



OECD Local Economic and Employment Development (LEED) Programme

**A Review of Local Economic and Employment
Development Policy Approaches in OECD Countries**

**Part III:
Case Studies of Regional Economic Development
Approaches**

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NOTE ON THE REPORT SERIES

This report forms part of a series of four reports from the project carried out by the OECD with collaboration from the Welsh Assembly Government (WAG) “A Review of Local Economic and Employment Development Policy Approaches in OECD countries”. The review has intended to provide WAG with a set of policy options and learning models to consider in the design of future development policies and strategies. The full set of reports is as follows:

- Executive Summary & Synthesis of Findings
- Part I: Policy Audits
- Part II: Policy Transferability to Wales
- Part III: Case Studies of Regional Economic Development Approaches

This report presents the results of Part III, focussing on pillars, objectives and delivery arrangements of five regional economic development approaches.

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INTRODUCTION: THE SELECTION OF REGIONAL CASE STUDIES

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This report collects five case studies of regional economic development models that have been considered of interest to Wales and similar regions. For each of the five strategies the aim has been to analyse rationale and conceptual framework, policy pillars, delivery mechanisms and potential transferability to Wales. The case studies have been prepared following a qualitative approach that has consisted of desk reviews of existing policy documents and interviews with regional policymakers and other relevant local development stakeholders.

The selection of the five regions has also followed a qualitative methodology, which has required preparatory work based on a broad overview of the recent economic performance (measured as per capita GDP growth) and governance framework (in terms of economic development and labour market policies) of regions in OECD Member countries. Good practices in labour market and innovation policies were also explored. This preparatory work is the main subject of this chapter.

The preparatory work

Preparatory work has consisted of a staged-approach made up of four steps: a) analysis of GDP to single out regions which had started from a basis comparable to Wales but which had grown over the last decade faster than Wales; b) analysis of the governance framework and, more specifically, of economic development and labour market policy decentralisation and devolution in the 30 OECD Member countries; c) examination of some relevant OECD publications with the aim of distinguishing countries where economic development and labour market policies are considered to have had the most impact on economic performance; d) identification of a first short-list of 10-15 regions from which to pick the five to investigate in detail. The analysis, especially the statistical part, has been carried out at the OECD statistical territorial level TL2. This territorial level encompasses 365 regions, which in the case of some European countries match the EU territorial units NUTS1 (e.g. Belgium, Germany, Greece, UK, etc.), while in others overlap with NUTS2 regions (e.g. France, Germany, Italy, Spain, etc.).¹ The following sections set out the analysis undertaken in each stage of the preparatory work, leading to a shortlist of 13 regions from which the final selection will be made.

Stage I: The GDP analysis

The first stage was based on comparing Wales with the other OECD TL2 regions from the viewpoint of GDP trends.² This followed two steps. Firstly, regions were compared according to the per capita GDP base in 1995. To make comparisons reliable, the reference indicator was per-capita GDP at USD purchasing power parity (*i.e.* GDP USD PPP). In practice, it was decided to screen out those regions whose 1995 per capita GDP was less than three quarter that of Wales. It was felt that these regions were starting from a development condition that was too different and far-behind from Wales to provide relevant comparators, especially considering that the latter has experienced significant growth over the last decade and its base in 1995 was already relatively low (*i.e.* USD 16 704). This resulted in the exclusion of some countries as a whole (*i.e.* Czech Republic, Hungary,

Mexico, Poland, Slovak Republic, and Turkey)³ and the ruling out of a few lagging regions in western European and Asian countries.⁴ All in all, 105 regions did not match this first basic criterion, which added to the 11 regions of Iceland (2), New Zealand (2) and Switzerland (7) for which data were not available, left 251 potential candidate regions.

Secondly, the average annual growth rate of per capita GDP in real prices was calculated for each of the regions over the period 1995-2005 or the latest year for which data were available. This time the chosen indicator was per capita GDP in real (national currency) prices as this parameter allowed for inflation to be discounted without biasing cross-region comparison (since the focus was on percentage growth rates and not absolute values). In this case, the basic rule consisted in identifying those regions which had grown faster than Wales, whose average annual growth rate over the period 1995-2004 had been 1.71%. Based on this parameter, and excluding a priori UK regions from the group of potential candidates, another 140 regions were to be excluded, which would have left 111 regions. These included all the regions of Australia, Canada and Finland, a good number of regions from other Nordic (*i.e.* Sweden, Denmark and Norway) and Southern European countries (*i.e.* Italy and Spain) and a smaller number from Germany and Eastern European countries.⁵

However, it was decided to take these results in a flexible way, including some other cases for further consideration (*e.g.* Austria and Germany) for two main reasons. Firstly, GDP growth also depends on many national macro-economic factors (*e.g.* inflation, budget deficit, etc.) and policies (*e.g.* competition policy, monetary policy, trade policy, etc.) that are out of regional governments' control. Regions may still have very interesting development models and, nevertheless, see economic growth undermined by factors that are essentially national in nature and beyond the scope of their influence. Secondly, growth rates are obviously affected by the starting level, so that regions which had started from a relatively high base in 1995 would find more difficult to achieve growth rates comparable to regions which had started from a much lower base. This is exemplified by the case of Germany where the only region showing a per capita GDP growth rate higher than Wales' was the eastern region of Thuringia, whose 1995 per capita GDP in real prices was DEM 15 333 as against Hamburg's peak of DEM 41 817. The average growth rate of the latter over the period 1995-2004 was however only 0.37%.

Stage II: The governance framework

The second step in the preparatory work consisted in looking at the regional governance framework within OECD member countries. The aim was to find regions that would share with Wales similar governance arrangements with regard to the design and delivery of economic development and labour market policies. The choice of these two policy fields mirrored the two main policy priorities of WAG, which are also the two underlying themes of this project (*i.e.* business productivity improvement and labour market participation), and also recognised that there are frequently asymmetries across these two fields in the powers and responsibilities of regions.

As a result, within this stage, the first step was to examine the governance framework of the United Kingdom and, within it, the special provisions granted to Wales. Thereafter, the focus shifted to the other OECD member countries through an assessment of differences and similarities with the benchmark case of Wales. The final outcome has been the identification of 'comparator regions' that could represent interesting examples for Wales in light of a relatively similar governance framework in the domains of economic development and labour market policies. The identification of 'comparators' also embodies the results of the previous stage on GDP performance analysis.

The UK and Welsh governance framework

Although there has long been a regional dimension to British politics (including regional planning offices in the 1950s, regional committees and planning forums in the 1970s and the introduction of the Integrated Regional Offices in 1993), it has been under the post-1997 Labour government that a strong, sustained focus upon regions has emerged. The reasons for the emergence of this focus are complex and multiple, drawing on the domestic growth of nationalism in Scotland and Wales, the demands for greater decentralisation of power particularly from the North-East of England, the increasing European focus on regions, and so forth.

