society; Innovation centre Flanders; Green and dynamic urban region; Europe’s smart hub; Caring society; and decisive governance. Science, technology and innovation (STI) policy is perceived as playing a role across these various themes within the ViA framework, and has been developed via a range of agreements, policy notes and policy statements. These include a government agreement in which the political parties forming the government coalition outline their priorities for the five-yearly parliamentary term; a policy note from the minister charged with scientific research and innovation for the five-year period; and annual policy letters from the minister, which further elaborate and specify the general policy framework announced in the policy note.

The current ViA strategy is a natural outcome of a process of on-going policy development, which, since 2000, has adopted a series of major plans, each of which addresses specific aspects of factors influencing innovation. These plans are:

- The “Vilvoorde Pact: 21 targets for the 21<sup>st</sup> century” (2001), which translates the EU’s Lisbon Strategy of 2000 into a Flemish policy-setting;
- The Innovation Pact (2003), which is a commitment by Flemish public and private stakeholders to meet the EU’s Barcelona target of a GERD/GDP ratio of 3% by 2010;
- The 2005 Flemish Innovation Policy Plan (“Vlaams Innovatiebeleidsplan”), based on nine pillars and aimed at fostering a horizontal approach towards innovation throughout the different policy areas and sectors;
- The 2005-2008 and 2008-2010 Flemish Reform Programmes, which translated the reorientation of the Lisbon Strategy in 2005 into the EU Growth and Jobs Strategy, based on national reform programmes and annual reports;
- Flanders in Action (Vlaanderen in Actie, ViA), which updates and supersedes the Vilvoorde Pact, and the related 2020 Pact.

In 2006, a number of key priorities were identified as being critical for future societal evolution and wellbeing for Flanders, and the regional underpinning of these priorities was focused on six strategic clusters. Around these six clusters, ten spearheads for technology and innovation were subsequently developed into action plans, leading naturally into the ViA and related Pact 2020 initiatives of the Flemish Government. The policy programmes emphasise creativity and entrepreneurship, the commercialisation of R&D, prioritisation and scale and an output-oriented and streamlined research policy. The overall policy programme is designed to ensure that innovation is more widely and better distributed across all sectors, business types and segments of society. Policy initiatives are based on the interaction of research and innovation with other specific policies and with overall socio-economic objectives.

While the Flanders strategies were developed before the Europe 2020 strategy was presented, they closely mirror the overall Europe 2020 Strategy aims. The experience of Flanders points to the importance of particular policy-design requirements. These include the need for better connections between innovation and research targets that are more specific than the Barcelona targets; a stronger integration of innovation with environmental sustainability and social inclusion; more horizontal and cross-cutting implementation of innovation priorities across government departments; and a clear and strategic investment emphasis on key policy priorities.

In order to respond to these policy-design requirements, Flanders is initiating changes in governing arrangements to facilitate an integrated policy platform. Innovation policy is working on designing a method for prioritisation and decision-making, and on aligning priorities under decentralised decision-making. The emphasis here is on increased data gathering and strategic intelligence to help policies based on differentiation, rather than imitation, the creation of benchmarking exercises and peer reviews of strategy, joint policy actions based on an analysis of international value-chains and the fostering of cross-border initiatives in order to take advantage of complementarities.

The strategy is built around the creation of **six clusters**, each with a spearhead initiative. The formation of clusters takes into account the scientific and technological excellence of the partners and the economic potential of Flanders. This initially led to the formulation of one or more specific spearhead initiatives for each cluster, capable of initiating breakthroughs in their respective fields. The fields identified are: **transportation-logistics services and supply chain management; ICT and services in healthcare (e-health); healthcare; new materials, manufacturing and nanotechnology; ICT-enabling service platforms for socio-economic innovation (e-health, e-gov, e-learning); energy and environmentally friendly smart grids.**

In 2011, a challenge-driven innovation policy was adopted. The policy identifies **six Innovation Crossroads** for the development of specific innovation strategies:

- Eco-innovation
- Green energy
- Sustainable mobility and logistics
- Innovation in care
- Social innovation
- Industrial transformation (specified along certain cores sectors)

During the period 2010-2011, a new industrial policy was developed focusing on the transformation processes for future markets. Using the white paper “New Industrial Policy” (27 May 2011), Flanders will develop an integrated framework for an economic transformation based on 4 pillars:

- The “New Productivity Offensive”, targeting unexploited sources of productivity growth in resource productivity, smart infrastructures, clusters and specialisation;
- The “Factory of the Future”, a vision of a sustainable, innovative, flexible, and networked economy centred on the “real economy”;
- A robust management structure, an inter-ministerial body with interdepartmental coordination;
- A robust stakeholder-based process for discovery of new growth opportunities, employing sectoral policies with roundtables.

In 2011, a new public investment fund to leverage transformation was implemented in Flanders. Launched in March 2011, the Transformation and Innovation Acceleration Fund (TINA) is a key part of the New Industrial Policy developed in Flanders. It provides support to transformation trajectories to facilitate industrial transformation by innovation. It is mainly based on minority equity stakes and subordinated loans with potential commercial return. The policy rationale behind is a missing link in financing to promote open innovation and manufacturing consortia.

TINA presents some innovative aspects with respect to other financial instruments developed in the past:

- Investments can only take place in consortia;

- It requires a transformation strategy (on the level of the value chain/cluster) and a vision on go-to-market;
- It requires the involvement of a lead-company and spillovers to SMEs;
- It requires the presence of a detailed implementation plan and an exit strategy.

This new financing system will be managed by PMV, the Flanders' public investment company, to leverage “public” returns.

In 2012, a targeted cluster policy is expected to be implemented, following the prioritisation steps defined in the strategy. The strategy will focus the public S&T resources on 6 thematic clusters identified by strategic intelligence and expert consultation. The cluster policy is the result of new developments in the framework of the New Industrial Policy:

- The Industry Council (expert advisory council) was launched in November 2011; one of its key assignments is to advise on the development of a “targeted cluster policy” (lead clusters);
- A pilot cluster approach was launched for sustainable chemistry:
  - o The sector federation developed a transformation strategy supported by a broad mobilisation in the sector and beyond (more than 700 actors): FISCH (Flanders Initiative for Sustainable Chemistry) works in strategic research; open innovation infrastructures; new business models (e.g. chemical leasing) and sustainability criteria for the design of innovations;
  - o The government supports the establishment of a “Competence Pool” for the FISCH strategic research programme;
- International policy learning: lead-role in new OECD project “Smart Specialisation in Global Value Chains”:
  - o Use of strategic monitoring and case studies for “discovery” of smart specialisation;
  - o Aimed at criteria for identifying smart specialisations and design strategies.

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## **CASE STUDY 2 - The new model for economic development in Navarra: MODERNA**

### **LOCATION**

- REGION/CITY:
  - o Name: Navarra
  - o OECD classification Innovation regions: Medium-tech manufacturing and service provider region
- COUNTRY: SPAIN

### **OBJECTIVE**

Main objective (in line with Europe 2020 – sustainable, smart, inclusive growth): Moderna is committed to the on-going strengthening of the socially-oriented free market economy that Navarra shares with the rest of Europe; this plan is in line with the Europe 2020 Strategy, which favours smart, sustainable, and inclusive growth. The more wealth generated, the greater the possibilities of redistributing it to meet social needs and to assist third parties. Over the next few years, the economy will face some important challenges resulting from the demographics and social structure of Navarra.

Sub-objective: Biodiversity, Energy, Transport, Eco-corridors, etc.

Greater prosperity, greater quality of life, greater sustainability.

GDP per capita: Moderna aims to guarantee a fair income distribution in Navarra, in terms of the Gini index (Navarra had a score of 28 in 2007, compared to Norway's 24, the best in the world).

### **SUMMARY**

- Year of establishment: budget agreement in 2008; the Parliament of Navarra approved the action plan in October 2010 with 76% support.
- Development period 2010-2030.

### **OUTCOMES**

Expected:

The new economic model for Navarra must be more productive and sustainable. The increase in productivity will be achieved by improving work output in the traditional sectors and selecting clusters with the greatest productivity.

The economic impact of the boost to production can be summarised by annual growth in employment of 1% once the recession is over, a mean annual growth in productivity of 1.5% (which entails a mean annual growth of 2.5% in regional wealth up to 2030) and achieving more than 32,000 million Euros GDP.

From a demographic point of view, it is important to point out that, if Navarra maintains the current overall employment rates (taking into account the entire population and population growth rates), the resulting 77,000 new jobs will require an increase in the population of approximately 155,000 people. This means that almost 124,000 people from other regions or countries need to be attracted to Navarra.

Although this forecast may vary depending on the employment rate, the need to systematically attract qualified talent from outside Navarra, implement clear birth promotion policies, and improve work-family reconciliation does appear inevitable.

## **MODERNA, the New Economic Regional Development Model for Navarra**

The Moderna project is an initiative of Navarra's regional government. It is based on a process of strategic reflection on its regional potential. The plan's goal is to provide a vision of how the future of Navarra should unfold in order to tackle the challenges raised by the new conditions of the global economy in a knowledge-based society. The Moderna plan will be created as a collaborative endeavour between economic and social agents, public administrations, educational and research institutions. The Moderna plan is developed by looking the region's past evolution, defining present potentialities and developing realistic targets for the future.

### **Background Information on the Navarra Region**

Navarra is ranked 32<sup>nd</sup> out of 271 European regions for income per capita. Navarra represents 1.36% of the Spanish population and contributes 1.68% of Spanish GDP. Navarra expenditure on R&D represents 2.4% of the Spanish R&D expenditure. Navarra registered the highest GDP growth in Spain in 2010 with a 1.2% increase. This trend differed from the Spanish GDP in the same year (-0.1%).

Regional efforts on Research Technology Development (RTD) and innovation in Navarra have experienced remarkable growth in the last seven years since its regional R&D expenditure as a percentage of GDP increased from 0.9% in 2002 to 2.13% in 2009. The average Spanish rate was 1.38% and the EU27 rate was 2.01%.

Navarra's private RTD expenditure is approximately 68.84% of total expenditure, with another 9.4% coming from public administration and 21.67% from higher education.

Navarra has a population of 620,337 inhabitants of which 28,000 people are university students. This high concentration of university graduates has meant that Navarra's R&D personnel (employed full-time) represent 20% of the region's working population. Also employment in high-tech manufacturing and high-tech service sectors represents 11.2% of regional employment.

Economic growth in Navarra rests upon three main pillars:

- Accumulation of productive factors, especially capital equipment and qualified human resources;
- Innovation efforts conducted by private and public sectors;
- Interaction between productive factors and technological innovation.

Sectorally speaking:

- The automotive sector is one of the largest industrial sub-sectors in Navarra with many innovative plants owned by foreign multinationals.
- In the last 15 years, Navarra has attained worldwide recognition in the renewable energy sector. The Spanish National Research Centre for Renewable Energies (CENER) is located in Navarra and has more than 200 researchers using cutting-edge technology facilities. Around 6,000 people work in the renewable energy sector.

- The food-processing sector is one of the leading industrial sub-sectors in Navarra, contributing 16% of regional industrial GDP and employing more than 12,000 people. The Spanish National Centre for Food-Processing Technology and Safety (CNTA) is located in Navarra. This sub-sector increased GDP growth by 2.6% in 2010.
- The Health Service Sector is highly regarded in Navarra thanks to its top quality and the innovative techniques of its regional public-private hospitals and university infrastructure, which have an excellent reputation in Spain and abroad.

### **History of Navarra's Innovation Regional Development Strategy**

From 1982, where the first regional regulation on the funding of research, development and innovation were elaborated and constituted the basis for the innovation support programmes of the subsequent 2000-2003, 2004-2007 and 2008-2011 Technological Plans created by the Innovation Department of the Government of Navarra. The regional government has constantly developed a series of successive regional innovation programmes, which take into account the regional needs of the industrial and socioeconomic infrastructure in order to design appropriate actions for reaching the targets and indicators set out in the Technological Plans. In May 2008, a process for defining a new overall strategy for economic development in Navarra for the coming decades was launched, called the Moderna plan. The constitution of the plan involved a large group of regional socioeconomic representatives and innovation stakeholders, under the leadership of the regional government.

The regional innovation strategy of Navarra, the Moderna plan, was developed by examining the needs of the region and the history of its society and economy.

From 1960 to 1975, the vision of a prominent group of businessmen and politicians changed the Navarra economy from an essentially agricultural structure to a modern industrial region, attracting considerable investment from Spain and abroad (the share of industry in the economy increased by 40% from 1960 to 1975).

From 1990 to 2004, the strategy adopted by other entrepreneurs, with the support of the Navarra regional government, placed the Navarra economy on the global map, achieving international recognition for converting the dream of renewable energies into reality (today, 65% of the electricity consumed in Navarra is from renewable sources).

From 2004 to 2009, the Navarra society soared to occupy 32<sup>nd</sup> place in the ranking of 271 European regions in per capita income, due to the continuous growth of employment levels and quality of life resulting from Navarra's economic strategy.

## **Moderna's principles**

1. To invest in people
2. To create a flexible, open society by eliminating barriers
3. To be connected and constantly looking outwards
4. To concentrate resources on our strengths, and know how to market them
5. To collaborate with the best in the field
6. To maintain an entrepreneurial, persevering attitude
7. To favour design and creativity
8. To attract talent
9. To be a laboratory for innovation and knowledge
10. To seek the long-term socio-economic improvement of Navarra

## **Moderna's Goal**

Moderna is promoting the important shift in the social paradigm for Navarra's economy and society in the 21<sup>st</sup> century, moving from an industrial economy to a **knowledge-based economy**. This shift requires and encourages the involvement and participation of each and every citizen in their different functions, with citizens capable of sharing their concerns, knowledge and critical capacity, acting as informed and responsible participants. In parallel, public and private institutions need to be increasingly open, flexible and transparent. In the business environment, it is essential to count on the active engagement of workers in company objectives, aligning their interests with those of the businessmen and managers through innovative and social dialogue, necessary for improving productivity and developing professional talent. All this lies within the framework of corporate social responsibility, which promotes dialogue between companies and stakeholders.

The knowledge-based society demands on-going improvement and extension of education in all areas (human, cultural, technical and scientific) throughout all stages of life and employment, through lifelong, individualised educational processes.

Based on these premises, the Moderna plan has been created as an effort by and for society, since society itself must kick off the plan as stated in its Vision 2030.

## **Governance Level**

Moderna is a medium and long-term strategic regional economic plan, promoted by the Government of Navarra (whose main political party is Unión del Pueblo Navarro – UPN) along with the Partido Socialista de Navarra (PSN), worker and employer associations (the Confederación de Empresarios de Navarra (CEN), the Unión General de Trabajadores (UGT), Comisiones Obreras (CCOO)) and universities (the Public University of Navarra (Universidad Pública de Navarra, UPNA) and the University of Navarra (Universidad de Navarra, UN)).

## **Main Objective (in line with Europe 2020 – sustainable, smart, inclusive growth)**

Moderna is a new Model for the Economic Development of Navarra. Its core objective is to undertake a new knowledge-based socioeconomic transformation of the region, setting up objectives for the year 2030 that ensure sustainable economic growth and improve the positioning of Navarra in a European and global context. The plan's strategy has long-term objectives, future innovation sectors for the region, and changes on horizontal factors. All of these are detailed in action plans and a monitoring and assessment system that aims to improve the productive context of the region.

Moderna is committed to the on-going strengthening of the socially-oriented free market economy that Navarra shares with the rest of Europe. This plan is in line with the Europe 2020 Strategy, which favours smart, sustainable and inclusive growth.

The more wealth generated, the greater the possibilities of redistributing it to meet social needs and to assist third parties. In this respect, Moderna considers the fact that over the next few years the economy will face some important challenges resulting from Navarra's demographics and social structure.

### **➤ Biodiversity, Energy, Transport, Eco-corridors, etc.**

Greater prosperity, greater quality of life and greater sustainability.

In terms of GDP per capita, Moderna seeks to guarantee a fair distribution of income in Navarra, in terms of the Gini index (Navarra had a score of 28 in 2007, compared to Norway's 24, the best score in the world).

Moderna wants to position Navarra amongst the 20 leading European regions in GDP per capita and with a fair distribution of wealth.

To achieve this, each Moderna cluster is firmly committed to increased productivity, employment and international competitiveness, through technological improvements, the development of human capital and ventures into new, high-productivity sectors.

### **➤ Human Development**

Moderna wants to position Navarra among the 20 leading European regions in the UN Human Development Index (HDI). Navarra is achieving the maximum global development rates, with a score of 0.972. Moderna aims to maintain Navarra among the 10 leading European regions.

High quality health care and an excellent education system are two of Navarra's key strengths. In order to maintain and enhance these areas, the Moderna plan seeks to direct the generation of wealth towards improving quality of life and promoting human development in all clusters, specifically in the sectoral commitments to education, talent and human capital and health care services.

### ➤ **Environmental Sustainability**

Moderna wants to position Navarra among the 20 leading European regions for sustainability. All Moderna clusters are constantly focused on economic sustainability and environmental conservation for future generations in Navarra. Furthermore, efforts are concentrated on inherently eco-friendly sectors and activities (renewable energies, sustainable vehicles, agro-food industries, sustainable construction, environment and waste, and sustainable tourism).

Figures: At present 65% of the electricity consumed in Navarra comes from renewable energy sources. About 25% of the Navarra's territory has a high ecological value and is part of the EU Nature 2000 Network.

### ➤ **Productivity and Competitiveness**

Over the last few decades, Navarra has experienced considerable growth in its economy and employment levels despite the current depression, which is causing a considerable recession and a sharp rise in unemployment. This good performance is primarily due to the growth of employment and, to a lesser extent, the widespread upward trend in regional productivity (GDP per employee). Moderna is seeking to achieve a leap forward in productivity.

Growth in per capita income can either be due to an increase in the number of people working or to an increase in worker productivity. This chart shows the influence of these variables on the growth of two economic areas in our region, from 2000 to the present.

Analysing the growth trend over time, we see that Navarra's productivity levels are higher than those of Spain, and lower than the mean for the European Monetary Union (EMU) member countries.

### **The Roots of Moderna**

The Moderna plan specifically targets factors that have a decisive, core effect on all business sectors of Navarra: education, talent and human capital, R&D&I, entrepreneurship, globalisation, public administration, infrastructures and collaboration environments, with particular focus on macro-sectors and human capital.

- In order for the plan to succeed, each of these factors will need to be transformed and optimised to ensure that they inherently transfer knowledge, wealth and wellbeing to all of Navarra.
- It is essential to have well-trained and educated persons, with entrepreneurial, innovative attitudes who are open to globalisation, as these individuals will be responsible for the plan's success.
- However, it is also essential that all factors affecting the business environment function perfectly and act as drivers of economic activity.

- Public administration reform will be of particular importance as a service provider and driver of economic activity, and as a flexible, efficient and innovative organisation, not weighed down by bureaucracy.
- In short, Moderna is attempting to construct a person-oriented, idea-based economic system, which will be attractive for business and social development and will function as a systemic whole.

### **Core Sectors in Moderna**

In order to achieve the core objective set by Moderna (improving quality of life), emphasis must be placed on three important lines of the economy, which should experience considerable development in the future. These lines are **healthcare economics, green economics and talent economics**.

The Moderna plan has defined four different types of clusters: basic, strategic, future commitments and complementary.

- **Basic (automobiles, electric vehicles and sustainable construction** [Green economics] and **Healthcare services** [Health care economics]). Essential clusters for maintaining employment in Navarra at target levels (those that provide direct and indirect employment for the main core of Navarra's economy, i.e., those that are embedded in the region). **Moderna** seeks to reinvent them to make them more efficient.
- **Strategic (renewable energies, agro-food industries** [Green economics]). Clusters that benefit from significant global growth trends, in which Navarra has a clear initial competitive advantage. Moderna seeks to invest in the development of significant clusters.
- **Future commitments (biomedicine, medical appliances, services to persons** [Health care economics], **sustainable tourism, environment and waste** [Green economics], and, **mechatronics, design and creativity, safety** [Talent economics]). Clusters that seem to benefit from major global growth trends, in which Navarra has an emerging presence and significant capacities. Moderna wants to establish new roots for the future consisting of new business opportunities as yet underdeveloped in the region.
- **Complementary or leverage clusters (business services, education and generation of knowledge** [Talent economics]). Clusters whose development is essential for securing a competitive position in the previous clusters. Clusters that could benefit from the development of the chosen clusters.

Moderna has decided in favour of a change in the productive model, by working with the actors grouped together in cluster levels.

- These new business opportunities include sectors as yet undeveloped by the Moderna plan, but which are considered business opportunities, taking advantage of current and future trends.

- Design and creativity: all products and services incorporate design as part of their added value. Navarra needs to develop the business fabric to provide this support to the remaining sectors.
- Services to persons: related to active ageing (care in retirement homes and items of daily use) and care for people with difficulties, and those that favour family life and work reconciliation.
- Other sectors: the audio-visual sector and personal safety, heritage and information.

### **Implementation of Moderna**

- Budget agreement established in 2008; Action plan approved by the Parliament of Navarra in October 2010 with 76% support
- Development period 2010-2030.

### **Expected Outcomes**

The new economic model for Navarra must be more productive and sustainable. The increase in productivity will be achieved by improving work in traditional sectors and deciding in favour of clusters with the greatest productivity.

The economic impact of the boost to the productive model can be summarised in the sustained annual growth in employment of 1% once the recession is over, 1.5% mean annual growth in productivity, which entails a mean annual growth of 2.5% in regional wealth up to 2030, achieving more than 32,000 million Euros GDP.

From a demographic point of view, it is important to point out that if Navarra maintains the current overall employment rates (taking into account the entire population and population growth rates), the resulting 77,000 new jobs will require an increase in the population of Navarra of approximately 155,000 people. Therefore, almost 124,000 people from other regions or countries need to be attracted to Navarra. Although this forecast may vary depending on the employment rate, the need to systematically attract qualified talent from outside Navarra, implement clear birth promotion policies and improve work-family reconciliation does appear inevitable.

### **The Use of Outcome Indicators**

Moderna has defined a set of indicators to evaluate the present and to set challenges for the future (2015, 2020 and 2030).

The set of indicators are based on various **challenges** (in bold) and *concepts* (in italics):

#### **Education**

- PISA points (*educational level of scholar performance*), population age 18 with a B2 level of English (*level of English language*), % university graduates (*higher education level*).

### **Innovation**

- R&D intensity (*R&D investment*, innovation input), Patent applications per year (*patentability*, innovation output), Regional Innovation Scoreboard rank (*regional innovation index*).

### **Internationalisation**

- Millions of Euros in exports, number of exporting firms (*exporting activity*), number of multinationals located in Navarra (*multinational presence*).

### **Economy**

- Employees (*employment*), value added per worker (*productivity*), share of enterprises with more than 50 employees (*firm size*) and number of new enterprises per year (*entrepreneurship*).

### **Prosperity and Social Cohesion**

- Per capita GDP among 271 European regions (*European regions positioning*), GPI in PPP of 2009 (*prosperity*), Gini index (*welfare distribution*), Human Development Index (*quality of life*), energy consumption (*environmental sustainability*).

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[www.modernanavarra.com](http://www.modernanavarra.com)

## CASE STUDY 3 - Strengthening Regional Competitiveness of Lower Austria

### LOCATION

- REGION/CITY:
  - o Name: Lower Austria
  - o OECD classification Innovation regions: Traditional manufacturing region
- COUNTRY: AUSTRIA

### Regional Characteristics

EU member since 1995. Euro introduced in 2002.

Population: 1.6 million residents (8 million residents in Austria)

Start-ups (1993-2010): 88,256

Unemployment rate (Feb 2011): 7.1%

Companies created with ECOPLUS (in Dec 2010): 87

Jobs created with ECOPLUS (in Dec 2010): 2,092

### Description of the regional environment

Lower Austria is the largest federal province in Austria. Today it is one of the top business locations for companies in Europe. Lower Austria has a geographical advantage, with Vienna at its centre and the rapidly growing markets of Central and Eastern Europe on its perimeter.

Lower Austria enjoys political stability while maintaining dynamic growth and quick administrative decision-making.

Austria's capital Vienna (a separate federal province located in the centre of Lower Austria), Burgenland and Lower Austria form the Vienna Region, which has the highest concentration of research institutions and universities in Austria. This is a mainly high-tech region, with enormous investments in modern educational facilities and transportation infrastructure, whose course has been set for the future. Lower Austria has yet another advantage that makes its location more attractive to both companies and people: its economic benefits are complemented by an unparalleled quality of life.

The Lower Austria province is investing substantial sums in R&D, thus positioning itself as an attractive and modern business location. With its focus on cutting-edge technologies and its proactive technology policies, Lower Austria is on its way to becoming an innovative high-tech European location.

### The Operational Programme of 2007-2013: Strengthening the Regional Competitiveness of Lower Austria

This programme involves community support for Lower Austria within the framework of the "Regional Competitiveness and Employment" objective ("phasing out" regions not included).

The overall objective of the programme is to strengthen the competitiveness of the regional economy in all provinces of Lower Austria, while observing the principles of sustainable development and gender equality, guaranteeing quality of life, income and employment for all citizens of the Bundesland.

**OBJECTIVE**

- Promoting innovation and knowledge-based economy and creation of permanent jobs;
- Reducing the gap between urban and structurally weaker peripheral areas of the Bundesland;
- Pursuing the Gothenburg's objective of sustainability and the principle of gender mainstreaming.

The operational programme has three main axes:

1. Enhancing regional competitiveness through innovation and knowledge economy
2. Strengthening of regions and sites through mobilization of endogenous potentials, competitive tourism, better environment, energy use and risk prevention
3. Technical assistance

**SUMMARY**

- Year of establishment: 2007
- Development period: 01/2007-12/2013

**FUNDING**

The total budget of the programme is around €291.2 million.

The community assistance through the ERDF amounts to €145.6 million (approximately 10% of the total EU money invested in Austria under Cohesion Policy 2007-2013).

Priority Axis	EU contribution	National Public Contribution	Total Public Contribution
Enhancing regional competitiveness through innovation and knowledge economy	99,540,000	99,540,000	199,080,000
Strengthening of regions and sites through mobilization of endogenous potentials, competitive tourism, better environment, energy use and risk prevention	44,750,000	44,750,000	89,500,000
Technical assistance	1,356,798	1,356,798	2,713,596
<b>Total</b>	<b>145,646,798</b>	<b>145,646,798</b>	<b>291,293,596</b>

Source: Scinnopoli (2011)

**LEVEL OF GOVERNANCE**

As one of the 9 federal provinces of Austria, Lower Austria has a high degree of political and financial independency in regional innovation policy.

The Government of Lower Austria itself is the managing authority of the Regional Operational Programme.

## **OUTCOMES**

Expected impacts of the Operational Programme:

- The programme will ensure the creation of 1,800 new jobs, 200 of which will be in the research and development sector
- The programme will connect an additional 10,000 inhabitants to broadband internet, triggering a total investment of €850 million
- The programme will install an additional renewable energy capacity of 25 MW.
- The programme will decrease greenhouse gas emissions by 25,000 tonnes per year.

## **The Regional Strategy of Lower Austria – The Operational Programme**

The province of Lower Austria is investing substantial sums in R&D, thus positioning itself as an attractive and modern business location. With its focus on cutting-edge technologies and its proactive technology policies, Lower Austria is on its way to becoming an innovative high-tech European location.

<b>Economy related and technology infrastructure</b>	<b>Industry, trade, services, innovation, technology, companies strategic development</b>
Infrastructure, technology centre	(Academic) spin offs, technology-transfer, technology-exploitation
Clusters and networks	SME: internationalisation, cooperation, innovation assistance, pilot actions
Technopol program	Innovation, R&D
Technology projects	Investment in new technologies Soft measures Consultancy services

## **The Lower Austria Technopol Program**

Since 2004, Ecoplus (the business agency of Lower Austria) has been implementing the Lower Austrian Technopol Program, which seeks to develop and promote "technology-oriented business" locations that boast a high density of R&D facilities, numerous companies engaged in research, higher and continuing education and training institutions.

The Technopol Program in Lower Austria is composed of four different technopols:

- Medical biotechnology (located in Krems)
- Agro- and environmental biotechnology (located in Tulln)
- Modern industrial technologies (located in Neustadt)
- Bioenergy, agriculture and food technology (located in Weiselburg)

Technopols enhance regional value creation chains and networks. They support the structural transformation of the Lower Austrian economy, promoting the creation of a knowledge-intensive economy.

## Cluster Activity in Lower Austria

Clusters in Lower Austria are not only able to react quickly and flexibly to the demands of the economy, but their activities are also meant to provide sustained long term benefit.

Cluster teams provide assistance in reducing internal company costs, increasing energy efficiency, finding new market niches and developing appropriate products and services for these niches.

Ecoplus clusters also stand for the development of future company potential and integrated strategies for innovation. Project-based cooperation among companies is often the best and most effective way to implement such innovative plans.

Composition of clusters in Lower Austria:

- **Green building cluster of Lower Austria**, based mainly in Lower Austria.
- **Automotive Cluster Vienna Region (ACVR)**, co-founded in 2001 by Vienna and Lower Austria. ACVR supports companies in the areas of internationalisation, qualification and cooperation with research facilities.
- **Food Cluster of Lower Austria**, created as a project platform for supporting the native food industry, from agriculture to retail food processing. The cluster works in cooperation with native companies and operations projects, mainly in the areas of food quality and safety but also in organic and regional food products.
- **Logistic Cluster of Lower Austria**, which has become the first point of contact and the service centre for innovative companies. The cluster aims to confront the logistics, challenges of the future, seeking shippers, transporters and logistics services providers who wish to exploit the full potential of logistics through innovative collaborations. Priority activities in Lower Austria include promotion of the logistics competence of native companies, bundling of transports, reduction in the number of empty runs, and more efficient transport planning and shifting.
- **Plastics cluster**, performed by cooperation among the provinces of Lower Austria, Upper Austria and Salzburg. This cluster has become the largest network for plastic technology in all of Europe. Priority topics specific to Lower Austria include organic plastics and fibre composites. An expansion of the cluster to include medical technology and recycling is planned.

**Measuring the past to evaluate the future (An example of best practices in Lower Austria: the Innovation Assessment Methodology (I-AM Lower Austria)):**

The Innovation Assessment Methodology (I-AM Lower Austria) combines monitoring and evaluation tools at all levels of the innovation policy impact assessment, from project to programme, up to the regional level.

The evaluation of regional policy actions, such as the technopols, has been done by various techniques:

- **Qualitative:** Interviews, evaluation reports and interactive workshops with regional companies and intermediaries.
- **Quantitative:** Statistical tools, questionnaire, surveys. By direct and multiplier (indirect and induced) effects on value added, employment, tax revenues and social security contributions.

I-AM Lower Austria is a comprehensive system of monitoring and evaluation tools for Lower Austria's innovation policy to gain major insight into the results and impact of state aids. It also furthers innovation support services with the aim of improving single innovation policy instruments as well as coordinating the overall regional innovation system with all involved actors and intermediaries.

The methodology focuses on evaluation and explanation at the regional level, as it seeks to discover the impact of specific public policy interventions. The analysis has been done from the project to the regional level, from sources to beneficiaries, and by monitoring non-beneficiaries to discover the reasons for their non-involvement in the project.

I-AM Lower Austria also provides required information for the regional government to justify the public budget for regional innovation policies and promote its success.

The objectives are:

- To identify the needs of regional companies with respect to innovation support services;
- To obtain information on the scope and quality of these services provided by regional intermediaries;
- To provide relevant regional policy makers with methodologies and tools enabling the evaluation and assessment of the impact of innovation policy activities;
- To improve the quality and efficiency of innovation supporting services and, as a consequence, strengthen the impact of regional innovation systems on individual Lower Austrian companies and on the whole region.

The levels of the evaluation process are:

- **Project level:** To monitor the results of individual state aid projects and innovation services in terms of output and impact.
- **Programme level:** To monitor the results of public interventions in the form of state aid programmes and services provided by intermediaries to beneficiaries and regional companies by a specific programme.
- **Regional level:** To monitor regional effects of the regional innovation policy.

At the project level, impact of funded projects on companies is being monitored by means of a standardised questionnaire by the regional government distributed to the regional companies together with the results of the public intervention. It also includes the monitoring of the beneficiaries' advantages achieved through the programmes to analyse the changes in behaviour or capacities of the beneficiaries.

The evaluation process uses the Balanced Scorecard Methodology (BSC), which follows a holistic approach by building consensus on the economic targets for the respective program. It also identifies and monitors the required performance indicators to the intermediary, the companies and the market in order to achieve the economic targets and define the relevant processes influencing the performance indicators and the relevant input factors for process improvement. Nearly all services that are now coordinated and monitored through the application of BSC methodology are set up as programs in the current ERDF Programme (2007-2013) in Lower Austria.

Finally, in the regional level evaluation, Lower Austria seeks to discover, explain and evaluate the macroeconomic effects of the regional policy as a whole in order to evaluate the effectiveness of the regional policy. For this purpose, Lower Austria uses the Community Innovation Survey and the "FuE Vollerhebung" (complete R&D inventory count) initiative for further analyses of the innovation performance of Lower Austrian firms, enlarging the sample size of firms in order to make them representative at the regional level.

### **Example of Cluster Strategy: Green Building Cluster of Lower Austria**

The Green Building Cluster, which involves about 200 partners, is one of 6 initiatives currently being managed by Ecoplus, the regional business agency (also part of the Regional Innovation Strategy for Lower Austria). The Cluster strengthens already existing competencies in the area of sustainable building and green living. It provides pre-competitive support for small and medium-sized enterprises, linking existing strengths with new ideas and innovation from research activities at universities, research institutions and higher technical schools.

The main objective of the Green Building Cluster in Lower Austria is to link and strengthen existing Lower Austria competencies in the area of sustainable building and living. All types of promising sustainable building materials and systems are welcomed in the cluster.

As a regionally based cluster within the EU, the Green Building Cluster aims to link existing strengths with new ideas and innovation, and research activities at universities, research institutions and higher technical schools. The cluster continues to invest substantial resources not only in innovation-related activities of leading industrial companies, but also in qualification measures directed at SMEs, architects, mechanical services engineers, plumbing and heating professionals, carpenters and other tradesmen.

Sustainable economic activity in Austria has two facets: the ecological and social aspect, on one hand, and the need for operating businesses with consistent and long-term financial success on the other. There are many success stories in the Networks and Clusters area. For example, there is the transformation of the construction industry towards energy efficiency. The green building cluster of Lower Austria connects construction and building professionals with researchers to address challenges such as climate change and enabling innovation through cooperation.

The initiative provides pre-competitive support for mainly small and medium companies in order to strengthen their innovation capacity and foster competencies in the area of sustainable building and living. The initiative acts as a neutral platform, enabling the building of trust between cluster members, mediating between businesses and public administration to help shape business and innovation-friendly framework conditions, while building a bridge between SMEs and R&D institutions.

The initiative currently involves about 200 members, 80% of which are SMEs. Other members include larger companies, research and education institutions and associations. The added value of this initiative is the development of existing economic fields of strength (building on the Timber Cluster (started in 2001) and the Greenbuilding Cluster (started in 2003)) in a comprehensive and strategic way to help companies transform towards innovation. This involves more than just initiating a couple of collaborative projects; rather, it initiates several interventions at various phases of the innovation process aimed at removing bottlenecks in business innovation. For example, the cluster initiative (a neutral platform for the triple-helix stakeholders) helps develop better

framework conditions, mobilises companies to improve their skills and innovation, facilitates knowledge transfer from universities to businesses and contributes to sustainable development of regional specialisation.

The Lower Austrian Cluster Programme, which this cluster belongs to, is an integral part of the Regional Innovation Strategy and is co-financed by the EU. The Regional Economic Policy Objectives have been translated into clear and measurable objectives for each cluster initiative (as well as for other innovation support actions within the region). The main indicators are the number of new strategic R&D projects involving SMEs, big companies and research institutions, the number of product and system solutions developed in collaborative company projects and the rate of cluster member participation in collaborative projects.

The project is financed by private sources such as membership and service fees, and from public sources, with about 60% co-funded by a regional fund and the ERDF, and about 40% by a regional fund only. Simone Hagenauer, project manager for Networks and Clusters with Ecoplus, explained that “the EU’s share of the investment contribution has been critical in supporting the project, and without this and the pre-competitive support from the cluster initiatives, these types of projects would not have been realised”.

Dedicated to the ideal of sustainability, the project has a particular focus on passive house standards, healthy interiors with enhanced living comfort, while not neglecting the energy-efficient refurbishment of older buildings. Up to 50% of new houses in the region are being built as passive energy houses, including the more traditional timber-constructed ones.

The Ecoplus management team of the Green Building Cluster project also plays an important role in influencing the political and administrative framework for industry issues, such as building codes, financial incentives and awareness-raising for green building. The annual refurbishment rate, currently at about 2%, should reach about 3% in two years, with an estimated 6000 to 9000 new or safeguarded permanent jobs, and a building output of approximately €750m to €1b per year. This, explains Simone Hagenauer, “acts as a catalyst for technology, job creation and added value for Lower Austrian companies”.

Many Lower Austrian companies have found a niche in ecologically viable sectors and some even rank among the top international companies, resulting in approximately 200 partners (companies, R&D and qualification facilities) and around 250 projects since 2001, with some 460 companies involved, project turnover of €12.8 million and public support of €5.1 million.

Since 2001, the Green Building Cluster has triggered 249 projects with an accumulated 486 company participations. One of the initiatives developed by the Cluster was the “Future Building” Competence Centre, which includes the Department for Building and Environment at Danube University Krems and other partners from the construction,

building materials and components industries. Other examples include the Zero Energy Retail Outlets that use passive house technologies and integrated photovoltaic systems for prefabricated houses.

In cooperation with regional sector associations, the Cluster has also developed a joint training program to meet the demand for skills in energy efficiency for buildings. More than 200 master builders, carpenters, architects, heating and plumbing professionals, energy and building consultants, planners and site managers have so far benefited from these trainings and are now fully qualified to carry out energy-efficient refurbishment of old buildings.

### **Example of Cluster Strategy: Plastics cluster**

The bioplastics industry of Lower Austria has already started to produce success stories. Products are gradually being launched on the market and more will follow shortly. To date, ten new products have been developed, one company has relocated to the region and 20 new jobs have been created.