A notable change occurred in 1998 when devolution occurred in Scotland and Wales. The powers devolved to Scotland include health, education and training, local government, housing, transport, the environment, agriculture, many aspects of home affairs and civil and criminal law, and economic development. The Scottish Parliament has, in some circumstances, the ability to repeal or amend acts of the UK Parliament and can also pass primary legislation. Accompanying these powers is the ability to vary income tax by up to three pence in the pound.

Powers devolved to Wales, on the other hand, encompass health, education and training, local government, housing, transport, the environment, agriculture, and economic development. Unlike Scotland, Wales has only the power to make secondary legislation (*i.e.* primary legislation has still to pass through the House of Commons) and has no tax raising powers. The work of both the National Assembly of Wales (NAW) and the Welsh Assembly Government (WAG) is therefore funded by a block grant sanctioned by the UK government.

Wales' governance framework

An important milestone in the process of devolution to Wales has been the recent 'Government of Wales Act 2006' (*i.e.* GOWA 2006). GOWA 2006 provides for the legal separation of roles between NAW and WAG. The former has essentially legislative powers (*i.e.* scrutinise Ministers' decisions, scrutinise and approve budget proposals and Assembly Measures, etc.), whereas the latter has typical executive powers (*i.e.* develop and implement policies, take decisions, exercise functions, make subordinate legislation, etc.).

GOWA 2006 has introduced a specific new category of legislation for Wales: *i.e.* the 'Assembly Measure'. The NAW can only make Assembly Measures in policy fields where it has been given legislative competence by the UK government. These are 20 policy domains overall, but which can be abridged in the 9 broad areas of: a) agriculture, forestry, and water management; b) cultural heritage; c) economic development; d) education and training; e) environment; f) transport; g) housing and social welfare; h) public administration and local government; i) sport, tourism and Welsh language. Once such competence is conceded, there is no further parliamentary involvement in the scrutiny and approval of a measure promoted by WAG and approved by NAW.

The outcome of GOWA 2006 is that Wales has not yet the power to make primary legislation (unlike Scotland), but still boasts remarkable executive power and can make secondary (*i.e.* subordinate) legislation, which are rules and regulations fixing the detail of policy implementation. This is particularly important because it enables the Welsh Assembly to tailor UK policies to the specific socioeconomic needs and challenges of Wales by modifying primary legislation or making new provisions on specific matters within the fields of legislative competence.

Turning to the two policy domains of our interest, *i.e.* economic development and labour market policy, it can be contended that even though in both cases Welsh Authorities have received devolved

powers from the UK, they have a greater say in policies and tools geared toward the economic development of the region through business productivity improvement. There is, in fact, a wide and heterogeneous array of autonomous initiatives developed by WAG in such fields as innovation promotion, entrepreneurship support, sector development, etc.⁶ In particular, the Department for Enterprise, Innovation and Networks is responsible for overseeing regional development matters in Wales.

On the other hand, employment policy design and delivery still primarily lies with the UK central government. Here, Welsh Authorities work in close partnership with the UK Department for Work and Pensions (DWP) and its agent, Jobcentre Plus, to ensure that UK labour market policy complements Wales' economic and social objectives. An example is given by the partnership between WAG and the DWP to merge the UK Pathways to Work project with the EU-funded Want2Work Initiative, both of which aim to re-integrate people with work-limiting health conditions in the labour market.⁷

The governance framework comparative analysis

The second step in stage II consisted in a review of the economic development and labour market governance frameworks within other OECD member countries to assess which regions approached more closely the case of Wales.

With regard to economic development policy, it was decided to classify OECD regions according to a three-pronged categorisation: de-concentrated or localised regions; subordinated regions; autonomous regions.

- *De-concentrated or localised regions:* The first term was used for regions where regional structures exist in administrative forms but are subordinated to the central state. Regional authorities are present as mere extensions of the central government. The second term referred to regions where no regional authority is in place, but only local ones are such as municipalities or districts. Basically, there is no intermediate level of government between the national and local levels.
- *Subordinated regions:* These are regions where the central government devolves legislative powers in some specific policy fields to elected regional assemblies, which represent an intermediate tier of government between the national and central levels and usually enjoy some degree of constitutional protection.
- *Autonomous regions:* These are regions in countries where the constitution provides for some sharing of powers between the central and regional levels of government. This can be the result of a federal structure (*e.g.* Canada, Germany, United States, etc.) or of a process of political reform (*e.g.* Italy, Spain, etc.) that has evolved the country from a unitary state to a decentralised one. Autonomous regions have much stronger powers than subordinate regions (*e.g.* some of them may even enjoy fiscal autonomy), exist in their own right and cannot usually be abolished by central government.

As to labour market policy, on the other hand, OECD countries have been classified as having integrated, regionalised or privatised systems (OECD, 1998)⁸. It should be noted that this classification essentially concerns active labour market policies (*e.g.* training, coaching and mentoring, re-activation programmes, etc.), because passive labour market policies such as unemployment benefits fall largely within the remit of national governments in most OECD member countries.

- *Integrated systems:* The national Public Employment Service (PES) is integrated into one single decision-making authority at the national level. The functioning of these systems is facilitated by the PES being subordinated to a national management board that may include representatives of the social partners. Regional and local chapters of the national PES supervise the implementation and delivery of the national programmes. Some degree of autonomy in implementing policies and designing programmes may occasionally be granted to regional or local offices, which however still act in accordance with the policy framework and guidelines set at the national level.
- *Regionalised systems:* The PES is chiefly the responsibility of regional governments. Employment policy regionalisation may either be the consequence of the federal structure of the country (e.g. Switzerland and the United States) or the outcome of a process of political reform (e.g. Italy and Spain). Regions do not confine themselves to the delivery of national policies, but also work toward the design of their own measures.
- *Privatised systems:* Privatised systems are often previously integrated ones where service delivery has largely been outsourced to the private sector, which also encompasses non-profit organisations. Private employment service providers deliver job-related activities (e.g. training, job-search assistance, etc.) and receive a commission from the central government for each job placement. Main examples of countries adopting this system are Australia and the Netherlands.

According to these classifications, the UK and Wales come out as a special case. From the labour market point of view, the country looks like quite an integrated system, with labour market programmes designed at the national level by the relevant ministries and delivered locally through the network of Jobcentres. From the point of view of economic development policy, the situation is less straightforward. As a result of the devolution process started in the late 1990s, Scotland, Wales, and partly Northern Ireland can be depicted, though to different extents, as ‘autonomous regions’, whereas England’s regions, which do not have elected regional assemblies, can be regarded as ‘de-concentrated or localised regions’.

As a result, OECD regions with a governance framework relatively similar to Wales were considered to be those which enjoy large autonomy in the domain of economic development planning (i.e. autonomous regions) but lesser autonomy in the domain of labour market policy (i.e. part of an integrated system). This is not an easy combination to find. Most federal countries give regions (i.e. states) a significant say both in the fields of economic development and labour market policy. Examples include Belgium, Mexico, Switzerland, and the United States. Interestingly, regionalised labour market systems have also partly come into place in traditionally unitary states such as Italy and Spain, whose regions have recently been endowed with growing powers through constitutional reforms.