In addition, a stable relationship based on trust has been cultivated between the Cluster team, companies and among the companies themselves, regardless of size and location. This relationship is essential for successful intercompany cooperation and thus the foundation for future project success.

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[www.ecoplus.com](http://www.ecoplus.com)

The Technopol for Medical Biotechnology (**Technopol Krems**)

[www.ecoplus.at/technopol\\_krems](http://www.ecoplus.at/technopol_krems)

The Technopol for Agro- and Environmental Biotechnology (**Technopol Tulln**)

[www.ecoplus.at/technopol\\_tulln](http://www.ecoplus.at/technopol_tulln)

The Technopol for Modern Industrial Technologies (**Technopol Wiener Neustadt**)

[www.ecoplus.at/technopol\\_wr\\_neustadt](http://www.ecoplus.at/technopol_wr_neustadt)

The location for bioenergy, agriculture and food technology (**High-tech business location Wieselburg**) [www.ecoplus.at/technopole](http://www.ecoplus.at/technopole)

Green Building Cluster of Lower Austria [www.bauenergieumwelt.at](http://www.bauenergieumwelt.at)

Plastics Cluster [www.kunststoff-cluster.at](http://www.kunststoff-cluster.at)

Food Cluster of Lower Austria [www.lebensmittelcluster-noe.at](http://www.lebensmittelcluster-noe.at)

Logistics Cluster of Lower Austria [www.logistikcluster.at](http://www.logistikcluster.at)

Mechatronics Cluster of Lower Austria [www.mechatronik-cluster.at](http://www.mechatronik-cluster.at)

Electric Mobility Initiative of Lower Austria [www.e-mobil-noe.at](http://www.e-mobil-noe.at)

## **CASE STUDY 4 - From Clusters to New Combinations: An International Innovation Strategy for Skåne**

<b>LOCATION</b> <ul style="list-style-type: none"><li>- REGION/CITY:<ul style="list-style-type: none"><li>o Name: Skåne County (South Sweden)</li><li>o OECD classification Innovation regions: Knowledge and Technology Hubs (South Sweden)</li></ul></li><li>- COUNTRY: SWEDEN</li></ul>
<b>OBJECTIVE</b> <p>Main objective (in line with Europe 2020 – sustainable, smart, inclusive growth): The “International Innovation Strategy for Skåne” aims to be bold, inclusive and strategically unified in order to reflect what is written in the Commission’s “Innovation Union Flagship Initiative”.</p> <p>The strategy should be a tool for development and growth in Skåne. The aim is for the strategy to be important to stakeholders in Sweden, Europe and the rest of the world. The ultimate goal of the strategy is inclusive, smart and sustainable growth.</p> <p>Sub-objective: Biodiversity, Energy, Transport, Eco-corridors, etc.</p>
<b>SUMMARY</b> <ul style="list-style-type: none"><li>- Year of establishment: In 2007, Skåne started to create the basis for their innovation regional strategy by starting a process of investigation and identification of their potentials, capacities and capabilities, developing various evaluation analysis of the previous cluster strategies developed in the region and looking at independent research reports defining the most appropriate transformation processes to follow.</li><li>- Development period: 2012-2020</li></ul>
<b>LEVEL OF GOVERNANCE</b> <p>Multi-level governance: regional, national and international.</p>

### **Introduction**

At a time of global changes and challenges, Sweden’s Skåne region realised that the new economic transformation strategy had to have an international competitive vision in order to fulfil global needs and benefit from international cooperation.

Regions are often seen as places within borders, which can limit the view of businesses operating in the region. These businesses need to view the global market as the final objective and not limit their aspirations to just Skåne. The region should develop an innovation strategy that can position Skåne among the top innovative regions in Europe and reveal its flourishing environment for innovation.

For this reason, several steps have been taken, starting with the detailed analytical identification and investigation of regional capabilities, capacities and needs. Various

stages have been developed to create an innovation strategy that can achieve smart, inclusive and sustainable growth as described in the “Innovation Union” initiative.

A number of documents have been created that reflect the why, what and who of the action plan.

### **Regional History**

Skåne boasts a positive entrepreneurial spirit, and its economic growth in recent years has offered favourable opportunities for enterprise and investment. Skåne is an international location with a global stream of people, skills, innovations, goods and services.

Skåne published analyses of cluster strategy in 2002 and 2010. The purpose of the 2010 study was to present existing and potential cluster formation in Skåne, as well as to analyse the conditions for their future development.

As other regions of Sweden, Skåne has been marked by a transition since the end of the 1970s towards emerging industries that act as engines for new technological applications. These industries are early adopters of new technologies with broad applications and include telecommunications, pharmaceuticals and advanced business services (Lundquist and Olander, 2007).

Skåne’s manufacturing sector suffered significant reductions in the number of employees (around 35,000) from the 1970s to the 2000s, which was reflected in Sweden’s economy. The region was especially hit by the economic crisis of the 90s, which affected the construction and infrastructure sectors. Since then, Skåne’s economy has shifted towards a *service economy*. The growth of services in Skåne has been pronounced in advanced business-related services, although consumer services have also experienced some growth.

### **Background of the Innovation Strategy**

In recent years, Skåne has worked with various regional stakeholders to develop an innovation system and enhance long-term innovation. The efforts also involved the Swedish Governmental Agency for Innovation Systems (VINNOVA) and the Swedish Agency for Economic and Regional Growth (Tillväxtverket).

The innovation strategy forms the basis for the national innovation strategy that the Government intends to adopt in 2012. It is also one of the common foundations for the future research and innovation proposal and the OECD study being conducted in Skåne in 2011-2012. Once these foundations are in place, the strategy and the action plan will be reviewed.

The strategy describes the WHAT in the form of (a) a clear vision, (b) what is needed to realise this vision and (c) six overarching strategies. A number of other documents describe the WHY in the form of more in-depth analyses and evaluations and

background reports. The last part deals with specifics and describes the HOW and the WHO in the form of an action plan.

### **Identifying Regional Benchmarks for Developing the New Innovation Strategy**

Skåne's innovation strategy includes, among other works, "**Skåne's Innovation Capacity – a situation analysis**", produced in 2009 as a self-assessment tool for obtaining a clearer picture of the innovation system. A network analysis, a functional analysis and an international peer review were also conducted, and these also form the basis of action plans and on-going work.

These studies attempt to identify the weaknesses and strengths of Skåne's industrial and innovation system and show that:

- Substantial resources are invested in the initial stages in order to select ideas that have the potential for becoming new enterprises;
- The support structure for businesses is weak;
- The structure for selecting service innovations is poor;
- The access to risk capital is limited;
- There is a substantial need for more systematic analysis of the environment and the market.

The analysis also shows that better coordination among the various players is needed, along with increased internationalisation of the supporting bodies.

### **Objectives/Needs of the New Strategy**

- The new strategy has to develop a new open international ecosystem for innovation.
- The new strategy should support skills development. There is a need for research skills within the innovation areas where Skåne has a greater potential to stimulate real innovation.
- Skills, such as coordination, cooperation and the ability to make collective decisions will become more and more important.
- The demand for innovations must be stimulated.
- The underlying conditions, such as the regulatory framework and the work culture need to be improved.
- The support functions for innovation and the ability to communicate the innovation strategy need to be improved.

### **Vision**

The vision intends to convert Skåne in Europe's most innovative region in 2020 by means of regional, national and international collaboration. Skåne can develop into an attractive innovation environment. The basis of the strategy is substantial investment in

reinforcing Skåne innovation culture and capacity; a culture which grows out of the creativity, openness and diversity that Skåne has today.

### **Partners in the Development of the Strategy**

The analytical material and the action plan reflect the interplay between the regional, national and international aspects of the strategy. The owners of these documents, the Skåne Research and Innovation Council (FIRS) and Sounding Board for Innovation in Skåne (SIS) form a strategic council and forum in which universities, institutes of technology, municipalities, innovation arenas, industry, the public sector and student representatives can work together to support innovation and create the conditions for growth. FIRS and SIS are examples of governance bodies.

### **Prerequisites for Realising the Vision**

- **Global challenges**

New economic and global challenges and increased demand for knowledge and revised regional policies cannot be clearly addressed without cooperation and coordination among the various agents. These challenges require international collaboration between countries and effective interplay between policy-makers, industry and research.

Skåne's public-sector players must take a proactive role in the healthcare system and climate and energy issues and support the development of system innovations through instruments, such as public procurement.

The aim is therefore to develop the interplay between industry, universities, the public sector and other stakeholders in society. The goal is for the strategy to play a leading international role in offering solutions to major challenges such as long-term environmental sustainability, sustainable energy supply, ageing population, and effective integration.

- **An attractive international location and innovative environment**

Skåne is an international location with a global stream of people, skills, innovations, goods and services. This stream cannot be controlled, but it can be attracted. The strategy is therefore designed to strengthen Skåne's international attractiveness.

Skåne needs to attract workers to the industrial and public sector, move more students into higher education and attract researchers.

In order to attract international workers and companies, the environment needs to be improved (e.g., living, housing and working conditions). Skåne needs to create a stimulating, open, cultural, tolerant and diverse environment.

- **A strong culture of innovation**

A strong culture of innovation is a prerequisite for Skåne to be perceived as an attractive international location and innovative environment. Major investments need to be made to develop and reinforce the region's culture of innovation. These investments should strengthen and develop the existing culture while

supporting the development of new cultures, such as social innovations and social entrepreneurship.

A culture of innovation is built by fostering an innovative attitude that recognises and develops the capacity for innovation in every person in Skåne.

- **Capability**

A strong capacity for innovation must stimulate and respect diversity, difference and an entrepreneurial ability to learn rather than change. Great systemic innovation will enhance international competitiveness and generate growth.

The innovation models for the region need to be based on openness, broad participation and respect for the skills and methods of different people involved. Models need to be dynamic so they can be easily adapted to changing external conditions. The ability to change direction at short notice is essential.

- **Cooperation**

In order to develop its potential and become internationally attractive, Skåne must strengthen its regional, national and international cooperation, which must be based on trust and openness.

New global needs related to major markets in personal health, sustainable cities and ageing population require cross-fertilisation between different sectors or scientific disciplines as needs arise. Demand-driven innovation based on market and customers will be increasingly important.

The emerging development of existing cluster initiatives focusing on excellence and optimisation into knowledge-based open innovation arenas focusing on open innovation will be very important.

- **Entrepreneurship**

The lack of entrepreneurship is one of Skåne's major challenges. To address this, Skåne must:

- Stimulate entrepreneurship in all ages, from pre-school to adult education;
- Stimulate attitudes, skills and behaviour to foster entrepreneurship in students to create the basis of entrepreneurial attitudes and develop curiosity, creativity and initiative;
- Prepare students for the challenges they will face in today's society.

- **Research**

Skåne is faced with the lack of public research institutes (knowledge centres or universities) in the region. For this reason, the region has to develop a strategy based on attracting research institutes to increase access to knowledge needed by the private sector, especially SMEs, in order to facilitate private and public research cooperation.

- **Skills and training**

The focus here is on linking industry, training and research. Strategic efforts to create positive conditions for an effective regional labour market and sustainable

long-term supply of skills are vital priorities. Potential manpower shortages in certain areas need to be anticipated, as has occurred in certain regions of Denmark.

- **Finance**

There should be financial instruments to support the whole supply chain, from the early phases to the later growth stages of product development. Skåne needs to develop new financial instruments to support the later development stages, and improve existing instruments that are focused on the initial stages.

These new financial instruments should be sufficiently flexible to adapt to the actual needs of various companies and industries located in Skåne (life sciences, manufacturing and services, social and cultural activities).

### **Lines of Action/Action Plan**

The aim is to develop unique capabilities within a number of innovation areas, largely driven by the challenges of global markets.

The aim is to support skills development in those areas of innovation where Skåne has the greatest potential to stimulate real innovation.

Skåne's greatest potential can be found in the open global innovation areas of personal health and smart, sustainable cities/regions.

The development of open knowledge-based innovation areas in fields such as materials, science, food, media, mobile telecommunications, tourism, logistics, packaging, clean tech, city training and life sciences will provide tools for creating future innovations.

The development of new innovation areas will be stimulated by efforts to participate in international networks and future studies.

### **Strategies to Strengthen Skåne's Innovation Capacity**

Six overall strategies have been identified to strengthen Skåne's innovation capacity. The strategies are not listed in any particular order, but are dependent on each other to be fully effective.

- **Develop systemic leadership** based on the joint development work of the Skåne Research and Innovation Council (FIRS) and the Sounding Board for Innovation in Skåne (SIS), and a cooperative forum for innovativeness in Skåne.
- **Broaden the sense of what innovation is – include more people:** Skåne wants to promote a shared pattern of development, for this it needs to engage many parties and resources that can contribute and promote growth, working with new methods and new views of innovation, such as social innovation.
- **Streamlining the support structure for innovation:** in order to support entrepreneurs, Skåne wants to develop a strategy that supports innovation in an open, visible and supportive way.

- **Developing new innovative areas and creative environments:** there is great potential for synergy between regional strengths, various industries and areas of knowledge. There is a need for development of innovation systems that involve the work of policy-makers, universities, and customers related to new growth areas. There is a need to coordinate efforts in order to create a favourable environment for innovation based on the needs that can attract and strengthen the creative capital of Skåne.
- **Developing international cooperation:** in order to generate growth in the globalised market, Skåne needs to strengthen its international competitiveness. To achieve that, Skåne should gain access to international expertise by means of developing strategic alliances and strengthening international links to motivate collaboration with other regions.
- **Strengthening innovation capacity in existing industry and public-sector activities:** in order to strengthen the innovation capacity of existing industry and respond to new demands and stimulate new combinations of existing knowledge and skills, Swedish traditional industries (pharmaceuticals or ICT) should develop new models for cooperation between industry and the knowledge-academic world. Strong relationships and new methods that focus on strengthening cooperation between large and small companies are important and play a crucial role. The public sector has a major role to play in creating the conditions for innovation. An initiative to enhance the capabilities and improve skills in sales and marketing, particularly in SMEs, should be implemented.

### **Implementation/Action Plan**

The implementation of the Action Plan should take into consideration the coordination of various players, where the challenge, the problem and the innovation process are collectively owned. Innovativeness is therefore created when different players cooperate and make collective decisions by way of interaction in networks or more fixed constellations.

### **Five sectors of the Skåne economy**

#### **FOOD INDUSTRY**

Skåne enjoys a strong national position in food industry, in terms of primary production (cultivation, animal husbandry and fishing), food processing and directly supporting activities (wholesale and commission trade in foods); the industry employs about 25,000 people. The natural conditions, such as good access to fertile agricultural land and a climate that is well suited to cultivation have made the food sector one of the main contributors to economic growth in Skåne.

The food industry has suffered strong pressure to change, because of the technological transformation of the sector and the increase in price competition. However, the food sector in Skåne is perhaps the sector that is covered by the most highly evolved initiatives for the promotion of innovation and regional transformation.

There is specialisation in Skåne within many fields, such as the potato processing industry, manufacturing of food machinery, cultivation of horticultural products and processed meat businesses.

The presence of different actors from different stages of the value chain is seen as a regional strength; however in the case of the food sector, there is a relatively low degree of knowledge relatedness throughout the whole value chain. Global competition strengthens the need for cooperation between universities and between companies, in particular, for companies of relatively smaller scale. Innovation and knowledge transfer are seen as two aspects in the innovation process that should be stimulated directly to cover and specialise in the different stages of the value chain.

Some of the companies are part of inter-organisational cooperation ventures that, in many cases, include partners from knowledge centres or academia (knowledge infrastructures), or that participate actively in regional network organisation (support infrastructures) in the field of food.

Industries related to the food industry can be the packaging industry (with successful histories like TetraPak) and wholesale and commission trade in food and the manufacture of pesticides, feeds and agricultural equipment and machinery for food production.

Skåne has several food-related organisations:

- Öresund Food Network: trans-national focus.
- Skåne Food Innovation Network: acting a network organisation that facilitates access to skills for companies in the region by attracting undergraduates to the sector, serving as a meeting point for different actors within the industry, and organising seminars and activities. It runs a 10-years development project funded by a consortium of state actors (VINNOVA, Region Skåne, Lund University and food companies in Skåne).
- Ideon Agro Food: academia and businesses cooperation focus.

Some of the **problems** that the Skåne food industry presents are fragmentation, a lack of key resources and negative lock-in effects.

In order to reduce **fragmentation**, the focus has centred on creating sustainable competitive advantage in a deregulated market. There is a common understanding that highly-processed and value-added products as well as niche products are crucial to maintain competitiveness. Networks, companies, researchers and public actors participate in joint activities that are ultimately intended to reduce fragmentation and increase the trust in the region's food industry.

Some activities that they carry out:

- Organisation of seminars on international consumer trends (influence on the direction of search and market formation);

- Lectures and discussions on current industry issues such as private labels and corporate social responsibility (knowledge creation and knowledge diffusion);
- Specific innovation projects for start-ups (stimulation of entrepreneurship).

In order to improve the availability of **key resources** like access to human capital, the strategies of Skåne have focused on the ability to attract new graduates from the region's universities and colleges to the food sector. The initiative aims at raising the sector's status and changing the perception of the food sector.

There are different **negative lock-in effects**, related to the focus on certain technologies or markets that are dominant in the region, leaving out others with major potential (**technological lock-in** or **market focus**). The Skåne strategy includes support activities aimed at knowledge creation, knowledge diffusion and stimulation of entrepreneurship. Substantial resources are being invested in research in food technology, packaging technology, consumer behaviour, internationalisation and innovation. These investments are mainly aimed at building up and diffusing knowledge, as well as mobilising resources in the form of highly skilled individuals. The last activity is "foresight work" that seeks to identify scenarios for future developments with the aim to counteract lock-in effects in the food sector.

## **LIFE SCIENCE**

The development of Skåne's life science sector has been successfully accomplished in recent years. The sector is composed of a heterogeneous group of firms that vary in size and span different activities, including pharmaceuticals, medical equipment, medical biotechnology and medical R&D. The sector employs approximately 7,000 people. It suffered a restructuring in the 1990s, from large firms dominating the sector (Astra or Pharmacia) to a diverse group of companies including research-intensive biotech firms and mixed private-public ventures with university hospitals. The sector is closely connected with the history of the region, which is associated with the research and educational activities undertaken by universities, university hospitals and the research centres located in the region, including the Biomedical Centre at Lund University and the Clinical Research Centre in Malmö. In less than 20 years, the region has managed to establish itself as one of the top European areas for modern biotechnology.

Characteristics of the sector:

- In a Swedish context, Skåne is ranked as third largest in life science after Stockholm.
- The sector offers substantial specialisation in the core industries and several related industries in the field of chemistry.
- Skåne life science exhibits inadequate access to venture capital.
- It has strong dependence on high skilled human capital.
- It is focused on global markets with many actors belonging to international networks.

Problems of the life science sectors:

- There is a clear fragmentation of the market.
- There is a lack of key resources, in particular, the venture and risk capital related to activities of product development.
- There is a relatively weak presence of specialised business services in the region.

The initiative developed in the region to give strength to the business climate and increase competition has been based on willingness to exploit opportunities, such as stimulating cross-border cooperation between universities and companies. The main goal of the initiative, mainly developed by Medicon Valley Alliance, is to make the Öresund region one of the world's top five life-science regions in research and commercialisation. To achieve that, one of the main activities is connected with international branding and positioning on the region. The network support initiatives undertaken with the framework of the Medicon Valley Alliance is aimed at stimulating knowledge creation and diffusion, influencing the direction of research and, to some extent, business creation and entrepreneurship by helping entrepreneurs get in touch with appropriate support facilities. In order to stimulate international recognition of the sector, several representatives of the institution stimulate exchanges with organisations in other parts of the world. Finally, lobbying activities to attract risk capital are being developed in the region.

## **ICT**

The ICT sector in Skåne is characterised by a cluster structure, employing about 17,000 workers, and with clear core activities in the manufacture of electronics and ICT equipment, computer consultancy activities and computer services, and telecommunications. In Skåne the development of the multinational Ericsson has influenced the generation and growth of the national and regional ICT sector. The sector is composed of large companies including Ericsson, Sony-Ericsson and Axis Communications situated in the Ideon Science Park and more than 50 SMEs. In particular, the location of Sony-Ericsson and ST-Ericsson contributed to the development of the ICT sector, centred mainly on technical development and research. Other institutions related with the ICT sector are Lund Institute of Technology and Blekinge Institute of Technology that help to provide specialised, highly-skilled workers.

There are two regional innovation system support structures that are focused on ICT: Öresund IT and Mobile Heights. Öresund IT facilitates contacts and relationships between the ICT sector actors on different sides of the Öresund, and supports innovation and development projects across the entire Öresund region. Mobile Heights directly involves actors from all of the innovation system's three parts (the regional economy, the authorities and academia). VINNOVA was also involved in the start-up phase and acted as co-financier. In the start-up phase, the organisation was coordinated by Region Skåne's unit for business development. In 2009, a non-profit association and

a non-profit limited company were formed and will eventually take over the responsibility of coordinating the project.

Regarding the knowledge networks in ICT, there are strong links between ICT industries themselves. In fact one industry, radio transmitters and line telephony, takes the lion's share of the strong links to the advanced services sectors. The industry acts as an important "knowledge hub", and the industry has strong links between the primary production industry's ICT branches dominate and service-focused industries.

Despite financial turmoil and competition from other parts of the world, especially the fast-growing economies in Asia and parts of Eastern Europe, the sector in Skåne is progressing strongly in terms of both employment and value added. During the 2000s, however, some problems also arose in respect of research. In 2006, Ericsson Mobile Platforms was unsuccessful in their grant applications. The design of research and education was affected as well as attraction of students to the region, in particular to many civil engineering courses. The establishment of some research centres, where Mobile Heights, Ericsson and LTH are involved, were extremely important for dealing with the lack of human and research resources and solving the challenge in bridging the gap between the manufacturing and service-oriented parts of the ICT industries in the region.

System Design on Silicon (SOS)	Hardware focus, especially research related to silicon design.
Embedded Applications Software Engineering (EASE)	Research on applications design for software for embedded systems
Planned	Mobile services

Skåne's main strengths in the ICT sector are in technical development and research, which means that specialisation is limited to a relatively small portion of the value chain. A highly specialised focus on certain parts of the ICT sector is essential for regional development initiatives to be able to achieve their objectives of stimulating innovation, knowledge creation and economic renewal.

## **MOVING MEDIA**

The growth of the sector of moving media or cross media has been particularly strong during the 2000s. Many of the companies in moving media are small and have in one way or another contributed to or benefited from Malmö University College's profile, in particular within the design and animation areas. The production structure, as well as the knowledge infrastructure and the support structure of the sector are located in Malmö's Western Harbour (Västra Hamnen). Malmö University College is Malmö incubator (MINC), which to some extent accommodates companies that are active in the field of animation, design and computer games.

Development initiatives have been done by Moving Media Southern Sweden (MMSS), which involves various actors such as the Blekinge region, the City of Malmö and

Scandvision, which is one of the larger companies in the sector. MMSS is intended to represent a group of regional organisations within animation for digital media. By explicitly focusing on innovation rather than ordinary resource support, MMSS represents an important supplement to more traditional film and television support, which is also considered to be important in the future for maintaining the region's strong position in the sector. According to the project description, the activities are divided into seven areas:

- Cluster strategy and cluster management
- Business development
- Research and development
- Training and recruitment
- Marketing and communications
- Cluster expansion
- Creative nodes

Moving media demonstrates strong networks for publication of sound recordings, reproduction of video recordings, software publishing, software consultancies, advertising agencies, film production companies, film distribution companies and television companies, with certain exceptions, can be classified as “creative” industries. They are also related to companies from industries like film, television and publishing because they overlap skill bases. It is very difficult to obtain interpretable relatedness-partners between these types of industries, mainly due to the fact that the activities that belong to moving media are spread over a wide range of traditional and functionally more extensive fields.

The regional innovation system is more focused on supply-driven technological development (such as support for research and collaboration between industry and academia), and this sector is highly focused on demand-driven and user-centred innovation. Basic research in engineering and science still plays an important role in the innovation capacity of businesses. Additionally, problems related with the absence of key resources like access to venture capital or marketing skills are also present.

The industry shows no strong relative specialisation patterns in the region. The core activities of moving media represent parts of larger industries with a very wide range of knowledge bases. It is conceivable that these require various sector-specific initiatives with a more refined focus on the sector in question, rather than cross-sectoral thematic areas of focus. However, different types of initiatives can complement each other.

## **CLEANTECH**

The cleantech industry is a heterogeneous group of activities that are part of sectors related to environmental and sustainable technologies (water and wastewater technology, waste technology/recycling, air treatment, water treatment and renewable energy). Others are related to environmental solutions in other sectors such as construction or urban development. Cleantech also offer the potential for future

development connected with the stronger industries in Skåne like food, transport or logistic.

Within Cleantech in Skåne, two actors in the regional innovation system support structure predominate at a more cross-sectoral level. Sustainable Business Hub (SBH) and Sweden Cleantech Incubators (SCI) develop activities to support synergies with other organisations in the region and strength their competitiveness.

Cleantech industries present problems of fragmentation and lower scale due to the heterogeneity of their composition. Moreover, aspects related to the absence of key resources like marketing skills or human skills are present as well a problem due to the spread of these activities in different sectors.

The core activities within Cleantech represent parts of larger industries with widely varying skills bases. It is conceivable that these require various sector-specific initiatives with a more refine focus on the sector in question, rather than cross-sectoral thematic focal areas.

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## **CASE STUDY 5 - InnoBB: Cluster Framework Policy “Future Fields” Berlin - Brandenburg**

### **LOCATION**

- REGION/CITY:
  - o Name: Berlin (I) Brandenburg (II) – Capital region Berlin-Brandenburg
  - o OECD classification Innovation regions: (I) Knowledge intensive city/capital district, (II) Structural inertia/(de)industrialising region
- COUNTRY: GERMANY

### **Characteristics of the region (mainly Berlin)**

- GDP per capita in PPP (Berlin): 20,088.1 in 2006 compared to 20,832.7 in 2000.
- R&D expenditures (GERD) over GDP (Berlin): 3.64% in 2006
- Increase in public expenditures in higher education (Berlin): 25.3% in 2007.
- Population: 6 million, 2.8 million working population  
Active population with tertiary education (Berlin): 34.2%
- Geographical area: around 30.000 Km<sup>2</sup>
- Scientific landscape: 7 universities; 21 universities of applied science; 70 research institutes; 42 technology centres

### **Background of the region of Berlin (Knowledge intensive region)**

In the last decade Berlin has experienced a decrease in growth. On the main causes of this deceleration can be found in its high unemployment rate. It started at 14.4% in the year 2000, rose to 19.2 in 2005, and was 16.3% in 2007.

While its industrial basis is weak, Berlin's science and research basis is strong. Its scores in R&D were above the German average at 3.64% in 2006.

Even if the rate is above Lisbon's target, the region does not accomplish 2/3 of the rate on business R&D expenditures. Berlin's R&D expenditures mainly originate from public funds and it does not match the industrial sector. In fact, business expenditure on R&D showed a steadily decline since it peaked in 2001 and was substituted for by public expenditure. Berlin has experienced an increase in their public expenditure in higher education during the last decade, with an increase from 20.4% in 2000 to 25.3% in 2007. The high proportion of economically active persons with tertiary education is very characteristic and centred mainly in the public sector.

Berlin experienced a decline in industrial employment representing only 7.74% of the active labour force in 2007. In comparison, the share of those employed in knowledge-intensive services in Berlin steadily grew from 42.57% in the year 2000 to 50.34% in 2007. The business service sector has been a stable driver of economic performance since 2000. It accounts for a large proportion of economic growth and will remain to do so in the foreseeable future. Berlin has been successful in attracting larger enterprises to establish units that lead to the creation of jobs. Also, a large number of smaller local enterprises added to the development of the sector, even though job effects may be less pronounced.

## **OBJECTIVE**

Main objective (in line with Europe 2020 – sustainable, smart, inclusive growth):

The main focus of the innovation policy mix in the region is to develop identified (pre) clusters and to improve private sector research and development through knowledge transfer and industry-science collaboration.

Cluster development strategy InnoBB aims to develop the future fields of excellence into clusters. They should be part of a growth and competition-oriented strategy and be embedded in a broader context of regional value creation. The cluster strategy is focused on the potential advantage that the parties involved will receive.

Conditions for clusters:

- Critical mass of innovative companies and scientific institutes in spatial proximity and collaborating with each other
- Affinity through value-added chains and application of identical or similar technologies
- Perspectives for dynamic growth (above-average), e.g. provided by innovative strengths, particular unique selling propositions and competitive advantages
- Strategic orientation towards international growth markets

Benefits for participants:

- Opportunities for system partnerships along value-added chains
- More efficient use of resources, especially for SMEs
- Improved conditions for penetration of international markets
- New quality of collaborative projects at the regional, national and international level
- Intensified networking and improved project development through professional cluster management

Cluster management tasks:

- Development of a growth path and profile of the cluster, exchange between clusters, regular meetings
- Knowledge and technology transfer: establishing a closer connection between industry and science while making use of the density of research facilities
- Internationalisation: all activities take their orientation from international growth markets and technological developments; strategic partnerships with partners from Europe and beyond, cooperation within European projects; Dialogue Forum since 2007 in Brussels for contact with the European side, interaction with colleagues working with external economic affairs/ presentations at fairs, etc.
- Enhanced joint marketing foreseen, joint attendance at trade fairs, online portals, public relations, clusters themselves have own marketing campaigns for their cluster partners.

**The way ahead – promotion of Smart Specialisation**

- Establish and further develop the clusters
- Develop and regularly update the master plans for the clusters – *strategic guidance*
- Improve the international networking and interaction
- Make better use of cross-linked technologies *enabler for innovation*
- Promote technology transfer from the scientific capabilities to companies “open minded to innovation”
- Safeguard of specialists/skilled labour in the region
- Cross check with priorities of the Europe 2020 strategy and especially the objectives of the Innovation Union.
- Sub-objective: Biodiversity, Energy, Transport, Eco-corridors, etc.
- Cluster creation in biotech/medical; energy; ICT and media (creative economy); optical technologies and transport system technologies.

#### **SUMMARY**

- Year of establishment: the Joint Innovation Strategy was adopted on 21 June 2011 by the Berlin Senate and the Brandenburg Cabinet
- Development period: 2011

#### **FUNDING**

To promote and sustain the creation and growth of innovative enterprises, two Venture Capital Funds have been set up with co-funding from the ERDF. “VC Fund Technology,” with a financial volume of €52m, provides equity for technology-oriented start-ups and seed companies, “VC Fund Creative Industries”, with a financial volume of €30m, provides the same for enterprises from the field of media, ICT and other creative areas. The VC Funds will only provide equity if other (private) venture capitalists or enterprises provide equity of at least the same value.

The “Technology Coaching Centre”, also co-funded by the ERDF, provides coaching, consultancy and training to enterprises and complements the other measures to support innovative enterprises.

In the funding period 2007-2013 Berlin receives €875m direct ERDF funding and €335m ESF funding (not including ERDF and ESF input into Federal Programmes available in Berlin).

According to internal statistics 89% of all funding in the last quarter of 2010 went into the Fields of Competence/Future Fields. In that respect, Berlin’s innovation policy complements measures from other levels. As funding from the Federal level or from FP7 is competitive as well, only applicants with convincing and promising projects are supported.

ERDF 2007-2010 (in millions of Euros)

From 2007 to 2010 about 3,000 projects have been financed by ERDF

BRANDERBURG received a total of 1,498,732,588€ around 44% (659 million €) went into Research and Development and 255 million € to infrastructure.

BERLIN received a total of 875,589,810€ and 33% were to Research and Development (285€million).

### **LEVEL OF GOVERNANCE**

Multi-level governance:

Berlin as a city-state has a larger degree of institutional autonomy than most German regions. Like all German Länder, Berlin possesses a high degree of legal and budgetary autonomy vis-à-vis the German Federal Government. The state of Berlin is free to make the decisions to design and implement regional innovation policies. The involvement or consent of the federal government is usually not needed. Nevertheless some innovation support measures are under the shared responsibility and funding of the Federal and the state Governments. The Federal Government also runs independent innovation support measures.

Education policy, including higher education and universities, are also under the authority of the state government, not the federal government.

Berlin's mechanisms for co-ordination and implementation of innovation policy have evolved organically from a major reorganisation in 2005, when the "Coherent Innovation Strategy" was adopted. It consists of a cluster development approach on three levels: identification of potent clusters on the regional policy level; clusters (or Fields of Competence) should be managed actively; and identification of the level of individual institutions.

#### **Co-ordination with the Federal Government and inter-regional coordination:**

Multi-level coordination between the state government and the federal government regarding regional innovation measures is limited. On a more general level, all states together collaborate with the Federal government on some innovation and economic support measures.

### **OUTCOMES**

Expected:

#### **Implementation of the Cluster strategy:**

- Life science cluster Implemented in July 2010
- Energy technologies cluster implemented in January 2011
- Transport, mobility and logistics cluster implemented in May 2011
- ICT/ New media cluster implemented in June 2011
- Optical technologies micro systems cluster currently in preparation

#### **Benefits for participants:**

- Opportunities for system partnerships along value-added chains
- More efficient use of resources, especially for SMEs
- Improved conditions for penetration of international markets
- New quality of collaborative projects on regional, national and international level

- Intensified networking and improved project development through professional cluster management

Possible future orientation (from the RIM report):

R&D should be oriented even more towards product and service development. Such products should answer to current market needs and societal challenges. New products with inputs from more than Future Field/Field of Competence hold potential, as is the case for the development of applications for e-mobility, such as batteries to recharge electric cars. This applies also to the identification of Technology platforms that hold significance for more than one Future Field. These should be developed strategically to create synergies. With a lack of local industrial actors, strengthening collaborations with actors outside the region may also provide opportunities for innovation. A comprehensive framework for the use of intelligence tools for innovation support should be devised together with regional stakeholders to replace the current ad-hoc approach.

## **Major innovation challenges and policy responses for Berlin region**

### **1. Increased share of private sector R&D**

Berlin's R&D investments rely heavily on public funding, which accounts for a greater proportion of GERD than in other regions. This is caused by a dearth of large technology-oriented enterprises and the relative absence of R&D departments of such companies in the city. Employment opportunities for technology-oriented graduates are limited outside the public sector in the region. The challenge is centred in matching this high investment in R&D with market and product driven sector R&D. The region is faced with the challenges of substantially increasing private sector R&D, especially in the (pre)clusters identified as Fields of Competence.

### **2. Make new technology-oriented businesses grow**

Berlin's fields of competence, such as life science and health, remain acceptable and clearly ahead as compared to other German regions; however they remain small and present growth difficulties. Berlin should increase the potential of this entrepreneurial spirit.

The regional Government should identify spinoffs and start-ups that possess high potential for economic success and growth and support them.

### **3. Build a seamless environment to support innovation**

Berlin's economic dependency is interconnected with the state of Brandenburg. Collaboration with the R&D actors, pre-cluster and fields of competence is spreading across both states but in most cases tends to accumulate in Berlin and at the adjacent areas in Brandenburg.

Different administrations and sets of regulation in the two states have made cross-border collaboration difficult in the past. Innovation strategies were not

well aligned. Both states have now made a commitment to establish a seamless innovation support environment that should allow for a shared framework and orientation for innovation support policies and cross-border collaboration.

### **History of the innovation strategy in Berlin**

The innovation strategy of Berlin has evolved around the strengthening of “Fields of competence” and “Future Fields” together with Brandenburg. These fields present strength in regional publicly funded R&D and industrial activity. Innovation support measures concentrate on strengthening private sector R&D and knowledge transfer, especially for SMEs.

The large publicly funded R&D sector produces very respectable scientific outputs and in some areas is at the forefront of innovation (health technologies, biotech, etc.). However, economic performance in the region lags behind because scientific output cannot be turned into successful products and services locally due to the lack of industrial actors. Profits from innovations developed in Berlin may even drain and accumulate at the site of company headquarters or production facilities in locations other than Berlin.

This has been done especially for SMEs, due to the fact that major investments in infrastructures and public support measures have sparked a large number of start-ups in Berlin, in many cases in the service industries. Start-ups in technological areas frequently occur as university spin-offs. However, these young enterprises do not grow as fast and as large as they do elsewhere, mitigating the effect for economic development and employment. In line with this Berlin has the highest rate of self-employed persons with 14.3% in 2009 compared to 10.9 for Germany, according to German data.

Both Länder started their innovation strategy separately in the late nineties.

In 2005, Berlin adopted the “Coherent Innovation Strategy”: The RITTS Regional Innovation and Technology Transfer Strategies (FRP) study launched the process in the nineties. The parliament commission recommended the adoption of a cluster development approach on three levels: the identification of potent clusters on the regional policy level, active management of the clusters; and, the level of the individual institutions. The state government followed these recommendations in general. In this strategy intermediaries played a very important role. While the distribution of responsibilities accounts for high knowledge and specialisation especially with the intermediaries involved, it can also be criticised for a lack of transparency and inefficiencies in collaboration with different institutions.

With the adoption of the “Coherent Innovation Strategy” in 2005, Berlin’s innovation policy focused on only five “Fields of Competence” or pre-clusters:

- Biotechnology
- Medical devices

- ICT/Media (including all Creative Industries)
- Transportation technology
- Optical Technologies and Microsystems Technology

In 2006, Brandenburg (LIK) elaborated a regional concept, a strategy that was subdivided into small action fields (Handlungsfelder).

When Berlin and Brandenburg started the joint process, they looked at different topics.

In 2007, it was a decision at the top level to combine forces, and five future Fields of Excellence were identified: Biotechnologies and Medical technologies and pharmacy; Energy technologies; ICT and new Media; Optical technologies; Transport system technologies.

In 2008, 9 pilot projects were identified.

In 2009, at the Innovation Summit 2009, there was a formal decision to develop a common innovation strategy. “Cross-border” commitments for joint financing of RTD as well as for technology transfer.

In 2010, in Berlin, the Transfer Alliance was established to intensify technology transfer and strengthen regional competitiveness by bringing enterprises and research institutions close together. It consists of a number of organisations that represent enterprises of different sizes and from different sectors, the chamber of commerce, universities, non-university research institutions, the Technology Foundation Berlin and the German Institute for Standardisation as well as the state government.