Probably, then, the regions that approach more closely the governance framework of Wales are the Länder of Austria and Germany. Being part of a federal state, Austrian and German regions have strong devolved powers, including in the field of local economic development promotion. At the same time, though, the two countries have still integrated labour market systems featuring a nationwide PES.

Canada is also a federal state where regions (i.e. provinces) have strong development planning powers and which has pioneered labour market policy devolution in an asymmetric fashion, giving more powers to some regions and less to others according to their administrative capacity and willingness to assume responsibility. The same reasoning applies to Australia, which has a federal

structure made up of 6 states and 2 mainland territories. Both states and territories have legislative powers in any field not expressly mentioned in section 51 of the constitution, which gives them a large say on measures aimed at backing local business productivity and economic development. On the front of labour market policy, Australia has long been an integrated system which has only recently moved toward a privatised one where service delivery is outsourced to the private sector. To sum up, Canada and Australia also represent countries with reasonably comparable regional governance framework to Wales.

Other regions of potential interest are those of the United States, Italy and Spain. American states differ from Wales especially in respect of labour market policy, as they can design and deliver more freely their own ALMPs. On the other hand, Italy and Spain have recently undergone significant political reforms that have given regions more powers on both economic development and labour market policies. Nevertheless, in both cases the central government still maintains a guiding role that consists in setting the broad policy framework, main policy orientations and funding. Finally Sweden has recently devolved more powers to two pilot regions and the corresponding elected regional assemblies, i.e. Västra Götaland and Skåne, so that it might be worth investigating how one of these two regions has used this opportunity.

In summary, therefore, the regions which seem to have a governance framework more comparable to that of Wales are those coming from the following countries: Austria, Germany, Canada, Australia, USA, Italy, Spain and Sweden.⁹

Stage III: The review of some OECD relevant publications

The third stage consisted in reviewing some key OECD publications with the goal of pinpointing the main recommended policy approaches in the field of labour market policy and productivity and innovation policy and, where possible, identifying the countries that are leading the way in delivering these policies. Special interest may be placed on regions from these countries in the case study investigation.

The policy determinants of unemployment across OECD countries

A recent paper in the series of OECD Economic Studies investigates the role of policies and institutions in determining unemployment across OECD countries (Bassanini and Duval, 2006).¹⁰ The paper starts from the consideration that both economic theory and empirical research have singled out a number of policy and institutional determinants of unemployment, the main ones being: a) unemployment benefits; b) tax wedge; c) trade union bargaining power and collective bargaining structure; d) employment protection legislation (EPL); e) anti-competitive product-market regulation (PMR); f) active labour market policies (ALMPs). In particular, the paper contends that in the economic literature there is fairly robust evidence that: a) the level and duration of unemployment benefits have a significant positive impact on unemployment; b) high labour taxes tend to increase unemployment rates; c) ALMP spending has a positive effect on unemployment reduction. On the other hand, there is much less consensus on the unemployment effects of EPL, trade union bargaining power and collective bargaining structure.

The paper essentially aims to estimate the impact of the abovementioned policy determinants on unemployment. To have a more reliable estimate, the authors introduce the ‘output gap’ variable, which is intended to control for the unemployment effects of aggregate demand fluctuations. The main results of the analysis are the following after allowing for the output gap. Tax wedges, average benefit replacement rate¹¹ and anti-competitive PMR are estimated to raise aggregate unemployment. EPL and union density are statistically insignificant at conventional confidence levels. Collective and

centralised collective bargaining systems significantly lower the unemployment rate, giving some ground to the view that such systems are better suited to control wage claims. Labour and product-market reforms can, therefore, have sizeable effects on unemployment. For instance, a 10 percentage point cut in the tax wedge is associated with a drop in the unemployment rate by 2.8%, whereas the same percentage reduction in unemployment benefits is reckoned to cause a fall in the unemployment rate by 1.2%.

On the whole, output gap and the combination of policies and institutions appear to explain a significant share of past unemployment trends for most countries. Altogether, they account for 74% of the cross-country variance of unemployment over the period 1982-2003, whereas policies and institutions on their own explain 47% of cross-country unemployment change. Many of the countries that succeeded in lowering unemployment reduced tax wedges and/or unemployment benefits (*e.g.* Denmark, Ireland, and the UK), while where policy changes were typically not employment-friendly unemployment stagnated or rose (*e.g.* France, Japan, Switzerland). For some other countries (*e.g.* Canada, Finland, Spain, and Sweden) labour market performance over the considered period was essentially explained by the output gap, thus pointing to the importance of business cycles and macroeconomic variables in these cases.

Turning to some specific country cases, Ireland saw a decrease in the unemployment rate by nearly 8 percentage points, 7 of which were predicted by policy changes. The UK unemployment rate fell by 6%, nearly all of which is explained by policy changes. Denmark, the United States, Belgium and Spain also experienced an unemployment reduction by approximately 4%, even though the policy contribution to such reduction was stronger in Denmark and the US while weaker in Belgium and Spain. On the other hand, among the countries that did not perform well under the period taken into consideration, France, Japan and Switzerland went through a rise in the unemployment rate between 2% and 4%, with employment-unfriendly policies contributing to this drop by approximately 1 percentage point in each case.

To wrap up, therefore, Ireland, the United States, Denmark and Spain seem to be the countries where effective labour market policies have had the most impact on unemployment reduction. Interestingly, the United States and Spain also emerged from the governance framework analysis as interesting and comparable models for the regional case study investigation.

The Employment Outlook 2007: Activation Strategies

The 2007 OECD Employment Outlook devotes one of its chapters to ‘activation strategies’, which are the policies and tools pursued by countries to improve worker employability and make the unemployed play a more active role during the period of job-search. These strategies are based on the principle of ‘mutual obligation’, which implies that the PES pledges to pay the compensation as long as the beneficiary abides by the corresponding legal requirements, including that of looking actively for a new job.

Four activation strategies are here discussed, namely: a) PES early intervention in the unemployment spell; b) job-search requirements; c) direct referrals of vacancies to the unemployed; d) inclusion in active labour market policies and programmes.

PES early intervention can take different forms, including early verification of the actual unemployment condition of the beneficiary; profiling and skills assessment interviews; early match between the unemployed and potential jobs; etc. Countries that do well in this domain are, among others, Australia, the Netherlands, Austria, Germany, Belgium, France and the United States, while those whose PES early intervention is less intensive are Nordic countries, Ireland and Italy.

Job-search requirements essentially refer to the minimum number and frequency of job-search attempts. Countries where these requisites are more stringent are, *inter alia*, Australia, the Netherlands, Austria, United Kingdom, and the United States, while the same requirements are much looser in France, Spain, Italy and most Nordic countries.