In 2010, the cluster strategy was developed, not limiting the scope to Berlin, but including the neighbouring state of Brandenburg. It is focused on further developing those pre-clusters into clusters that have been identified as “Fields of Competence” in both states, now termed “Future Fields”. This new joint strategy is the result of growing economic collaboration between the two states over the last ten years, which reflects close economic interconnectedness.

The current innovation strategy focuses on the following pre-clusters or “Future Fields”:

- Health Economy (integrating Berlin’s competence fields biotechnology and Medical devices)
- Energy
- Transportation, Mobility and Logistics
- ICT/Media (including Creative Economies and Services)
- Optics

For Future Fields, a cluster management has been installed. It is entrusted with a range of activities to support research and technology and the growth of innovative enterprises through cluster development. These activities range from network building activities and support to access funding to the initiation of projects and strategic intelligence. For

all cluster managements together and cluster projects not funded through other avenues, a budget of €2m annually is available, funded from the state, IBB (Investment Bank Berlin) and EFRE.

In 2011 the continuation of the *smart specialisation* strategy is being pursued.

Development and execution of innovation policy as well as administration of innovation support measures will be coordinated between the two states, creating a “seamless” innovation environment for enterprises as well R&T organisation in Germany’s capital region.

It includes amalgamated cluster managers and administrative arrangements that should simplify procedures for enterprises or collaborations with locations in both states. They also allow for enterprises to take innovation support measures cross-border, at least to some extent.

Room for improvement with respect to smart specialisation in the region exists in two regards. Firstly, development and exploitation of synergies between two or more Fields of Competence/ Future Fields could be strengthened (Energy and Transportation; ICT and Optical Technologies). Secondly, technologies from these arenas may become general-purpose technologies with huge economic potential. Networking with other regions nationally and internationally could be increased to support the identification and spread of such potential.

A joint management plan and management structure for the Future Field “Health economy” has already been set up as the longest established (pre-) cluster in 2012. The same is nearly completed for the “Energy” field.

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## CASE STUDY 6 - *Accelerate* and PARD in West Midlands

<b>LOCATION</b> <ul style="list-style-type: none"><li>- REGION/CITY: West Midlands<ul style="list-style-type: none"><li>o Name: Advantage West Midlands</li><li>o OECD classification Innovation regions: medium tech manufacturing and service providers</li></ul></li><li>- COUNTRY: United Kingdom</li></ul>
<b>OBJECTIVE</b> <p>Technological and skills diversification; innovation, supply-chain upgrading, automotive sector.</p>
<b>SUMMARY</b> <ul style="list-style-type: none"><li>- Year of establishment: 1996</li><li>- Development period: 1996-2010</li></ul>
<b>FUNDING</b> <ul style="list-style-type: none"><li>- ERDF, ESF or any EU action: ERDF</li><li>- National support: UK government</li><li>- Regional support: Regional Development Agency</li><li>- Local support: private sector</li></ul>
<b>BUDGET</b> <ul style="list-style-type: none"><li>- Initial budget: Original 1996 funding £12 million from ERDF Objective 2 which was used to leverage additional funding</li><li>- Three waves of ERDF funding, culminating in the third tranche 2002-2008 of funding amounting to £12.</li></ul> <p>Extended funding in allied supply-chain development programme: PARD and PARDX programme: £33.4 million AWM funding and £28 million matched funding from the private sector; AWM West Midlands Task Force funding 2009: £9 million of which £4 million came from ERDF.</p>
<b>OUTCOMES</b> <p>Expected: Increased local job retention; movement away from traditional automotive supplies; new product and service innovations; technological and skills upgrades.</p> <p>Achieved: <i>Accelerate</i> Programme 2002-2008:</p> <ul style="list-style-type: none"><li>- 4594 business assists, exceeding the ERDF action plan target by 400 and a 110% of target rate.</li><li>- 2116 new jobs created, 1251 short of the ERDF action plan target, but 14,916 jobs safeguarded, some 256% of the ERDF action plan target of 5822.</li><li>- £367million in new sales generated, against an ERDF Action Plan target of £425million, while £368million of sales was safeguarded, against a target of £270million, an achievement rate of 136%.</li><li>- Overall, 17,000 jobs have been created or safeguarded by <i>Accelerate</i>, 185% of the ERDF Action Plan target of 9200 jobs. £735million of sales were generated</li></ul>

Taken together, all of the technological diversification programmes run by Advantage West Midlands are expected to have contributed a very large share of the regional jobs saved between 2000 and 2010 (Bentley et al. 2009; Bailey and Kobayashi 2009).

*PARD programme 2003-2008: Measurable Outcomes*

66 new jobs created

2080 job safeguarded

£17.6 million in new R&D investment secured

Net additional regional value-added in the automotive sector: £51 million

Net regional gross value added: £114.9 million

Number of new products: 263

*PARD Programme 2003-2008: ‘Softer’ Outcomes and Strategic Value-Added (Survey and interview-based findings)*

Building of supply-chain relationships

Systematic evaluation of the programme

Fostering of university-industry collaborations

*West Midland Taskforce 2008-2010*

2930 jobs safeguarded in the automotive industry

410 new jobs created in the automotive industry

£53 million in sales safeguarded in the automotive industry

£36 million in new sales in the automotive industry

500 graduate internships brokered and 414 graduates matched to an employer’s brief

250 graduate internships taken up by February 2010

2500 jobs secured in 79 firms by emergency bridging loans, of which 68% of the funding is taken up by non-auto sector firms.

## **History**

The West Midlands Innovation Strategy project commenced in 1996, and aimed at fostering innovation by enabling stronger cooperative links between the private and public sectors, and also between different parts of the private sector. After a detailed audit of regional capabilities the strategy prioritised: (1) the establishment of a team of network brokers that, building on existing sector-based networks, aimed at catalysing new ones, and (2) the establishment of three technology centres bridging the gap between science and industry and to serve the requirements of three to four sectoral-based networks. A sector-led system of designing and vetting business plans and loan applications was established to close the gap between validation of technology and market assessment.

A major focal point of the regional innovation strategy was the automotive industry, which was a dominant sector in the region, with the West Midlands being the UK centre of automotive engineering. In terms of the automotive sector, the strategy focused on

innovation and technological diversification of the West Midland region, and as such was very much a precursor and early advocate of Smart Specialisation thinking. The strategy was led by the regional development agency Advantage West Midlands (AWM), and was developed on the basis of three main pillars of 'soft' infrastructure provision:

- Enhanced business support services including a manufacturing advisory service, grant funding for strategically important companies, and networked R&D centres of excellence.
- Skills-training services: focused on a graduate internship programme and retail support programme.
- A regional communications campaign comprising a data and intelligence gathering and provision service, and a monitoring and evaluation framework.

The strategy emphasises the importance of innovation, skills-training, and technological diversification as being critical for long term development and regional resilience. The current innovation and diversification strategy of the West Midlands builds on the experience of several phases of policy development. The modern policy framework is heavily influenced by the very successful *Accelerate* programme, which was originally set up in 1996 with an ERDF and ESF Objective 2 grant and which has since run through three phases, with the subsequent two phases also being supported by ERDF grants designed to leverage additional private and public sector funding. This was an industry-lead public-private partnership focused on the promotion of innovation networks, supply-chain upgrading, and technological and product diversification in the West Midlands automotive sector supply industry, for SMEs with less than 400 employees. The focus of the programme was on promoting, building on, and exploiting knowledge networks, in order to facilitate the technological and skills upgrading and diversification of the automotive industry supply chains, and particularly amongst the SMEs within the sector.

The knowledge, innovation, and diversification principles prioritised in the *Accelerate* programme all became core themes in the 1998 West Midlands Regional Innovation Strategy. In response to the sale of the Rover Longbridge automobile plant by BMW in 2002, which was one of the UK's largest manufacturing plants, a Rover Task Force (RTF1) was set up by central government and operated under the auspices of the regional development agency Advantage West Midlands. This focused on modernisation, diversification, and innovation of the West Midlands auto sector, and the knowledge-infrastructure support provided by the *Accelerate* programme was extended beyond the Objective 2 area and also beyond SMEs. Following the eventual collapse of the firm in 2005 a stronger Rover Task Force (RTF2) was set up to target knowledge support, financial assistance, and skills-training for supplier firms. Once again the strategy focused on diversification, innovation and modernisation to help firms turn away from dependence on a small number of customer firms and to encourage the application of engineering skills in other industries such as medical and

nanotechnologies. The experience of the highly successful *Accelerate* programme, which continued through to its third tranche of ERDF funding 2002-2008 allied with ESF support for skills training, were also applied to other local development programmes. Key lessons from the programme include the need for a long-term strategy which includes commitment from major industry and government players, as well as from a wide range of SMEs, and built-in flexibility to the programme to allow for diversity and variation.

A somewhat different but parallel technological diversification strategy within the automotive sector was operated by Advantage West Midlands known as the Premium Automotive Research and Development programme (PARAD). This initially ran from 2003-2007 with support from ERDF and was then extended until 2008. The core of the PARAD programme was the support for, and dissemination of, original research into new technologies and products, by linking industry with local universities. This was set up to complement the core programmes offered by *Accelerate*. A key lesson here was the need to differentiate and tailor such knowledge transfer processes to different sub-sectors. The knowledge absorption capabilities of many SMEs are less than those of large firms, and policies must provide for different needs and capacities.

Since the Global Financial Crisis of 2008, Regional Taskforces were set up in each of the English regions and the strategy of the expanded West Midlands Taskforce was to continue to prioritise the innovation and diversification principles of the *Accelerate* and PARAD programmes. The difference now, however, is that the *Accelerate* innovation and diversification principles are now applied to other sectors beyond the auto industry. The West Midlands Taskforce strategy is co-financed with ERDF funding. In the immediate post-crisis era, and consistent with the OECD 2009 'Barcelona' principles, the aim is to balance short-term needs of firms with the long-term objectives of innovation and diversification-driven regional development.

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## CASE STUDY 7 - From Cluster Strategy to Smart Specialisation in Päijät-Häme/Lahti

### LOCATION

- REGION/CITY:
  - o Name: Päijät-Häme (Lahti)
  - o OECD classification Innovation regions (not included): Declining industrial region (adaptation)
- COUNTRY: FINLAND

### Background information of Lahti

Population (2005): 169,386

Percentage of people over 15 yrs in polytechnics: 3.5%

Percentage of people over 15 yrs in universities: 0.1%

Degree in polytechnics or in universities, percentage of people over 15 yrs: 21.5%

R&D €million: 43.3€per resident: 255.6

R&D index (entire country = 100): 23.3

### History of the region

Päijät-Häme Region (Lahti) is the fifth largest region in Finland, but its research activities have lagged behind other regions because it was hard hit by the collapse of trade to the Soviet Union at the beginning of the 1990s. Up till then a vigorous industrial region, it soon tumbled into a declining region, troubled also by the disintegration of business life. Growth was sought by means of cluster strategy, which, however, was felt to narrow down and isolate the activities from each other too much.

The central challenge for the Lahti/Päijät-Häme region is the ability of the innovation system to connect and apply various sources of knowledge and expertise to practical work. The region does not have a university, which in part explains its low level of scientific research. The R&D input in Päijät-Häme (Lahti) Region is scarce, only about 250 euro/resident with the equivalent of 3300 euro/resident in Oulu Region.

In 2005, the GDP per capita of the Päijät-Häme region was about 89 percent of the EU average, and household disposable income was 95 percent of the average for the whole of Finland. The educational level in Päijät-Häme is below the average of the whole country, and as many as one third of the adult population is without a post-basic education level qualification, which significantly diminishes employment opportunities. The central city of Lahti has a university consortium formed by four different universities but is without a university of its own. The low level of R&D activity is one of the main reasons for the region's slow development.

As Päijät-Häme does not have its own university, the impact is clearly reflected in the lower level of education compared with the national level. On the other hand, this has provided the opportunity to create an entirely new way to implement university policy through network-like operating models which focus specifically on research transfer, a key factor in this region. Tailored university expertise focuses specifically on the needs of its own region without fragmenting the university sector, and it can be tailored precisely to the needs of current business life without requiring the entire university sector to change.

## **OBJECTIVE**

Diversity, Energy, Transport, Eco-corridors, etc.

Päijät-Häme's challenge is centred on raising the population's standard of education and increasing research and development activity in the private and public sectors in order to increase productivity and improve competitiveness.

Based on these challenges, environmental technology, design, practice-based innovation policy and, in part, wellbeing, have been defined as Päijät-Häme's top areas of expertise.

The combination of inefficiency caused by the isolating nature of the cluster strategy and low R&D input, however, eventually led to a new action model in the region that might be described as a form of Smart Specialisation.

It comprises an understanding of the wide range of innovation as well as a concentration on practice-based innovation in particular and the spearheads of expertise serving all industries and clusters, namely environment, design and practice-based innovation. This model of thought enabled the collaboration of all the strategies, plans and bodies in the region.

### **Top areas of expertise**

Three lines of expertise were selected in the Päijät-Häme region as regional top areas of expertise, which are described briefly in the following paragraphs, namely the environment, design and practice-based innovation:

#### *Environment*

The second most important environmental business centre operates in the Lahti region with a focus on sustainable, environmentally efficient solutions and recycling businesses, comprising utilisation of the energy content of waste. Major industries to utilise environmental technology include mechatronics and the housing industry. The most important university level research is conducted at University of Helsinki, Department of Environmental Sciences and Aalto University School of Engineering Lahti Centre. This expertise in the Lahti region is also supported by Tampere University of Technology and Lappeenranta University of Technology as well as Lahti University of Applied Sciences. Lahti Science and Business Park is a leading networking facilitator in clean-tech sector in Finland coordinating the National Clean-tech cluster operations.

#### *Design*

The Lahti region is one of the most important centres of design know-how in Finland, and also the most efficient region to utilise industrial design. In recent years many successful companies in the region have chosen design as a vital competitive factor. The Lahti region will profile itself in design and business – the ability to really turn design into a crucial factor enhancing companies' competitiveness. The spearhead of higher education in design is the Institute of Design at Lahti University of Applied Sciences, which is at the apex in the field in Finland and also an internationally renowned school of industrial design.

#### *Practice-based innovation*

A special user-driven model of action for R&D and innovation has been developed in the Lahti region, deriving from the needs of companies. The strength characteristics of it are that it is a fast application and commercialisation of ideas as well as an efficient

means to attract international expertise to support development. The companies in the region have successfully applied this action in their own businesses. Lappeenranta University of Technology Lahti School of Innovation hosts a research team, which is the leader in Finland in innovation environment research. The team has also participated in the practical testing and developing of the model.

#### *Collaboration between top areas of expertise*

The regional bodies of Päijät-Häme are generating a new, international high quality network of R&D and innovation, a 'meta platform' that will combine the three expertise areas with the regionally strong clusters and industries in a unique way. It will help to identify innovative business potential in border-crossing expertise areas and industries.

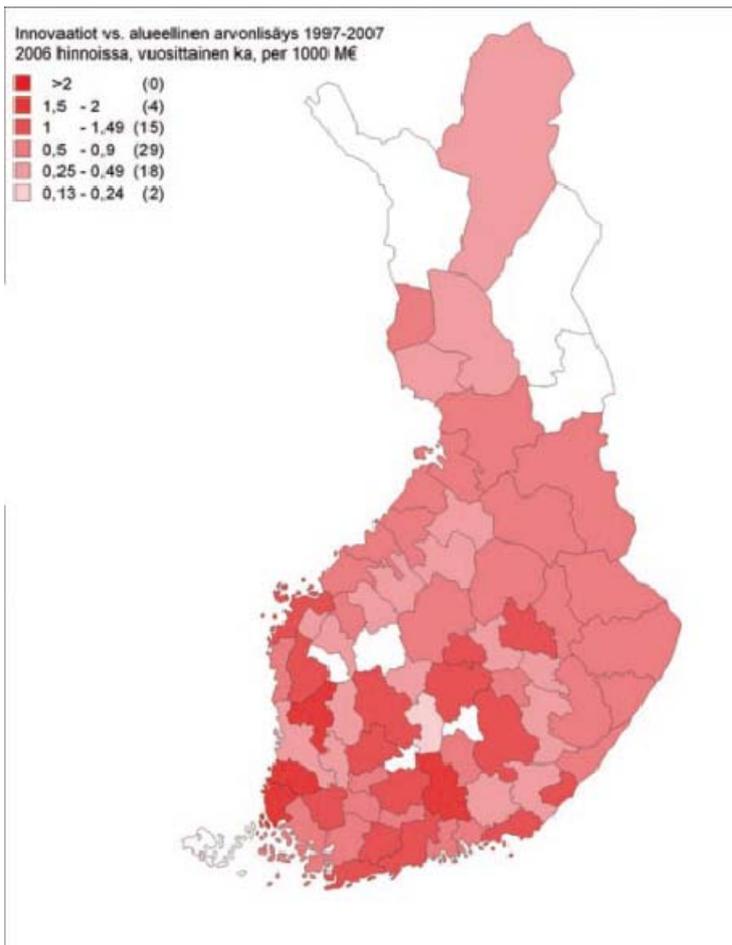
The innovation concept is based on five premises:

- Companies, research institutions, development organisations and users form a platform and collaborate around a common issue, a so-called hotspot
- The focus is on the phases of testing, piloting and prototyping
- Creative combinations crossing borders of industries and sectors will be implemented in innovation
- The actions are user-driven; the customer is a subject in the innovation process
- Environmental expertise, design and innovation expertise will form a novel combination

#### **Conclusions**

The first phase of Smart Specialisation regional strategy in Lahti consisted of the abandonment of the strategic cluster emphasis. The strategic combination of the new innovation philosophy with the top three areas of expertise led to a novel innovation environment, that could, perhaps, be renamed a preliminary phase of Smart Specialisation.

The example above indicates that even a region poor in research and development resources may show a great proportion of innovation. The figure below presents the number of innovation in Finnish regions related to their added value in 1997-2007, showing Päijät-Häme among the most innovative regions in Finland despite very low research input.



**Example of project developed in Lahti: Lahti Cleantech Cluster** (*awarded at the RegioStars 2009*)

Programme type: European Regional Development Fund, Fifth Framework Programme.

Duration of the project: 2004-07.

Funding: €3.5 million in total, of which €1.5 million in European funding.

The Cleantech Cluster encourages innovation and investment in environmental technologies, particularly: recycling; energy efficiency; water management and soil decontamination technologies. In 2004, Lahti chose to focus on developing environmental technologies and the Lahti Cleantech Cluster was launched. In 2009, Lahti boasts the leading environmental technology centre in Finland and increasingly attracts clean-tech companies.

**Objective**

The cluster aims to bridge the gap between small domestic pilot projects and rapidly growing global markets for environmental technology solutions. To succeed, environmental technology companies need strategies that will allow them to compete in

a global market. Companies must focus and develop their core businesses through new approaches and networking.

### **Funding**

Financial resources, including funding under Cohesion Policy, have been secured until at least 2013.

### **Outcomes**

The Lahti Cleantech Cluster helps companies to connect with the best expertise, both private and public, and adapt good ideas to the regional and community level, which is a real challenge considering the reduced number of knowledge workers in the region.

The Cleantech Cluster contains 120 clean-tech companies, of which around 50 are active, allowing it to stay small, focused and innovative.