Direct referrals by the PES to vacant jobs are common in Austria, Germany, Belgium and Nordic countries with the significant exception of Sweden, whilst referrals are much less common in Italy, France, Spain, the Netherlands, and the USA.

Participation in ALMPs (*e.g.* vocational training, job-search assistance, public-job creation, etc.) after a certain period of unemployment spell is made compulsory in Australia, Germany, the Netherlands and Nordic countries with the exception of Norway, while in most other countries (*e.g.* Austria, France, Italy, etc.) participation in ALMP programmes is expected only when explicitly recommended by the employment counsellor. The report takes the position that participation in ALMPs favours the re-entry of the unemployed in the labour market and, consequently, looks favourably at compulsory participation and at countries which provide for it.

To summarise the results of this analysis, one can tentatively argue that the best practices in the domain of labour market activation strategies are found in Austria and Germany, while good performers are also Australia, the United States, France and Nordic Countries.

Innovation policy and performance: A cross-country comparison

Innovation has long been considered one of the main drivers of economic growth and is groomed to play an even more important role in the future as a result of the process of globalisation and world trade integration. A recent OECD publication¹² examines innovation policy and its impact on economic performance across six countries: *i.e.* Austria, Finland, Japan, the Netherlands, Sweden and the United Kingdom. These are all countries with consolidated national innovation systems (NIS), each of which has its own peculiar strengths. Nevertheless, there are significant cross-country differences on the way innovation inputs such as R&D spending or the size of human resources in science and technology (S&T) relate to typical measures of economic performance such as GDP per capita or GDP growth. In particular, the six countries are classified into four categories:

- *Countries that have derived high levels of economic and innovative performance from high levels of innovative inputs.* This is the case of Finland, which has seen both a significant increase in R&D spending and S&T human resources and an equivalent improvement in economic performance measured as per capita GDP or multi-factor productivity.
- *Countries where innovation efforts do not equally translate into economic performance.* Japan and Sweden fall within this category. The former has experienced an extended period of relative economic stagnation despite increasing levels of spending on R&D and strong performance in many high-tech sectors. Similarly, Sweden has the highest R&D intensity in the OECD but growth has been sluggish over the 1990s. In both instances there remain doubts about whether the countries are tapping the full potential of their innovation activity.
- *Countries whose economic and innovation performance exceeds that expected from innovative inputs.* This is the peculiar case of Austria, whose R&D investment as a percentage of GDP has lagged behind mainly as a result of scarce industry-driven R&D. Nevertheless, the country has succeeded in achieving relatively high levels of GDP per capita and in seizing specific market niches, including through non-R&D-based innovation.

- *Countries with good economic and innovative performance but with growing concerns about both in the future.* The UK and the Netherlands share strong economic and innovation performance coupled with a strong NIS epitomised by good performance on many indicators of innovative inputs and outputs. Nevertheless, they also both share concerns about how to continue forging ahead by harnessing the full potential of their science basis.

Of course, the reality of each country is much more compounded than can be inferred from this simple classification. So, for instance, Austria showed average levels of R&D activity, scientific output and innovation output, but below average levels of human resources. Finland scores quite high in every innovation aspect, but showed weak international linkages. Japan did not do well in terms of scientific output and industry-university linkages notwithstanding high levels of R&D spending and S&T human resources. The Netherlands shows average levels of R&D and human resource inputs, but high levels of both scientific and innovative output. Sweden is above the average as far as R&D activity and scientific output are concerned, but its levels of international linkage and entrepreneurial activity are only on the average. The UK performs well in terms of human resources in S&T and scientific output, but was not far from average on all other variables.

To wrap up, among the six countries subject of this study, the Netherlands, Finland and Austria are the best performing ones, either because innovation policies have proven successful or because innovation and good economic performance have been achieved despite relatively low investments in traditional innovation inputs such as R&D investment.

R&D and productivity growth: Panel data for 16 OECD countries

A 2001 paper from the OECD Economic Studies series analyses the relationship between three different types of R&D and multifactor productivity (MFP) growth over the period 1980-1998 (Guellec and van Pottelsberghe de la Potterie, 2001).¹³ The paper starts from the assumption that technical change underpins much of the MFP acceleration in OECD member countries, especially during the 1990s. It therefore sets out to estimate the impact of such technical change – *i.e.* measured as the annual growth of R&D capital stock – on MFP growth.

Three different types of R&D are taken into consideration: domestic business R&D, public R&D and foreign business R&D. The first consists in the R&D performed by national businesses, which result in new goods and services, higher quality of output and new production processes. These are clear factors of productivity growth at both the firm and macroeconomic levels.¹⁴ Public R&D is basically the government- and university-performed research that generates basic knowledge. The impact of this category of R&D on productivity is hardly measured due to the inherent difficulties associated with the fact its effect is mainly indirect. Finally, the third source of knowledge and new technology for any country is considered the one generated abroad. This acknowledges the concepts of ‘technology spill-over’ – which can take place through manifold channels: *e.g.* patenting, licensing, FDI, buyer-supplier collaboration, etc. – and of ‘absorptive capacity’, which corresponds to the ability of a national economy to absorb external knowledge and which in turn depends on national R&D capabilities.

Table III.1 illustrates some descriptive statistics on the annual growth rates of MFP and R&D capital stocks for the period under consideration. MFP growth ranges from the minimum of 0.3% in Germany – which has though gone through the re-unification process in the time period – and the maximum of 3.4% in Ireland. Business R&D growth rate varies from 1.9% in the UK to 8.9% in Finland and even 10.8% in Ireland. Foreign R&D was around 4% for most countries, with the exception of Ireland whose annual growth rate over the period was 7%. On the other hand, the growth of public R&D has been much lower and ranged from the 1.9% of the UK to the 6.6% of Finland.

Looking at the simple correlation between the variables, the paper highlights that MFP is highly positively correlated with both business R&D (0.675) and foreign R&D (0.909), while less so with public R&D (0.383). Public R&D and business R&D are also significantly correlated (0.622), thus showing that investment in public R&D (*e.g.* university research, public laboratories, etc.) mainly affects country productivity by carrying an impact on private business R&D. Business R&D and Foreign R&D are also quite positively correlated (0.528), which proves that countries certainly benefit from cross-border knowledge spillovers. Finally, public R&D and foreign R&D are not significantly correlated (0.094), as largely expectable considering there is not a logic relationship between the two.

Table III.1: Descriptive statistics: average annual growth rates, 1980-1998

Country	Business R&D capital stock	Foreign R&D capital stock	Public R&D capital stock	MFP growth
Austria	7.5	3.8	3.69	0.84
Belgium	4.07	4.19	2.11	1.34
Canada	6.71	3.84	2.46	0.69
Denmark	7.08	3.41	4.23	1.02
Finland	8.86	5.11	5.86	2.6
France	3.8	4.1	3.45	1.05
Germany	3.62	3.71	2.41	0.3
Ireland	10.76	7.15	3.35	3.39
Italy	4.83	3.92	4.18	1.08
Japan	6.31	3.56	3.71	0.94
Netherlands	2.66	4.27	2.68	1.05
Norway	5.41	4.34	3.32	1.08
Spain	4.4	4.41	1.95	1.38
Sweden	5.79	4.27	4.25	1.2
UK	1.9	4.21	1.83	1.03
USA	3.66	4.47	2.04	0.94

Source : Guellec and van Pottelsberghe de la Potterie (2001)

A regression model based on a simple Cobb-Douglas production function is then built. In addition to MFP, foreign, domestic, and public R&D, the equation also includes unemployment as a proxy for the business cycle effect, as well as country and time dummies. Estimation results corroborate the first correlation results. In particular, the long-term elasticity of MFP with respect to business R&D is 0.13. Further estimates show that a country's business R&D intensity (*i.e.* the ratio of business R&D expenses on business GDP) has a positive effect on the elasticity of business R&D, thus pointing to increasing returns from private investment in R&D.

The share of government funding has a slightly negative effect on the elasticity of business R&D, but this also includes defence-related spending. If only public R&D with civilian purposes is taken into account, the elasticity turns positive. Moreover, the long-term elasticity of government and university research on productivity is positive and around 0.17. Interestingly, this elasticity is higher when business R&D intensity is higher, which means that public R&D unfolds its full potential when there is a private sector ready to tap on its results.

As to the long-term elasticity of foreign R&D on productivity, this is in the range of 0.45/0.5, which is stunningly high and leads to the conclusion that the ability to harness foreign R&D may be more important than the ability to produce internal innovation. Nevertheless, this is not tantamount to encouraging free-raider behaviours, as in order to 'absorb' external knowledge a country needs be able

to ‘decipher’ it. This means that the higher the R&D intensity of a country, the more the country will be able to benefit from foreign R&D.

At the policy level, the results of this analysis have important implications. Any tool aimed at capturing the benefits of foreign R&D (e.g. FDI attraction, licensing agreements, supply-chain promotion, etc.) is to be encouraged. Domestic business R&D has high spill-over effects, as it enhances the ability of the business sector to absorb technology from abroad and from public research. It entails the importance of public R&D as well, which has an impact on national productivity mainly through domestic business R&D.

In respect of this project, public R&D capital stock is clearly the variable on which national governments have the largest degree of control. Countries that have seen remarkable growth rates in this variable are Austria (3.69%), Denmark (4.23%), Finland (5.86%), Italy (4.18%) and Sweden (4.25%). As to the other two R&D variables, the policy impact may be variable. Nevertheless, countries which have been able to boost more significantly domestic business R&D have been Austria (7.5%), Canada (6.71%), Denmark (7.08%), Finland (8.86%), Ireland (10.76%) and Japan (6.31%), whereas, with regard to foreign business R&D, the examined countries have largely averaged a growth rate of 4%, with the most significant exceptions represented by Ireland (7.15%) and Finland (5.11%).

To wrap up, Austria, Denmark, Finland, Ireland, Italy, Sweden, Canada and Japan appear to emerge from this analysis as interesting countries for the regional case study investigation with respect to innovation because they are investing more heavily in public R&D and/or have significant growth rates in private R&D, which are both correlated with productivity growth and correlated with each other.

Stage IV: Suggested short-list of regions for the regional case study investigation

This section summarises the results of stages I-III and accordingly presents 13 regions and their development strategies as candidates for the regional case study investigation. Much importance has been given to the governance framework, so that proposals mainly come from countries which have been considered relatively akin to Wales from this point of view: *i.e.* Austria, Germany, Canada, Australia, United States, Italy, Spain and Sweden. This means that, from the strict viewpoint of the GDP analysis, an exception has been made for Austria and Germany. Austrian and German *länder* do not meet the specific criterion of a GDP average growth rate over the period 1995-2005 greater than Wales’s. However, the inclusion of these regions is also motivated by the fact that Austria and Germany were often among the countries with good performance in terms of innovation and employment policies (stage III).

In addition to summarising the information stemming from the GDP analysis, Table III.2 also classifies the short-listed regions based on the OECD classification of ‘predominantly urban’, ‘predominantly rural’ (PR), and ‘intermediate’ (IN) regions. The OECD regional typology is based on three criteria. The first criterion identifies rural communities according to population density. A community is defined as rural if its population density is below 150 inhabitants per square kilometre. The second criterion classifies regions according to the percentage of population living in rural communities. Thus, a region is classified as: a) ‘predominantly rural’ if more than 50% of its population lives in rural communities; b) ‘predominantly urban’ if less than 15% of the population lives in rural communities; c) ‘intermediate’ if the share of population living in rural communities is between 15% and 50%. The third criterion is based on the size of the urban centres. Accordingly, a region that would be classified as rural on the basis of the general rule is considered intermediate if it has an urban centre of more than 200 000 inhabitants representing no less than 25% of the regional population. On the other hand, a region that would be ranked as intermediate based on the general rule

is deemed as predominantly urban if it has an urban centre of more than 500 000 inhabitants representing no less than 25% of the regional population. The table also illustrates the population density of the shortlisted regions, which complements the information on the ‘geography’ of the selected regional proposals.

The base GDP data for Ohio and Pennsylvania refer to the year 1997, when Wales’ per capita GDP was 18 174 USD. PU (*i.e.* Predominantly Urban); PR (*i.e.* Predominantly Rural); IN (*i.e.* Intermediate)

Most of the proposed regions are, therefore, ‘intermediate’ regions like Wales, even though some options of urban (Ruhr region in North-Rhine Westphalia, Basque Country, and Pennsylvania) and rural (Schleswig-Holstein) regions are also given. However, none of these proposals concerns regions extremely different from Wales. The population density of Schleswig-Holstein is, in fact, actually higher than Wales’. The high population density of the Basque Country is chiefly due to its reduced geographical size, but the overall population of the region as a whole (*i.e.* 2.1 million) and of its main city (*i.e.* Bilbao’s inhabitants are 350 000) are indeed quite similar to that of respectively Wales and Cardiff.

Table III.2: GDP and geography of the proposed regions

Proposed Regions	GDP		Geography	
	1995 Base (USD PPP)	GDP growth %	OECD classification	Population density
Wales	16 704	1.71	IN	142.065
Western Australia	22 452	2.25	IN	0.783
Styria	20 888	1.43	IN	72.890
Bayern	27 086	0.93	IN	176.240
NRW (incl. Ruhr)	24 875	-0.14	PU	530.399
Saxony	16 288	1.37	IN	234.010
Schleswig-Holstein	24 000	-0.45	PR	179.282
Tuscany	17 098	3.5	IN	155.792
Piedmont	18 504	2.85	IN	169.283
Andalusia	12 326	2.79	IN	86.893
Basque Country	19 966	2.77	PU	290.145
South Sweden (incl. Scania)	19 588	4.26	IN	90.607
Ohio	29 620*	3.8	IN	158.782
Pennsylvania	28 576*	4.67	PU	167.316

The Ruhr is certainly a highly industrialised and densely populated region, but still it does not have any metropolitan area. Dortmund, Ruhr’s largest city, boasts approximately 550 000 inhabitants. Moreover, Ruhr’s industrial tradition and present process of economic restructuring would more likely make it an interesting case to study. Finally, the metropolitan area of Philadelphia may make Pennsylvania look like more dissimilar from Wales, but nevertheless this state also shares with Wales a significant tradition in ‘smokestack’ industries (*i.e.* Pittsburgh and the steelmaking industry) and faces therefore similar challenges. Moreover, the focus in this last case is primarily on labour market and skill development policies, which makes this proposal quite dissimilar from most of the others.