The Cleantech cluster has developed strong partnerships with environmental technology clusters and science parks, Higher Education institutions, venture capital organisations, the Finnish trade organisation, and the Ministry of Employment and the Economy. Lahti Cleantech Cluster is supported by national cluster programmes and the Finnish Government.

The Lahti Science and Business Park (LSBP) has become the leading environmental technology centre in Finland. Between 2005 and 2007, some 20 clean-tech companies and organisations relocated to the region.

The business development and relocation services of LSBP have attracted investments worth more than €30 million and some 170 new jobs to the region.

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## CASE STUDY 8 - Positive energy, Regional promotion strategy in Silesia

### LOCATION

- REGION/CITY:
  - o Name: Podkarpackie, Slaskie, Silesia
  - o OECD classification Innovation regions
- COUNTRY: POLAND

### Background information of the region

The regional economy of Slaskie is one of the major industrial regions in Poland. During recent years it has caught up some of the EU most prosperous regions.

- Regional economic growth in 2007-2008 of 10% per annum
- Second richest region in Poland in GDP per capita
- 2000-2008 average GDP growth of 68%
- Growth of R&D expenditures in the manufacturing sectors was 1.7 higher than ten years ago.
- By the end of 2010, the unemployment rate was estimated at 9.9%, the third lowest among the 16 Polish regions.
- The last reports show a deficit of 14%.

### Economic structure:

- Contribution of the industry to gross value added was 33% compared to the national average of 24% in 2008
- Only 1% of the contribution of agricultural, hunting, forestry and fishing in the generation of gross value added
- Important contribution of the automotive sector and some contribution by the electro-machinery, IT, energy and food.
- 59% of services sector contribution to economic growth (growth value added per GDP) in 2008.

### Innovation investments:

- Low level of R&D intensity, total R&D investments were around €19.6m in 2009.
- Regarding the manufacturing sectors, the gross expenditures in R&D activities increased by 1.7 times during the 2000-2009 time period. 15.8% went to applied research and 68.3% to development. Less than 20% of the manufacturing industries could be considered innovative in 2008.
- Even if innovation investments have increased more than two-fold in the last 10 years, the investments primarily concern the physical infrastructure, especially buildings, machinery and equipment and much less on R&D.
- Regarding the service sector, it is important to note that services are the major contributors to regional economic growth. The investments in innovation are somewhat reduced but their contribution to the diffusion of innovation is very important.
- In 2009, the total regional innovation support policy measures budget was estimated at about €78m, which represents 36% of regional GERD. It represents a very small support budget compared with the innovation investments in the manufacturing sector estimated for the same year (€808m).

The smart specialisation strategy in Silesia is not exclusively about focusing on a single industry sector, but is primarily about fostering cross-sectoral linkages. During the last two decades the region has performed a substantial process of restructuring of the economy. Silesia is still at an early stage of development of a smart specialisation strategy. Changes in the contribution of sectors to the economy can already be seen. On the one hand, the shares of mining and steel industries have been diminishing. Although the biggest mining company in Europe is located in Silesia (Kompania Weglowa), the mining industry only represents 9% of the share of gross value added to GDP currently and 13% in terms of sold production. On the other hand, the importance of electro-machinery, IT, energy, food and automotive sector, considered the biggest automotive producer in Poland, has increased their share notably. The 2010-2020 National Strategy for regional development can be considered together with the proposal of the 2020 Strategic Plan for Technological Development to be concrete efforts recently undertaken by the national and regional authorities to reshape economic and governance structures, towards seeking better partnership between the national and the regional governance level.

### **OBJECTIVE**

Main objective (in line with Europe 2020 – sustainable, smart, inclusive growth):

It is based in a regional economic transformation from mining industries to a set of services industries without particular focus.

Sub-objective: Biodiversity, Energy, Transport, Eco-corridors, etc.

Due to the beneficial natural resources environment, the focus of the new activities is on energy and clean industries.

### **SUMMARY**

- Year of establishment: Several regional programmes in line with national programmes on economic development and innovation strategy have been developed in the region. In particular, the national government, with the help of regional government, developed some economic governmental programmes in line with the ESF programmes.
- Development period 2010-2020.

### **FUNDING**

- ERDF, ESF or any EU action Mainly EU SF  
Significant public support for innovation activities mainly supported by the EU Structural Funds interventions in the course of the last few years from €88.5m over the 2004-2006 period to €29m during the 2007-2013 financial perspective.
- National support is also important, but less than the European support for Regional innovation support
- Local support

### **LEVEL OF GOVERNANCE**

Multi-level governance:

The degree of legal autonomy of the regional authorities vis-à-vis the central government is medium-high. The regional powers are important as regards the management of assets and finances on the basis of regional budgets as well as the preparation and implementation of regional development strategies. Polish regions will be responsible for the preparation and implementation of the regional innovation

strategies.

- The region does not have tax raising powers.
- The innovation policy governance, the Regional innovation strategy (RIS) had been jointly managed by the Upper Silesian Agency (GAPP) and the Marshal Office.
- A new national strategy for regional development is being created to change from top-down approaches to a more multilevel governance model. Changing the funding system, introducing competitive funding with multi-annual financial plan and territorial contracts, are the basis for the reallocation of the EU SF for the 2014-2020 programming period.

#### **BUDGET**

Annual funding earmarked for broadly defined innovation support measures is roughly about €78m – a significant financial contribution and a real opportunity for the region to deploy successful strategies enabling structural changes to take place.

In addition to this budget are funds from the national programmes (mainly supported by SF).

### **History and innovation background**

To overcome the negative image of the mining industry (perceived as a source of pollution and degradation of the environment), the region has been making great strides to brand itself as a region with “positive energy”, which became a slogan of the Regional Promotion Strategy, inspired by the experience of other mining regions like Nord-Pas-de-Calais and the Ruhr Valley. In comparison to the cases of Baden-Württemberg and North East of England, Silesia is at an early stage of developing a Smart Specialisation strategy.

Thanks to the European support to innovation, Silesia currently has four technology platforms, 27 centres of excellence, 15 clusters, and three science and technology parks out of 19 park initiatives, three technological incubators, and 13 entrepreneurship incubators. However, there are still innovation challenges that are related to identification of new areas for potential socio-economic development connected with the service sectors, which is the sector that contributes most to the Silesian economy. In these areas encouragement for major entrepreneurship and growth potential are key to increasing economic returns on the investments made in the region.

The Regional Innovation strategy (RIS) contains four main ongoing regional innovation support measures focused on (1) increasing regional investment attractiveness; (2) supporting the creation of micro-enterprises and SMEs; (3) promoting the transfer of technology and innovation; and (4) the regional innovation strategies on human capital.

During the various periods of regional innovation strategies, several coordination institutions were established at the Marshal Office to evaluate the projects. The first edition of the Innobservator Silesia project was supported in the framework of the 2004-

2006 Integrated Regional Development Programme. In 2009 the overall managing responsibilities for the continuation of the Innobservator were given to the ESF Department of the Marshal Office.

Current priorities are to a great extent influenced by EU structural funds, in particular in the area of innovation activities. The overall innovation policy mix has already considerably improved; it includes an array of measures to support the development of industrial and technological parks, business intermediary organisations, financial instruments to support entrepreneurship, internationalisation, modernisation of micro- and small and medium-size enterprises, technology transfer and the development of local and regional clusters.

One of the biggest challenges for the region was to identify complementarities between different streams of funding (EU and national) in order to achieve synergies and a high impact of public investments.

In practice, the main difficulties in establishing synergies were:

- funding available at regional level is lower than that at national level;
- designing an optimal innovation policy mix needs to avoid direct competition with the programmes implemented at the national level;
- the limited involvement of local regional actors in the design of national programmes impedes the identification of mutually reinforcing mechanisms and risks duplication of programmes;
- the need for strengthening almost all dimensions of the regional innovation system.

Silesia presents different potentialities that are crucial for helping prioritise the sectors:

- good performance of the service sector
- high population,
- high level of urbanisation, the three biggest cities are located in the region, which is an important potential factor of economic growth, given the important contribution of cities as engines of economic growth
- high level of investment attractiveness
- reduction in the lack of skilled workers
- the level of firm volatility is positive, but it contains a higher rate of exit.

Regional weaknesses:

- Barriers to the development of metropolitan areas due to the absence of legal acts on metropolitan areas, deficit of cooperation and lack of continuous and regulated funding mechanisms.
- Scarcity of human resources. Although a reduction in the deficit of skilled workers is beginning to be seen, it is accompanied by slightly increased salaries.
- High level of firm exits, in particular, from manufacturing sectors

- The regional innovation intermediaries are numerous and play an important role in the economic and innovation performance of the regions; however, there are lower horizontal coordination mechanisms between regional actors
- Lower levels of intra and inter regional cooperation lead to non-coordinated use of the resources by the regions in connection with other neighbouring regions.

### **Successful regional cases**

- The good performance of the automotive sector is characterised by the role played by the Katowice Special Economic Zone. This zone was established some 15 years ago to promote regional development, create incentives for large strategic investors, create new jobs and restructure existing manufacturing industries.
- A number of strategic investments projects have been undertaken in Silesia in the last years. The construction of New Museum, International Conference Centre and headquarters of the Polish National Symphony Orchestra are taking place.
- Joint cooperation between universities has been strengthened as well, with a joint initiative between the University of Silesia and the University of Economics in Katowice to invest in building the Centre of Scientific Information and Academic Library.
- The industry-university or research centre linkages have been strengthened. As an example, new partnerships have been established between different branches of industries and the Central Mining Institute and the Institute of Technologies EMAG.
- The Individual Project of Marshal Office in the framework of the Human Capital Operational Programme 2007-2013, which has the aim of increasing the regional economic potential through the creation of favourable climate and conditions conducive to the development of innovation and a knowledge-based economy. The partners are the University of Economics of Katowice, Academy of Art and Design, Central Mining Institute, and Silesian University of Technology.
- Silesia has taken part in projects that facilitate innovation across Central Europe, such as “Innovative value chain development for sustainable plastics in Central Europe” that aims to promote new environmentally friendly and sustainable solutions in the packaging and end-user industries in the form of biodegradable plastics.

The main innovation policy governance challenges in Silesia are:

- Ensuring that there is good coordination between different levels of governance;
- Developing cooperative relationships with other regions;
- Activating the key actors including business representatives and strengthening the team responsible for the management and implementation of the Regional Innovation Strategy (RIS);
- Continuing benchmarking exercises and making better use of available monitoring data in order to be able to better appraise the effectiveness of policies.

## The Regional Operational Programme

A recent development that is worth mentioning is the adoption of the 2010-2020 National strategy for regional development by the central government. One of the fundamental changes is the introduction of a new paradigm to regional policy.

Primarily, it implies the following:

- A shift from traditional redistribution of financial resources to a new model that should lead to strengthening and better exploitation of territorial potential.
- A shift of inter and intra-regional policy towards a consolidated policy, setting goals for all public actors in a given territory.
- A shift from a short-term model, top-down distributed subventions for the least favourable areas towards a model of long-term decentralised development policies addressed to all regions.

The focus of the Regional Operational Programme is to complement national programmes; hence the activities of the latter are concentrated on providing general support to SMEs to improve their competitive position and not necessarily their innovation capacities.

In the framework of the Operational programme innovative economy, there are several key strategic projects implemented in Silesia.

Institution	Hosting institution	Aim	Budget
Centre of Clean Coal Technologies (CCTW)	Central Mining Institute	Commercialisation of clean technologies	€48.3 m
Euro Centrum Science and Technology Park	Key scientific partners from Silesia and Warsaw and Cracow.	Contribute to the development and application of new technologies in energy renewal and efficiency	€24 m
Silesian Science and Technology Centre of Aviation Industry	Upper Silesian Agency for Enterprises Restructuring (GAPP) in cooperation with Bielsko-Biala	Strengthen the technological potential of Polish Aviation industry Light crafts, the development of composite materials and related industries: defence, construction and automotive	
Polish Agency for Enterprise Development		Support the development of entrepreneurship through the implementation of actions aimed at using innovative solutions by entrepreneurs, development of human resources, expansion of international markets and regional development.	

## On-going regional innovation support measures in Silesia

The main focus of innovation policy in Silesia is the creation and growth of innovative enterprises, with more than three-fifths of the total regional innovation budget going to the private sector. The remaining part is channelled through other parties of the regional

innovation systems, such as, science and technology parks, incubators, loans a guarantee funds, business intermediary organisations. Moreover, the investments in infrastructure such as the technology and knowledge parks or SMEs financial instruments are also part of the main budget. Finally, the financial support for human capital development in sectors that have been considered as strategic for the development of the region and the creation and development of networks between scientists are in the budget as well.

	Budget (2007-2013)
Development and modernisation of microenterprises	€32m
Development and modernisation of SMEs	€75m
Infrastructure investments, industrial and technology parks, centre for entrepreneurship development, business intermediary organisations, and SMEs financing mechanisms	€68m
Operational programme for human capital development	€3m

Title	Policy priorities	Budget allocation (2007-2013)
<b>Increasing regional investment attractiveness</b>	- Horizontal measures in support of financing - Support to technology transfer between firms	€84,351,533
<b>Micro-enterprises and SMEs</b>	- Support to sectoral innovation in manufacturing - Support to innovation in services - Direct support to innovation in services - Direct support of business R&D (grants and loans)	€350,135,751
<b>Regional innovation strategies</b>	- Innovation strategies - Stimulation of PhDs	€19,810,294
<b>Transfer of technology and innovation</b>	- Research infrastructures - Cluster framework policies - Support to technology transfer between firms	€4,729,488

Source: Technopolis (2011)

### **The Technology Development Programme for 2010-2020**

With regards to foresight and establishing priority technologies for sustainable regional development, the region published a document in December 2010 that sets out a strategic plan for the technological development of Silesia for the period 2010-2020 inspired by the experience of Nord-Pas-de-Calais and the Ruhr Valley (Karbownik, 2010).

The document draws on the analysis of various strategic documents prepared in the framework of previous foresight projects, national sectoral strategies and other regional/strategic documents.

The following technological areas were selected and included in the proposal of the Technology Development Programme for 2010-2020.

- Medical technologies (health), e.g. medical biotechnologies and medical engineering technologies.

- Technologies for the energy and mining sector, e.g. coal combustion technologies, clean coal technologies, fuel cells, renewable energy sources, carbon storage, gas processing technologies, recognition and protection of coal reserves.
- Technologies for environmental protection, e.g. biotechnologies for environmental protection, intelligent and energy efficient construction, environmental protection technologies, waste technologies, technologies for processing gasses and water, supply and purification of water, air protection technologies, technologies supporting the management of the environment.
- Information and communication technologies, e.g. telecommunication and information technologies, modelling and simulation of processes and optoelectronics.
- Production and processing of materials, e.g. metal alloys, polymer – and ceramic materials.
- Transport and transport infrastructure, e.g. integrated, intelligent transport systems, modern solutions for mobility technologies.
- Machinery, automotive, aerospace and mining sectors, e.g. industrial automation, sensors, robots, design technologies and production of machineries, mining and energy related equipment.
- Nanotechnologies and nanomaterials.

Four distinct possible development pathways are included in the justification of public funding investments in the region of Silesia:

- “Leadership through diversification” refers to technologies characterised by a high degree of relatedness with key technologies within the region and which are useful for building new technological position of the region on external markets.
- “Leadership through excellence” describes the situation in which technologies exhibit low technological relatedness with key technologies within the region, even though they have a high degree of usefulness for building new technological position of the region on external markets.
- “Activation for diversification” refers to technologies characterised by a high degree of relatedness with other technologies in the region and increasing pressure to use them in the region
- “Activation for excellence” is mainly about technologies with low levels of relatedness with other key technologies in the region and increasing pressure to use them in the region.

The identification of technologies and groups of technologies to be carried out based on the model presented above will constitute the basis for making public investment decisions with the view of diversification or focusing on excellence. Technology and innovation audits are recognised as useful tools for the assessment of the performance

of specific technologies. They will constitute the basis for evidence-based decision-making regarding the support of specific sectors.

As an example of the strategies based on economic transformation by related technological diversification, we can find the potential cooperation between the Science and Technology Park called Euro-Centre and with a Swiss cluster “Energie-Cluster.ch” concerning the establishment of a technology incubator.

## **Conclusion**

Technology and innovation audits are recognised as useful tools for the assessment of potential or specific technologies. The biggest challenge emerging from the case of Silesia is to ensure that priority setting is not dominated by the innovation supply-side stakeholders.

The challenge for the region is based on concentrating public investments in areas which offer the highest return of investment selected on the basis of existing and future potential, bringing together different actors from different fields of specialisation to fill in those “white spaces” and contribute to the successful regional specialisation. The main planned tools to support implementation of the Strategic plan for the technological development of Silesia include the technology innovation audit of individual technological areas, and special questionnaires addressed to the business and science sector to better analyse the technology-innovation potential as well as the degree of cooperation between different sectors.

## **Sources**

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**CASE STUDY 9 - “Smart Strategy” TOP TECHNOLOGY REGION (TTR) - Eindhoven Leuven Aachen triangle (ELAt). Cross-border business development initiative (2009-2013, Action Plan 2011-2013)**

**LOCATION**

- REGION/CITY:

- o Name: Province of Limburg  
TTR-ELAt: German Federal State of North Rhine-Westphalia, the Belgian province of Liège, the Belgian province of Limburg, the **Dutch Province of Limburg**, the Dutch Province of Noord-Brabant and the Belgian Province of Vlaams-Brabant
- o OECD classification Innovation regions: Service and natural resource region in knowledge-intensive country (Western Netherlands) and Knowledge and technology hub (Southern Netherlands)

**Background of the regions involved:**

The TTR-ELAt region is among the best regions in Western Europe (adding Switzerland and Norway) in terms of patents, scientific publications, GDP and GDP growth is mainly based on the contribution of their technological sectors.

**OBJECTIVE**

The **Dutch Province of Limburg** has taken up the challenge to work on **real cross-border cooperation on innovation** between the regions in the border area. In that respect, the TTR represents a **unique regional cross-border concept of innovation**.

Main objective (in line with Europe 2020 – sustainable, smart, inclusive growth):

Smart Growth: exploit territorial potential through innovation by a stakeholder discovery process excelling in some specific themes: Chemicals and Advanced Materials, Health Sciences and High-tech Systems (engineering).

The Province of Limburg, as a part of the TTR-ELAt will focus on Chemicals and Advanced materials (solar energy systems, research and business campus), health sciences (top referral care, toxicogenomics and high field brain imaging) and Agro food (nutritional horticulture) and logistics.

Sub-objective: Biodiversity, Energy, Transport, Eco-corridors, etc.

Combined many different sub-objectives depending of the projects.

**SUMMARY**

In order to develop a strategy of development BakBasel Economics was contracted to develop and research the main prosperous sectors for the regions involved in the programme.

- Year of establishment: 2008/2009
- Development period: 2011-2013 (TTR-ELAt action programme)

**GOVERNANCE**

Multi-level governance:

National and regional innovation systems and clusters.

**BUDGET**

**Total budget:** €5m

Networking and Intercluster: €1.63m

Business development support: €2.41m  
Communication and dissemination: €0.64m

### **Extended budget**

An annual contribution by the TTR-ELAt partners must be determined to cover the cost of recruitment for the TTR-ELAt organisation and of implementing the plans set out in the annual programmes.