The remaining part of this section briefly describes the development strategy of each of the 13 shortlisted regions, whose proposal is also linked to the two following factors:

Preliminary investigation has revealed that they have interesting economic development models in terms of strategies, packages of innovative policies and programmes, or delivery arrangements.

Contacts made on the ground have identified the availability of appropriate academics or experts who would be interested in undertaking the case study on the relevant region.

All the regions match the criteria described in Stages I-III above. There are other regions that match the criteria in Stages I-III that are not included here because it has not been possible to verify that they have both interesting development strategies and available experts.

Australia: The state of Western Australia

Western Australia's (WA) economy is growing rapidly on the back of a commodity boom fuelled largely by overseas resource and energy demands. Its economic performance is directly linked to the effect of the large rise in commodity prices and Australia's terms of trade. The prospect of higher returns in resource and related industries has attracted both capital and labour from within and outside Australia to this resource-rich state, where mining accounts for a large share of output.

Nine-tenths of Western Australia's land area is deemed regional. While it supports only 27% of the State's population (approx. 0.5 m) it accounts for 83% of the State's exports, mostly from primary and resource industries. There is great diversity within WA's nine regions in terms of GRP, with regions close to Perth (*e.g.* Peel) or those with capital intensive mining developments (*e.g.* Goldfields-Esperance and Pilbara) growing significantly faster than the other regions that rely more on labour intensive economic activity such as agriculture. The WA capital, Perth, stands out as a 'primate' city within the State.

Regional development strategies in WA thus seek to deal with a myriad of issues including: disparity between metropolitan and regional areas due to Perth's primacy; economic disparities within the regions (some with high yielding capital-intensive mining operations while others relying on labour-intensive activity such as agriculture); the locational and economic isolation of various communities (*e.g.* mining towns, small towns in the wheat belt, remote indigenous Aboriginal communities); the potentially adverse social and environmental impacts of expansion of mining operations and land clearing for agriculture; and the environmental and social equity implications of the urban sprawl.

The WA regional development model presents an interesting case-study because of a combination of factors. On the one hand, the WA government has taken a holistic approach towards tackling the range of issues indicated above by seeking to couple regional economic development objectives with sustainable development considerations. This entails greater community participation and allows electoral pressure from regions to influence regional development policies. On the other hand, the WA economy has operated within a policy climate dominated by neo-liberal ideology which shapes the policy and practice of regional development and the effectiveness of regional development organisations such as the Resource Development Commissions (RDCs). Government organisations have to deal with some very powerful players such as the mining corporations as well as some highly disadvantaged and isolated communities such as those in the small towns in the wheat belt that are dying out due to farm agglomeration, population decline and withdrawal of services – or still the Aboriginal communities whose traditional life style and claim to land is interfered with by rapid expansion of mining and pastoralist ventures.

Through facilitation and provision of information, RDCs seem to have managed economic growth well and effected investments in some major infrastructure initiatives (wind farms, desalinisation plant, urban railway extensions, etc.) and there are many success stories of regional development initiatives found within WA. The policy pitch on sustainability principles and the stated commitment to balance economic achievements with social and environmental objectives, however,

may have been affected by economic rationalism and neo-liberal policies. Some of the stress is evident in the wheat belt small towns as well as the unprecedented housing affordability stress in the area of Perth.

The WA regional development model could thus serve as an interesting case-study of the social and economic outcomes of a deliberate policy of coupling regional development and sustainability objectives. It could also provide a study into the effectiveness and limitations of the role government agencies can play in promoting social equity and ecological conservation objectives while dealing with key players in an unequal partnership operating in a neo-liberal climate.

Following is a selection of successful initiatives in WA, which could serve as interesting cases in regional development.

- The Citizens and Civics Unit aims to strengthen democracy and encourage dialogue between the people and government institutions. Meanwhile, the WA Planning Commission recently undertook ‘dialogue with the City’, culminating in a massive community forum with over 1 100 participants that yielded the Network City – an urban development strategy for the regions of Perth and Peel.
- The State government has successfully fostered amicable working relations between the indigenous Aboriginal communities and some mining corporations. The corporations consult the indigenous communities over the management of cultural heritage and offer support in the areas of education, training and business opportunities. Some corporations have set targets for the percentage of indigenous employees in company operations.
- Another interesting and particularly successful example of regional development is found in Geraldton’s rock lobster industry based around Abrolhos Islands. This has been an outcome of community consultation and involvement, as well as the facilitation of partnership between industry and the community for the industry’s economic management. Various structures such as Advisory Boards with community representation have been established.

Austria: The region of Styria

The *Bundesländ* of Styria is located in the south-west part of Austria and has a population of approximately 1.2 million people. Its capital city is Graz, which has a population of 250 000 people. Suffering in the 1970s and 1980s from the problems of a typical old industrial area dominated by a large national industry, and being exposed to a new economic situation due to the fall of the Iron Curtain on its border, Styria was confronted with considerable challenges. The 1980s and early 1990s were characterised by a low level of growth in regional output, an unbalanced labour market, and structural problems, such as an insufficient rate of firm creation and a low rate of innovation.

In particular, the problems of the iron and steel industry mainly located in the northern part of the region turned out to be the major bottleneck for economic development. This part of the region was dominated by large state-owned firms that were highly vertically integrated and had lost their headquarter functions in the 1960s and 1970s to the advantage of Vienna. In most cases, planning, R&D and marketing/distribution functions had been lost. At the end of the 1980s, large firms were re-privatised and down-sized. Firms needed to learn to collaborate and develop the potential to innovate. It was a situation with a very abrupt change from a Fordist system of production to one driven by the principle of flexible specialisation.

A massive structural change of the regional innovation system in Styria has been observed since the beginning of the 1990s, especially in steel-related sectors such as mechanical engineering, machinery and automotive. High degrees of diversification and broad unspecified clienteles have been reduced to market niches and technological specialisation, thereby leaving scope for automatisisation. Technological upgrading (including the introduction of quality and measuring standards) also opened up doors to new customers. Such upgrading has been accompanied by an extension of responsibilities to SMEs and system suppliers both in terms of quality and price-setting. Innovation in these sectors was influenced by the availability of specialised knowledge. For firms who were already active in R&D a shift from demand-pull driven to science-push driven R&D seems to have occurred. High concentration of economic activity in a relatively small range of technology fields and industries is today the prevailing situation in Styria.