### **OUTCOMES**

Examples of cooperation:

- Health cluster in Maastricht and the health cluster in the Aachen/Jülich region on brain research. In both regions, it was through Siemens Tesla 9.4 scanners brain research. Maastricht will concentrate on diagnostics and Julich will concentrate on imaging. Both are complementary activities, it creates added value to join forces.
- University of Aachen and the Mitsubishi automotive plant NedCar in Limburg. By joining the German research, engineering and design know-how with production know-how of Limburg, Limburg will build a brand new electric car called the Street Scooter.
- Floriade 2012 project, the world horticulture fair in Venlo will be joined by Dutch and German partners.

### **Background of the initiative**

On 10 April 2008, the Dutch provinces of Limburg and North Brabant, the Belgian provinces of Brabant, Limburg and Liège, and the German federal state of North Rhine-Westphalia (for the areas around Aachen, Mönchengladbach and Krefeld) resolved to smooth the way towards becoming a Top Technology Region (TTR). The partners have joined together to draw up and approve an administrative assignment that will ultimately lead to a shared agenda for the TTR. The regions want to foster interregional comparative advantage through innovation with a global perspective.

The Dutch Province of Limburg, has taken up the challenge to work on real cross-border cooperation on innovation between the regions in the border area. In that respect, the TTR represents a unique regional cross-border concept of innovation. This initiative tries to join forces while not neglecting the sub regional preferences, political choices and business related possibilities.

### **Idea**

In an age of globalisation, the partners agree that presenting a united front is better than each region tackling things on its own. The partners believe that in some fields of technology, collaborating can take them to the top, not only in Europe but also perhaps in the world.

The aim of the TTR is to create a region that can compete internationally and thereby guarantee employment and prosperity for its inhabitants.

The focus of the initiative is to close the gap in the “Knowledge-to-Skill-to-Till” chains in three specified sectors with a major potential for innovation and capacity for growth: Chemicals & Advanced Materials, High-Tech Systems, and Health Sciences.

The contribution to the various local authorities will be to bring together the players that can make the triple helix, i.e. the balanced combination of business/industry, knowledge institutions and government. Research institutions and enterprises will play a key role in developing and executing the TTR action programme.

The contribution to different actors should lead to new links and the creation of an even stronger “value chain” of knowledge, expertise and finances.

The action programme will then be elaborated in detail, in close consultation with the research institutions and enterprises. The TTR will in fact be a unique cross-border regional product aimed at achieving the Lisbon objectives.

Partners: 19 (16 full, 3 associated) partners, from all areas of the TTR ELAt region, further cooperation partners to be involved.

Timeline: approval on December 10<sup>th</sup>, 2010. Development period: 1 Jan 2011-31 Dec. 2013

### **The innovation agenda**

The Eindhoven Leuven Aachen (ELAt) innovation agenda “Engineering the Future” was presented on 2 December 2008. The agenda is based on foresight studies, analyses and assessments among stakeholders and on cooperation between those stakeholders. The agenda describes seven strategies that will promote more effective utilisation of the ELAt region’s potential in order to improve its competitiveness worldwide and ensure sustainable economic growth. The stakeholders are now implementing this agenda in various alliances made up of different combinations of parties.

### **Basic principles**

The border region has a long tradition of cross-border cooperation (e.g. the Meuse-Rhine Euroregion, the Rhine-Meuse North Euroregion). A number of new initiatives have been developed in recent years, specifically to promote cooperation in the knowledge-driven economy and innovation.

In 2006, the Dutch province of Limburg and RWTH Aachen University signed a collaboration agreement, and in 2008 the Dutch and Belgian Provinces of Limburg, the Province of Vlaams-Brabant and the universities of Maastricht, Hasselt and Leuven signed agreements on cooperation and innovation.

There is, however, clearly a need for a strategic framework. The Government of the Netherlands agrees with the relevant provinces that a joint cross-border regional policy is needed. The economic priorities must be more clearly focused, and strategic cooperation in this area must be improved. The Dutch Province of Limburg has taken

up the challenge issued by the Minister of Economic Affairs, and has gone in search of partners in the border regions to work on drawing up a joint European cross-border economic agenda.

### **Looking for priorities**

The Dutch Government has identified priorities for economic development in the southeast of the country within the context of its regional economic policy. Organisations such as Berenschot and the Policy Research-Hochschule Niederrhein-ETIL have analysed the scale, composition and growth potential of clusters in greater detail and from a cross-border perspective. ELA used this material as well as interviews and round table sessions with stakeholders to identify two promising clusters:

- High-tech systems and materials
- Life-tech

The public administrators of the TTR regions contracted the Swiss research firm BAK Basel to benchmark and map out the economic strengths of the TTR. The research carried out by BAK Basel Economics resulted in an analysis and international benchmark of the region's strengths and weaknesses. It indicates how the TTR relates on an international level playing field to similar regions such as Oberrhein and Øresund, and what development potential the cross-border region has.

The BAK Based study identified and confirmed a number of the TTR's strengths, shown in the BAK Technology Competitive Index. The Index reveals the technological strength of a region based on the scale and growth of the relevant sector, the number of publications and the number of patents. The focus is on sectors (clusters) that are by their nature "top technological". On 3 November 2008, the regional governments determined the specific focus, so that real functional connections could be created within the TTR. The technology clusters in the TTR that score above average and show potential compared to other, similar top technology regions in Europe are:

- Chemicals and Advanced Materials
- Health Sciences
- High-Tech systems (Engineering)

The outcome of this analysis overlaps significantly with previous research and foresight studies.

Another striking factor in the analysis is that the TTR's sub-regions have a wide variety of different clusters. Indeed, the TTR's strength lies in the complementarity nature of these clusters and the synergies between them. The regional distribution of production locations, patent applications and number of publications within the region also play an important role. The TTR's challenge therefore lies in identifying the innovation potential of the three clusters and creating cross-border activities. At present, however, too little is being done to convert this potential into added value. Long-term cross-border collaboration will eventually lead to an alliance between the TTR regions.

## **Strategy**

Successful collaboration depends on demand-driven strategy, the market's absorption capacity, support for the areas of concern and clusters selected, smart allocation of funding, suitable rules and requirements, and clear-cut and complementary division of roles between the Triple Helix actors.

- There will be greater focus within the selected technology sectors. These sectors are:
  - - o Chemicals and Advanced Materials,
    - o Health Science and High-tech systems (such as Automotive, ICT, engineering, sustainable generation of energy).
    - o Special consideration will be given to new combinations within and between the three sectors, both within the regions and between them.
- Cooperation in accordance with the Triple Helix model (University, Industry and Government) should result in improved cross-border activities related to the technology-driven economy, more effective utilisation of the potential within the priority areas and greater critical mass and a higher profile at European and global scale.
- The strategy will be based on the “Knowledge-to-Skill-to-Till” principle. The point is to help the selected technology sectors excel in their fields, but also to generate greater profits throughout the TTR-ELAt region. In other words, the aim is to enhance collaboration and clustering of competencies in knowledge generation, value creation and value capture.
- This can be done by closing the gaps in the value chains and supply chains in order to promote economic growth in the region.
- Open innovation in a cross-border innovation eco-system.
- In addition to the TTR-ELAt objectives, each region will continue to work towards achieving the priority objectives it has identified to boost its own technology growth sectors.
- Integrating the ELAt and TTR initiatives may make it possible to increase the number of joint cross-border activities and improve their scope, in the sense of acquiring new partners, gaining more political support, having access to more financial resources and carrying out more focused activities.

## **Action Programme**

The Action Programme is constituted by the following agendas, all of them supported by the trade and industry:

- the TTR strategic agenda,
- the Brainport strategic agenda 2020 and the ELAt strategic agenda.

## Organisation

The TTR-ELAt organisation is managed by the Initiative Group, which consists of public officials from the TTR-ELAt regions and cities. Two Working Groups that make up the Project Office report to the Initiative Group. The Working Groups must remain in tune with what is happening down on the ground in the TTR-ELAt Community. Both working groups (economic and governmental) met twice and succeeded in taking first steps to define concrete projects and activities in the timeframe between 2011 and 2013. There has been a first start with the new working structures, such as the coordination meetings, which has proven its efficiency and which modelled the plans of the programme.

The TTR-ELAt organisation checks the content with the Community, monitors progress, evaluates the final results of projects, makes adjustments to the action programme and informs the Initiative Group, which bears final responsibility.

		<b>Themes</b>				
		<b>Chemicals and Advanced Materials</b>	<b>Health (life) Sciences</b>	<b>High-tech Systems</b>		
<b>WORKING GROUPS</b>	<b>ECONOMY</b>	<b><i>Strategic Networking</i></b>			<b>Action Lines Projects</b>	
		<ol style="list-style-type: none"> <li>1. <i>Strategic Cooperation High-tech Campuses within the TTR-ELAt region</i></li> <li>2. <i>TTR-ELAt Inc Strategic Network</i></li> </ol>				
		<b><i>Business Development Support</i></b>				
	<b>GOVERNMENT</b>	<ol style="list-style-type: none"> <li>3. <i>Towards TTC</i></li> <li>4. <i>Cluster stimulation (Innovation funds)</i></li> <li>5. <i>“Innovation Toolbox/stimulation”</i></li> </ol>				
		<b><i>Entrepreneurship</i></b>				
		<ol style="list-style-type: none"> <li>6. <i>Supporting entrepreneurship and access to investors</i></li> </ol>				
		<b><i>Brains</i></b>				
		<ol style="list-style-type: none"> <li>1. <i>Euregional Brain gain</i></li> <li>2. <i>Improving mobility of workers</i></li> </ol>				
		<b><i>Institutional Development</i></b>				
		<ol style="list-style-type: none"> <li>3. <i>Commitment of central government</i></li> <li>4. <i>Cross border Funding and European Funding</i></li> </ol>				
		<b><i>Lobbying and Marketing</i></b>				
		<ol style="list-style-type: none"> <li>5. <i>TTR-ELAt Branding</i></li> <li>6. <i>OECD Benchmark</i></li> </ol>				

In the following section you can find a summary of the different projects taken over by both working groups:

## Economy

### 1. *Strategic Cooperation High-tech Campuses within the TTR-ELAt region*

This project focuses on a set of “cross-campus” strategic cooperative initiatives between the different stakeholders in order to increase not only the success of the individual sites but also to increase the competitiveness of the TTR-ELAt region. The cooperation is set in two levels on content and business opportunities and on constructed eco-systems. Among the project goals: establish a common approach between the campus managers, establish connections between companies located on the different campuses, establish support to companies through shared facilities, and the most ambitious, establish a cross campus cooperation between the stakeholders of the various campuses.

### 2. *TTR-ELAt Inc Strategic Network*

This project intends to increase the outreach of strategic networks in the TTR-ELAt region and enhance the possibilities for individual organisations to meet others and open opportunities for business collaboration. It focuses on the primary clusters (i.e. high-tech systems, life sciences and materials), including looking for synergies between these clusters. The TTR-ELAt Inc. Strategic Network will be a continuity platform acting on two levels: bringing together several regional policies and eco-systems and creating a perspective of the innovative capacity of the region building up and connecting the existing networks for the different clusters on the scale of the TTR-ELAt.

### 3. *Towards TTC*

“Towards TTC” is the first concrete project contribution to bringing the joint TTR-ELAt initiative to life, it is thematically located at the interface of “Business development” and “Strategic Networking”. The main target of the project is to strengthen and create cross-border businesses in the fields of: health and life sciences, ICT (high-tech systems), Energy (high-tech-systems), and advanced materials and chemicals.

The project will focus on network, intercluster and partnering activities in all the involved regions. Partners for all seven partner regions of the TTR-ELAt are contributing to this project: Limburg, Noord-Brabant, Limburg, Vlaams-Brabant, Liège, Deutschsprachige Gemeinschaft, and, Aachen.

### 4. *Cluster stimulation (Innovation funds)*

This project is focusing on improving the competitiveness of the TTR-ELAt enterprises, supporting the economic and technology-oriented development of the area and strengthening the position of the knowledge institutions. The idea of this project is to implement an (experimental) funding regulation, in which at least two enterprises out of two different national regions of the TTR-ELAt jointly carry out (possibly in cooperation with a knowledge institution from within, but also from out of the region) and innovation project. These projects should be subsidised with a share of 50% up to a maximum funding amount of 250.000€(50,000 for feasibility studies).

5. *“Innovation Toolbox/stimulation”*

This project focuses on the stimulation of innovation in companies by the stimulation and support of the innovation built in industry-university interactions. The initiative intends to optimise the innovation climate within the TTR-ELAt region and to use both stimulants (Universities and large companies) in order to stimulate SME-related and market driven innovation and development the Open Innovation Model.

6. *Supporting entrepreneurship and access to investors*

This project focuses on defining a number of activities in order to stimulate and support high tech entrepreneurship in the region. Facilitating access to investors and the exchange of best practices will be some of the project’s main goals.

## **Government**

1. *Euregional Brain Gain*

This project aims to join forces in attracting and retaining knowledge workers from all over the world to the TTR ELAt region and proposes a three-fold approach: “Coming To”, “Settling In” and “Living In”. The “Coming To” work package focuses on attracting International Knowledge Works (IKWs) and students from abroad to work in companies, organisations and educational institutions of the TTR-ELAt region. The project will focus on the “Settling In” and “Living In” parts. “Settling In” focuses on offering direct services to the IKWs and “Living In” focuses on retaining the IKWs in the region by offering career perspectives.

2. *Commitment Central Governments*

This project is an ambitious project that aims to connect the TTR-ELAt goals with national agendas in order to raise awareness and sensitize central governments.

3. *Cross border Funding and European Funding*

This project focuses on generating European funding and opening up regional and national instruments to cross-border projects. Project development before 2013 follows up calls for EU tenders, grants and funds and other financing instruments, while, project development after 2013 is focused on lobbying for cross-border and EU funding.

4. *Improving mobility of workers*

This project intends to improve mobility of knowledge workers for cross-border commuters and international knowledge works.

5. *Branding TTR-ELAt*

This project intends to enhance internal and external communication within the partners of the TTR-ELAt region and potential externals to the region. The goals of the project consist of creating internal cohesion and knowing about each other, mapping the actors and actions at the TTR-ELAt, and creating a joint identity.

#### 6. *OECD Benchmark*

This project is focused on providing recommendations to policy makers on when and how to design and implement effective cross-border regional innovation policies. This refers to policies that are developed and implemented jointly by neighbouring regions through cooperation and alignment of objectives and instruments.

#### **Financing**

- An annual contribution by the TTR-ELAt partners must be determined to cover the cost of recruitment for the TTR-ELAt organisation and of implementing the plans set out in the annual programmes.
- Financing must be found on a project-by-project basis to implement the projects developed to execute the action programme. The necessary money can be taken from cross-border sources such as INTERREG IV A, but also from other European or national budgets intended to finance projects that benefit trade and industry. In the future, the TTR-ELAt organisation will lead the way in linking Objective 2 programmes to one another so that a larger proportion of such funds can be allocated to these developments. The government-related Working Group will also anticipate the new Objective 2 and INTERREG V Structural Funds period.

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## **CASE STUDY 10 - Strategie Regional de Innovation (Regional Innovation Strategy) Nord-Pas de Calais**

### **LOCATION**

- REGION/CITY:
  - o Name: Nord-Pas de Calais
  - o OECD classification Innovation regions: Medium-tech manufacturing and service provider region
- COUNTRY: FRANCE

### **Background information of the region**

- o 4<sup>th</sup> Economic region in France
- o 4.1 Million inhabitants, 6.5% French population
- o GDP: €100Million
- o 5.2% of French Added value
- o 8 towns over 100,000 inhabitants. 3<sup>rd</sup> largest urban region in France.
- o 1,045,000 employees, 5.8% working population in France, 13% workforce available.
- o 103,000 companies located in the region
- o In R&D: Nord-pas de Calais have 7 competitive clusters, 7 universities, 13 regional centres of excellence, 28 engineering, business and management schools and 300 public and private laboratories
- o Skills: 4,600 researchers and research fellows, 160,000 students, 3,000 PhD students and 1,800 research masters each year. The youngest region in France: 34% of the population is under 25 years old. International population with more than 130 nationalities.
- o Economic history: region of industrial tradition represented by continuous reindustrialisation in a period of economic crisis, mainly characterised by textile, steel and mining industries. The automotive industry, as a replacement for the mining industry, experienced difficulties in recent decades. The reconversion of the industrial base takes into consideration new sectors of activity such as Information and telecommunication technologies, health and eco-enterprises.
- o Historic strengths: railway transport, automotive, logistics and wholesale trade.
- o Economic structure: 45% of the employment belongs to high-tech sectors (manufacturing and services). 3 big harbours (fish, passengers and freight). Economic composition: 1.1% Agriculture, 25.3% Industry, 9.2% Construction, and 64.4% Services.
- o Existing assets and challenges:

Nord-Pas de Calais contains with a high number of start-up companies, a specialised service sector, and an increase in public research activity. Nord-Pas de Calais is aware that in terms of innovation and research some problems are also present in the region: despite the high number of start-up companies the enterprises located in the region, particularly SMEs it does not present an innovative profile. Moreover, the industrial reconversion that the region has suffered in the last year has not been totally accomplished and the major assets that the region has are not being sufficiently valorised.

**OBJECTIVE**

Main objective (in line with Europe 2020 – sustainable, smart, inclusive growth):

To be one of the main European economic regions, innovative and united.

To achieve this, the new regional innovation strategy intends to focus on the new engine for growth for the economy and society, taking into consideration aspects such as social cohesion and inclusion and an environmentally-friendly business environment.

Regarding the regional innovation strategy, aspects such as support to innovative start-up companies, helping regional SMEs to develop their strategies and human capital, attraction of high-tech investment and improvement of the image of the region constituted some of the objectives that the strategy aims for.

Sub-objective: Biodiversity, Energy, Transport, Eco-corridors, etc.

**SUMMARY**

- Year of establishment: officially launched in December 2009 (Regional Innovation Strategy RIS) in the frame of the RSED
- Development period

**FUNDING**

- ERDF, ESF or any EU action

European funding

- Operational Programme (PO)ERDF Nord-Pas de Calais
  1. R&D, Innovation, businesses: 266.7M€
  2. Environment, climate change and risk prevention: 148M€
  3. Accessibility: 159M€
  4. Territorial cohesion and regional excellence: 117.05M€
  5. Technical assistance: 10.19M€
- Operational Programme (PO)FSE Nord-Pas de Calais
  1. 380.8M€(31.1M€to the Hainaut)
  2. Thematic areas: adaptation of workers and companies to economic changes (training, professionalisation, etc.), job accessibility (public service of job searching), development and creation of employment policy measures, human capital investment, social inclusion measures.
- FEADER Agricultural funds for the rural development (2007-2013)
  1. 46.42M€
  2. 50% to improve the competitiveness of agriculture and forestry
  3. 21% to management of rural space and improvement of the environment
  4. 15% to increase quality of life and economic diversification in rural areas (rural and cultural heritage)
  5. 11% LEADER to promote local strategies of rural development taken up by the local actions groups (GAL).