The regional government has played a crucial role in promoting cooperation and networks at the regional level during the last decade also by promoting new institutions of knowledge generation. Network-orientation also includes policy networks, which help develop and implement regional strategies in the sense of multi-level governance.

Germany: The region of Bavaria

In the last 30 years the regional development policy of Bavaria has adopted several theoretical approaches. In addition to traditional tools such as ‘central places’, ‘development axes’ and the characterisation of different types of industrial districts, new flexible instruments such as ‘city networks’, ‘innovative milieus’ and ‘regional marketing’ have been introduced as strategies for the development of the regions. According to these concepts, a region is regarded as an organisation. As a result, the potentials of regional actors are mobilised and used to foster regional development through self organisation and pro-activity.

This bottom-up approach has been implemented in Bavaria in the last 15 years and has evolved towards the recent concepts of cluster formation and regional management. Using three regions with different structures and development problems an attempt is made to depict a track record. The three regions would be: a) the county Cham in the Bavarian-Bohemian border region as an example of a commercially shaped region; b) the county Bad Tölz-Wolfratshausen as an example of a region with a well developed tourism industry and, still, structural problems in different economic sectors; c) the administrative district of Upper Franconia as an example of an old industrialised region which has successfully accomplished the structural change within the manufacturing sector.

Germany: The Ruhr region in the Länd of North-Rhine Westphalia

The Ruhr is situated in the *Länd* of North-Rhine Westphalia (NRW) and is a renowned old industrial region. Being densely populated, the Ruhr region alone has more than 5 million inhabitants. Because of its rich natural resources, the region specialised early on in coal mining and steel production. Consequently, many metal-manufacturing enterprises, often linked to coal and steel, emerged as well. The roots of mass production steel-making in Duisburg date back to the period 1855-1865, but companies in these sectors still today have a comparative advantage in the world market. For instance, *Thyssen-Krupp* is still one of the major global enterprises in steel production. Nevertheless, as a result of the process of de-industrialisation, the general level of employment in the region today is 15.3 percentage points below the level of 1980. In 2006 the Ruhr Region had 14.3% of unemployment, even though it still contributed to Germany’s economy with a GDP of EUR 122 195 million.

The Ruhr Region is thus a perfect example of social and economic restructuring in Germany. On the one hand, it shows a long tradition of industrial production and innovation which helps regional enterprises to compete successfully on the world market. On the other hand, employment is created in new growth industries with a high share of service activities. Today, 75% of the labour force in the Ruhr is working in the service industry, especially in logistics, health care, education and business services. Compared to the past, gross value added (GVA) in the service sector has significantly increased, even though the service sector grows slower in the Ruhr as compared to the rest of North-Rhine Westphalia.

The reason for this mixed result is that strong forms of de-industrialisation have weakened the region, but also past concepts of structural policy made the region dependent on financial subsidies without supporting sustainable growth and innovation. In addition, regional policies by the *Länd* government have been rather oriented towards social and economic compensation for those communes that were lagging behind. As a consequence, many projects which were initiated by regional and structural policies only had a short-term effect and attempted to guarantee social cohesion for the different parts of the region.

Today, this problem has been recognised at all levels of government. Its acknowledgement has reversed the logic of regional development strategies in the Ruhr. Both, structural and regional policies now aim at the support and development of endogenous growth potentials. In order to carry out this task, the regional Ministry of Economy has re-organised its bureaucratic structure in 2005 and founded departments for cluster policies. These new departments are to identify sectoral specialisations irrespective of administrative boundaries. Strong local economies with comparative advantages in specific sectors are now targeted with support measures. Weaker local economies have seen funding significantly reduced.

At the regional level, a new association, the *Regionalverband Ruhr*, which is in charge of regional planning and business development, was tasked with designing a master plan for the Ruhr Region in 2004. In complex corporatist arrangements the region, communes and interest groups agree on common development strategies. At the heart of this new approach is the integration of structural and regional policy to strengthen local growth potentials. There are many new successful projects which have evolved out of this new approach. Four examples are given below to illustrate such dynamics:

- The Ruhr Region has a long entrepreneurial tradition in energy industry. This knowledge is now used to create comparative advantages in renewable energy management. The commune of Gelsenkirchen produces solar cells, Duisburg does research on fuel cells, Essen and Bochum are important local economies specialised in energy industry. The region has now developed some concepts to further strengthen this specialisation and create synergies.
- In Duisburg, the logistics industry has grown enormously. This is due to a combined approach by the EU, the federal government, the *Länd* government and the commune of Duisburg. When the company *Krupp* decided to close its steel plant in Rheinhausen in the 1990s, all these public actors supported the renewal of the ground of the former steel plant and helped to settle a logistics cluster there. Today, many goods (e.g. consumer electronics from Japan) are distributed from there all over Europe.
- In the 1960s and 1970s, many universities were established in the Ruhr. In the cities of Essen, Bottrop, Herne, and Bochum many institutes for further vocational training are concentrated. The region attempts to activate this dense network of educational and training facilities in order to market its services to enterprises.

- Medical research and medical engineering is growing in the region. Five universities, eight colleges and many research centres contribute to this specialisation. At the same time, the health care sector in general creates more and more employment. Medical research and engineering could be further developed and linked to the growing regional demand for services. The region elaborates concepts on how to strengthen existing competences for the international market, on the one hand, and to supply regional services on the other by stimulating cooperation between regional public and private actors.

Germany: The region of Saxony

Regional development and industrial modernisation in Europe is increasingly squeezed between low-cost manufacturing, which is faced with the risk of relocation to lower labour cost countries, and strong competition in research-based industries. While, low labour cost and scant regulations (*i.e.* labour market, environment, etc.) make investments in traditional manufacturing more attractive in developing countries, the development of research-based sectors calls for sizeable public and private investments that are characterised by uncertainty on investment returns. Regional development strategies are confronted with this twofold challenge.

The German *Länd* of Saxony (4.2 million people) represents an interesting case, even though the participation in former Eastern Germany has posed in the recent past problems typical of a transition economy that are quite different from the challenges facing Wales. Nevertheless, Saxony shares with Wales the ongoing process of de-industrialisation, which makes this case still worth exploring.

In Saxony, de-industrialisation has not implied the abandonment of traditional sectors. In fact, the regional government has introduced over the last years policies and tools geared towards restructuring and modernising traditional sectors, especially the mechanical engineering one. In addition, Saxony has given particular attention to the development of the Technical University of Dresden. The new research initiatives at this university have helped modernise regional industrial traditions. At the same time, the Technical University has also helped build a national island of innovation in the fields of information and communication technologies.

These two strategies were complemented by the attempt to attract large private investments. Saxony had a longstanding tradition in the automotive and motorbike sectors. With the collapse of the Soviet Union and the fall of the Iron Curtain, these two regional industries were, however, not in a position to compete with western producers. It followed the decision by the state government to attract western car manufacturers such as Volkswagen, Porsche and, more recently, BMW.