**GOVERNANCE**

Multi-level governance:

Monitoring and implementation processes of the strategy are done by the Nord France Innovation Développement (NFID), the “regional innovation agency”, a multidisciplinary team of 15 people in charge of:

- Bringing forward and monitoring implementation of the Regional Innovation Strategy;

- Acting as the technical secretariat of the Strategic Regional Innovation Committee;
- Facilitating the Operational Innovation Guidance Committee;
- Helping the working group leaders to develop the respective action plans in cooperation with the stakeholders of the Strategic Activity Domains (DAS);
- Managing the regional innovation network “J’innove”;
- Managing and implementing the transversal support actions D1 and D2 (support innovative start-ups and the “Objective SME” programme);
- Providing back office services related to innovation, valorisation of R&D and economic development.

#### **BUDGET**

Initial budget: based on the ERDF (2007-2013 period) is 266,7 million €

#### **OUTCOMES**

Achieved:

The first outcomes and results at the level of stakeholders are connected with the following projects:

- RAILENIUM (railway transport)
- European Innovative Textiles Centre (CETI)
- IFMAS (green chemistry, bio-sourced plastics)

The first outcomes and results for regional development and growth:

Relative increase in the number of innovative projects within the region and between regions (cross-border activities and cooperation in innovation, such as with West-Flanders through the INTERREG IVA project “Tandem”).

Expected:

- During 2012-2013 plans to develop synergies with: Flanders, Picardie, Champagne & Wallonia.
- Develop scoreboard of actions plans, impact indicators, one steering committee each month and two strategic committees each year.
- Build a retro planning in 2014 to meet other regions
- More involvement of local clusters to detect entrepreneurs.

### **Regional Innovation Strategy in Nord-Pas de Calais, France**

Nord Pas de Calais, a relatively small, not very innovative industrial region, is considered the 4<sup>th</sup> region in France in economic development. It has a history as a coal-mining region and has suffered a process of continuous reindustrialisation in recent decades. Its main historical industrial and economic strengths were railway transport activity, the automotive and logistics industries, all three linked with its favourable geographical location. The textile industry was also important in its industrial regional heritage. Seven universities and 28 graduate schools (business and engineering) are located in Nord-Pas de Calais.

## **Background innovation and business information of the region**

Nord-Pas de Calais is ranked the 4<sup>th</sup> economic region in France, with a GDP of 100 million Euros, representing 5.2% of French added value. Nord-Pas de Calais has a population of 4.1 million inhabitants, representing 6.5% of the total French population, with more than 126,000 foreign residents from 130 different nationalities.

Nord-Pas de Calais's innovation environment is composed of 7 competitive clusters, 13 regional centres of excellence, 7 universities, 28 engineering, business and management schools and 300 public and private laboratories.

In terms of skills indicators, Nord-Pas de Calais has 4,600 researchers and research fellows, 160,000 students, 3,000 PhD students and 1,800 research masters each year. It is the youngest region in France with 34% of the population under 25 years old.

The business environment of the region is composed of more than 103,000 businesses, providing work for 1,045,000 employees distributed between the tertiary sector (69%) and the secondary sector (31%), representing 5.8% of the whole French employees. The main sectors of activity by job distribution in the region are Services (52%), Industry (22%), Commerce (17%) and Construction (9%). By distribution of businesses the sectors of activity rank differently, 47% belong to Services, 34% to Commerce, 10% to Industry and 9% to Construction sector.

Nord-Pas de Calais region is represented across a range of the top rankings of various regional activities in France, including ranking as:

- The top European distance selling widespread distribution centre region, European sea produce centre and railway industry region in France.
- The “Number 2” automobile, textile/clothing and technical textile region in France.
- The “Number 3” health region, logistics region, region for plastics processing, composite material and packaging and image cluster in France.
- The “Number 4” food processing region in France.

## **History of the region**

Nord-Pas-de-Calais region has always been a strategic (and hence one of the most fought over) regions in Europe. During the 19th century, the region underwent major industrialisation and became one of the leading industrial regions of France, second only to Alsace-Lorraine. Nord-Pas-de-Calais was barely touched by the Franco-Prussian War of 1870; indeed, the war actually helped to cement its leading role in French industry due to the loss of Alsace-Lorraine to Germany. However, it suffered catastrophic damage in the two World Wars of the 20th century.

Nord-Pas-de-Calais became a major centre of heavy industry in the 19th century with coal mines, steel mills and traditional textile manufacture. It suffered badly in both World Wars and recovered less quickly than did other parts of France. In recent years, it

has experienced economic slumps as the mines closed, the steel industry declined and the textile industry ran into problems. From 1975 to 1984, the region lost over 130,000 jobs and unemployment rose to 14% of the working population, well above the national average. The region has, however, benefited from major government and European Union investment over the past 20 years. The opening of the Channel Tunnel in 1994 was welcomed in the region as a means of boosting its prosperity. Tourism, particularly in Lille at the apex of the London-Brussels-Paris railway lines, has grown considerably, to the extent that in 2004, 7 million passengers used the Eurostar, as well as 2 million vehicles on the Eurotunnel (formerly Le Shuttle). In addition to the trains, in 2002, there were about 15 million passengers from the three major ferry ports of the region (Calais, Dunkirk and Boulogne).

Nord-Pas de Calais economy has been characterised by a continuous reinventing process: from textiles, to steel, to mining industries that experienced clear difficulties in different periods. The regional economy reconverted itself by the implementation of the automotive industry as a substitution for the mining industry that experienced a socio-economic recession process as well.

### **Regional Innovation Strategy**

The new regional innovation strategy of Nord-Pas de Calais was developed under the demands of the new European Commission to go in depth and improve regional policies in order to develop the Operational programmes to determine the use of the ERDF funds. This call was not specific to the Nord-pas de Calais region, but was made unanimously for all French regions. Under this framework, the region of Nord-Pas de Calais developed the “Stratégie Régionale de l’Innovation”, cantered on targeting certain activities that will determine the levers of growth in the region by means of determining objectives and actions. This challenging demand, instead of being seen as a drawback, has been seen as an opportunity to go in depth and improve the regional policies that were developed in the framework of the *Contrat de Projet Etat-Région* (2006) and the *Schéma Régional de Développement Economique* (November 2005).

The ambition of the region is to identify the way of converting Nord-Pas de Calais into a major economic region in Europe. This implies the need to continue developing profound modernisation towards the knowledge economy, based on exploiting the competences of the inhabitants, the excellence of skills and research and the efficiency and competitiveness of its enterprises.

The Regional Innovation Strategy of Nord-Pas de Calais was born in a period of economic crisis and emphasised the need of solidarity. For this reason the following principles constitute the basis of the strategy:

- Territorial balance based on the *Pôles d’excellence et de compétitivité* (Centres of excellence and competitiveness)
- Quality in created employment
- The need for continuing professional training during working life

- An effort in the domains of environment and health, and
- Open governance.

### **Description of the Operational Programme under the ERDF EU Funds**

The European Union invests 700.95 million euros in Nord-Pas de Calais through the ERDF. Actions supported in this context are part of the ERDF Operational Programme (OP). The OP focuses on the following priorities.

#### **Priority 1: Research and development, innovation, enterprise policy**

Priority 1 is centered on funding projects that contribute to enhancing regional potential for research and innovation. To achieve this, the axis intends to encourage political measures in these areas, to develop an attractive environment for international research and to support companies and clusters in their research and development activities. Also, Axis 1 intends to develop projects that contribute to increasing the employment and competitiveness of the industrial sector. In this context the European funds can, for example, assist in the creation of business transfer.

#### **Priority 2: Environment, sustainable practices and risk prevention**

This line directs EU funding to projects related to the preservation and enhancement of biodiversity or development of the control of water resources. It also aims to support activities in companies or institutions that value real environmental excellence.

#### **Priority 3: To facilitate the mobility of people and goods, and enhance accessibility to information**

Projects related to the development of public transport and providing new advances in terms of access of passengers and goods and the promotion and development of an information society. By incorporating innovative information tools, the projects under this priority should improve relations between government and actors, and must work for territorial continuity.

#### **Priority 4: Territorial Component**

This priority provides funding for projects that contribute to strengthening territorial cohesion and social inclusion.

#### **Regional Innovation Strategy**

The creation of 6 centres of excellence or competitiveness (*Pôles of Compétitivité*) as a result of historical sectors embedded in the region such as the textile industry and new sectors of activity such as Health show the will and the capability of the region to convert the industrial base into a more innovative and forward-looking environment. This is the main objective of the regional innovation strategy for Nord-Pas de Calais.

## **Priority strategies**

4. The selection of 3 sectors to achieve internationally recognised research excellence. The selected sectors are:
  - Railway transport (logistics and intelligent transports)
  - Commerce of the future (comprises logistics and technologic aspects)
  - Health-Nutrition-Food (agro products and health safety)
5. It is focused on the economic sectors in which the region is strongly dependent in terms of employment, but that won't develop international recognition due to the lower level of scientific excellence involved in these activities.
  - Automobile
  - Advanced materials (bio-sources, textiles and composites)
  - Building and eco-construction
  - Mechanics
6. Identification of sectors with strong growth potential that can be developed with recognised regional scientific excellence. They are not still present in the region, but with a guide development could become engines for growth
  - Energy and
  - Waste, sediment, soils treatment
  - Image and digital creation
  - E-Health

## **Lines of effort to concretise priority strategies**

1. Support the creation of innovative entrepreneurial companies, enhancing the potential of the region for higher education with a support and coordinated activity.
2. Disrupt the practices of regional SMEs by focusing on strategic analysis and human capital
3. Attract “technology-intensive investment to change the image of the region
4. Innovation by and for services.
5. Better funds for innovation: pushing entrepreneurs to develop a strategy capital and use our financial tools as factors of attractiveness
6. Strengthening research potential and practice development and transfer

## Sources

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Project Center, 2011, “Human Resources and Employment. A concentration of skills”, mimeo.

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PO Compétitivité et Emploi 2007/2013 FSE en Nord-Pas de Calais

Le Fons Agricole Pour le Développement Rural (FEADER) 2007-2013

Strategie Regionale Innovation Nord-Pas de Calais

EUROLIO European Localized Innovation Observatory <http://www.euolio.eu/Tableau-de-bord-interactif>

## CASE STUDY 11 - Networking Resources in Emilia Romagna

### LOCATION

- REGION/CITY:
  - o Name: Emilia Romagna
  - o OECD classification Innovation regions: Traditional manufacturing region
- COUNTRY: ITALY

### Background Information of the region

Emilia-Romagna is a networked Region, which is organised as a system, linking both medium and small-sized cities as well as several small and medium-sized enterprises, engaged in the development of technological, manufacturing and market networks.

Growth in the research and development expenditure in the 1997-2006 period was higher than the that recorded in other Italian Regions as well as in other more competitive European Regions;

In 2004 the largest number of patents per millions of inhabitants was filed with EPO by the Emilia-Romagna Region, compared with the national and European average;

In 2008 the highest employment rate was recorded (70.4%) in the region, compared with the Northern and Central Italian Regions, with values much higher than the national average (59.2%), thus exceeding the goal on labour and employment set by the Lisbon European Conference;

The presence of a widespread cultural and environmental heritage, characterised by a network of more than 170 towns and cities of great artistic and cultural interest.

Thirteen regional parks, 2 national parks, 13 natural reserves and the Adriatic Coast, namely one of the most important Italian tourist districts.

### OBJECTIVE

Main objective (in line with Europe 2020 – sustainable, smart, inclusive growth):

- Emilia Romagna aims at becoming one of the most advanced European Regions by supporting investment in enterprises and infrastructures to enhance their competitiveness, to fuel the economic engine to overcome the crisis and to promote a new development based on the knowledge based economy and on environmental and energy sustainability.
- The Emilia-Romagna ERDF ROP is a resource at the disposal of the regional society as a whole; it is the flywheel that will create a close-knit network of innovation, by fuelling competitiveness through development ideas and projects.
- The ERDF Programming provides the Emilia-Romagna region with the opportunity to pursue the new “territorial cooperation” objective, by creating the European network to disseminate and share best practices and transfer experiences.
- The Emilia Romagna High-Technology Network combines a research structures and centres of excellence aimed at promoting the shift to production systems, districts and chains towards greater technological dynamism and a stronger commitment to R&D.

## **FUNDING**

Priority based resource allocation:

<b>PRIORITIES</b>	<b>TOTAL AMOUNT</b>	<b>% of the TOTAL AMOUNT</b>
1.Industrial research and technology transfer	114,328,164	32.95%
2.Enterprise innovative development	69,591,056	20.06%
3.Energy and environmental regeneration and sustainable development	79,532,635	22.93%
4.Cultural and environmental heritage enhancement and regeneration	69,591,056	20.06%
5.Technical assistance	13,876,788	4.00%
<b>Total</b>	<b>346,919,699</b>	<b>100.00%</b>

## **History**

The development of the Emilia-Romagna region is consistent with the goals set by the European Lisbon and Göteborg strategies, aiming towards a knowledge economy, which will be likely to bring about sustainable economic growth with high social cohesion.

The European Union supports competitive growth and social and economic cohesion by allocating resources to the Regions through the Structural Funds and in particular, through the European Regional Development Fund (ERDF).

The current priorities are designed to further strengthen the results achieved with the regional policies implemented over the past few years in the area of research and development.

## **Priorities**

The ERDF ROP is articulated according to 5 priorities, which are designed to implement specific objectives:

### **1. Industrial research and technology transfer**

Objective: to strengthen the industrial research and technological transfer network to foster the creation of technopoles for competitiveness. It is designed to further consolidate the transformation of the manufacturing system towards the adoption of a “new industrial model” which is increasingly more oriented towards high technology

based on specialists' skills and on the enhancement of knowledge assets available at the regional level, starting from the research and university world.

#### Activities:

- The creation of technopoles devoted to industrial research and technology transfer. The Emilia-Romagna high technology network combines research structures and centres of excellence aimed at promoting a shift to production systems, districts and chains towards a greater technological dynamism and a stronger commitment to R&D activities. The Technopoles programme confirms the commitment of Universities and Research Centres based on the regional territory in promoting innovation and a knowledge economy, and the evolution of the production systems into high technology. The Technopoles programme, implementing priority 1 of the ERDF 2007-2013 Regional Operational Plan (ROP), is based on a Framework agreement between the Region, Universities and Research Centres, which defines the commitments and the new governance carried by ASTER (association-like organisation of Technopoles-Regional Emilia- Romagna High Technology Network). Technopoles will represent an infrastructure network distributed over 10 sites within the region that will host and carry out activities, services and structures for industrial research and technology transfer and incubators for the creation of new businesses. The Regional High Technology Network is composed of 34 structures for industrial research and 11 Centres for technology transfer. The following technopoles currently exist: Bologna Manifattura and Bologna CNR (environment, micro and nanotechnology, regenerative medicine, new materials, ICT, multimedia and design, construction, energy, automation, advanced mechanics); Modena (Advanced mechanics, new materials, regenerative medicine, business applications); Reggio Emilia (Mechatronics, Construction and Agrifood); Parma (Agrifood, Pharmaceuticals, RFID and Artificial vision); Piacenza (Machine Tools and Energy-Environment); Ferrara (Water and Land, Biotechnologies, Vibroacoustics, Cultural Heritage and Restoration); Ravenna-Faenza (Yachting, Energy, Architectural restoration, New Materials); Forli-Cesena (Aeronautics, Agrifood, Infomobility); Rimini (Fashion and Life Cycle Technologies) and the thematic regional platforms.
- Support to "collaborative research" projects for SME's through research laboratories and innovation centres
- Support to the start-up of new innovative enterprises.

#### Actions:

- Develop the high-tech regional network and support the business system research capabilities. Coordinate industrial research initiatives of interest to the regional production system promoted by the High Technology Network and in general through Universities, Research Institutes, companies and entrepreneurial associations, trade unions and other institutions and bodies.

- Promote the birth and development of new innovative enterprises to make use of the outcomes and skills resulting from research activities developed in the region.

## **2. Enterprise innovative development**

Objective: To foster the growth of enterprises through innovation processes. Supports the evolution of the manufacturing system towards the adoption of new innovation models that are characterised by knowledge-intensive manufacturing processes, and products as the key element to support competitiveness for the industrial and territorial system at the international level.

Activities:

- Support to projects designed for the introduction of ICT in SME's.
- Support to projects and services for the creation of enterprise networks for the technological and organisation innovation of SME's
- Promotion and support to the use of innovative financial management tools within SMEs

Actions:

- To support strengthening and growth of enterprises through the introduction of ICT and innovative organisation and financial tools.

## **3. Energy and environmental regeneration and sustainable development**

Objective: to promote competitiveness in energy and the energy-environmental regeneration. It is designed to promote actions aimed at improving the competitiveness of the economic system by limiting greenhouse gas emissions, promoting energy savings, the efficient use of resources, the enhancement of renewable sources and cogeneration systems.

It is designed to support the energy and environmental regeneration of the regional manufacturing system through the enhancement of energy efficiency, in compliance with the commitments made by Italy to abide by the Kyoto Protocol.

Activities:

- To enhance the energy-environmental equipment of manufacturing sites
- To support innovative projects in the area of energy-environmental technologies aimed at promoting energy savings and the use of renewable sources
- To support energy-saving pilot projects for sustainable mobility and logistics of goods and people.

Actions:

- To support the environmental and energy regeneration of the manufacturing system
- To promote experimental sustainable mobility and goods and people logistics solutions oriented towards energy efficiency or the use of environmentally-friendly energy sources.

#### **4. Cultural and environmental heritage enhancement and regeneration**

Objective: to support social and economic development as the potential of sustainable tourist development. It promotes integrated actions involving both public and private authorities, aimed at regenerating and promoting public areas and assets having a cultural and environmental value by enhancing their usability level.

Actions:

- To enhance and promote environmental and cultural resources to support social and economic development.
- To enhance and innovate services and activities to foster access to its cultural and environmental heritage.

#### **5. Technical assistance**

Objective: to secure the effectiveness and efficiency of the operating Programme through actions and tools to support the programming, implementation, assessment, control and advertising of the co-funded actions.

Actions:

- To support the implementation of the operating programme in its main preparation, management, monitoring and control phases
- To carry out the strategic and/or operational assessment of the action
- To give full visibility to the Programme by means of suitable information and communication actions.

#### **Sub-objective: Biodiversity, Energy, Transport, Eco-corridors, etc.**

The EU funds have allowed strengthening various regional Programming sectors, which had already been launched through its own tools, such as the three-year programme for manufacturing activities, the Regional Telematic Plan, the Regional Programme for Industrial Research and Technology transfer (PRRIITT) and the Regional Energy Plan.

The Regional Telematic Plan has expanded broad-ban distribution throughout the regional territory, with up to 79% coverage of municipalities and 87% of enterprises within the regional territory.

The three-year programme for manufacturing activities is the main tool whereby the Region has promoted and supported manufacturing processes and the enterprises present within the regional territory.

The Regional Energy Plan has set out the goals in the areas of energy savings, introduction of new renewable sources and the reduction of greenhouse gas emissions by subscribing to the goals set by the Kyoto protocol.

Relevant activities have been undertaken in the tourist sector through promotional and marketing activities to further the regional system and the re-launch of the business and tourist sector, through actions targeted to public authorities and enterprises.

## **Sources**

“Guide to the 2007-2013 ERDF REGIONAL OPERATIONAL PROGRAMME. The European Regional Development Fund in Emilia-Romagna”.