Clusters have therefore emerged in mechanical engineering, which has also some international recognition, and in the automotive industry, which has naturally grown out of the presence of large manufacturers. Finally, the Island of Innovation formed in the area of Dresden is well accepted for national and international collaboration and wins a significant amount of research funds.

Despite this progress, the level of unemployment is still high, as there continues to be mighty migration from the region especially among qualified workers. The number of firms is too small and there is often a mismatch between skills demand and supply. In some regions, this has a severe impact on both the labour market and demographic development. The population significantly lacks younger age cohorts, the number of births is low, and because of higher incomes elsewhere, there is a lack of young qualified personnel in engineering and management profiles.

To sum up, from the example of Saxony several lessons can be learned:

- Regional development can be induced politically.
- Innovation capabilities can reach a level of other (West German) regions and even islands of innovation can be established. However, these processes take some time (easily between one and two decades), although they can be faster according to the existing situation and suitable public policies.
- Strong budgets need to be invested and may accrue from different levels of government.
- Employment and education policies, as well as a strong focus on research and technology, need to be combined with innovation and restructuring policies.

Germany: The region of Schleswig-Holstein

The rationale for Schleswig-Holstein as a potential case study lies in its similarity with Wales. Both of them are relatively peripheral and thinly populated (3 million people vs. 2.8 million) and have only a few urban areas (Cardiff, Swansea, Wrexham in Wales and Kiel, Lübeck, Flensburg in Schleswig-Holstein). Both regions have a history of restructuring traditional industries (coal-mining in Wales, shipbuilding in Schleswig-Holstein) and both have a coastal location, with potentially similar endogenous potentials, namely in maritime-related industries, tourism and wind energy. In particular, two main policy areas seem to be crucial in Schleswig-Holstein: *i.e.* selected cluster policies and the partnership policy with neighbouring Hamburg.

With regard to the former, three concrete cluster policies might potentially be of interest to Wales too: *i.e.* maritime industry, wind energy and regenerative energies and tourism. As to the latter, the strategy of the Schleswig-Holstein government regarding the long-standing partnership with Hamburg might be relevant for Wales given the fact that it also neighbours larger conurbations such as the area around Cheshire, Manchester, Liverpool, the Birmingham area and the M4 corridor to London. Although there is a longstanding relationship, recently the co-operation has been intensified and last year a study was carried out in the framework of stronger co-operation in the fields of a common economic region and a common knowledge region, exemplified by a co-operation treaty between the universities of Kiel and Hamburg.

Italy: The Region of Tuscany

Tuscany is one of the most dynamic regions of Italy, with a high propensity to export goods and services and a high capability to attract FDI. The population of Tuscany is 3.6 million people (6% of the entire national population) but produces about 7% of the total national GDP. During the years 2000-2006 the regional GDP grew by 6.3%, while at national level the rise was 5.4%. In 2007 the regional unemployment rate was 4.8%, while the national unemployment rate was 6.8%; the regional total employment rate was 64.8%, versus a national employment rate of 58.4%; the regional female employment rate was 45.2% (34.2% at national level). Tuscany is the second Italian region for public expenditures in R&D (0.7% of regional GDP) and the third in terms of relative weight of employment in R&D.

There are three main reasons why Tuscany provides an interesting case of regional development. Firstly, the governance mode of Tuscany is recently facing a process of radical change of its economy with relevant transformations in the productive structure. On the one hand, there has been a shift from a manufacturing-led economy to a model of regional capitalism based on highly qualified services. On the other hand, old industrial areas (industrial districts and local systems driven by large firms) are experiencing a re-organisation in the productive structure with the emergence of new organisational

formulas, based on networks of specialised suppliers and leader firms and with a close integration between manufacturing and business-to-business activities. A detailed analysis of these processes and changes will shed light on how dynamic firms and sectors of European regions are pursuing a high road for development and on how this path can be supported and sustained with specific policy interventions.

Secondly, the regional government of Tuscany has recently followed an interesting and innovative development strategy to promote and sustain the competitiveness of the regional economy and to face the abovementioned changes and restructuring. This strategy is based on three main pillars: a) to create effective regional collective competition goods able to promote the competitiveness of firms in traditional and more innovative sectors; b) to combine economic competitiveness with social cohesion; c) to pursue the environmental sustainability of regional development. Many interesting measures can be identified for each of these pillars and some of them can be defined as ‘good practices’ in regional development governance. The analysis of their strengths and weaknesses could give valuable insights and suggestions on how to reinforce territorial competitiveness and socio-environmental sustainability.

Thirdly, regional and local administrations have recently promoted the participation and inclusion in policy making of both collective actors and single citizens. On the one hand, the major regional stakeholders have been involved in the making of collective goods dedicated to promote regional, socio-economic development. By this point of view, many interesting techniques and institutional arrangements have been adopted to promote an effective participation of collective actors and organisations. On the other hand, a model of experimental participation for single citizens and groups has been enforced by a regional law. This change introduced a model of deliberative policy-making for some policy arena which triggered the mobilisation of important parts of regional society that expressed a high level of satisfaction and consensus towards this new inclusive model.

Italy: The region of Piedmont

After a severe crisis due to the industrial downturn of Fiat and its cluster, Piedmont has recently begun to grow again. A contribution certainly comes from the improved situation of FIAT, which has boosted the performance of its wide cluster of firms specialised in the car industry. But beyond the recovery of its traditional industry of specialisation, other industries are contributing to the positive trend; among them are some traditional sectors of specialisation such as the agro-food industry and tourism, as well as high tech activities.

The introduction of a new pattern of regional development policies is one important element to understand the origins of these positive changes in the local economic system. Two areas of intervention are particularly interesting: a) innovation policies; b) rural policies.

Based on EUROSTAT data, Piedmont is the first Italian region as to the number of people employed in R&D activities, representing almost one third of the total figure at country level. Moreover, about 20% of the Italian industrial patents and some 30% of the national R&D expenditures can be ascribed to firms from Piedmont. The region invests about 1.7% of its GDP in R&D, mainly through private firms, a share higher than the Italian average, which is around 1.1 %.

In 2006, the Regional Government of Piedmont enacted a law designed to promote the emergence of a regional system of research and innovation, identifying the main guidelines and objectives in terms of supporting scientific research. It focuses on regional public policies to promote networking among the different actors operating at regional level, *e.g.* universities, public research centres, firms, extension agencies, business associations, etc. In addition, a new body, the Regional

Committee for Scientific Research and Innovation, has been set up to assume responsibility for the planning and coordination of the various initiatives that are being developed within the Region.

Another area in which the region has put in place different activities is the diffusion of ICTs in different parts of society: public administration, business sector, individuals, etc. A first strategic plan for the information society was drawn in 1996. Since then, different initiatives have been realised in order to create efficient communication infrastructures such as *Ruparpiemonte*, a network of regional public administration offices, born with the strategic objective of developing data transmission networks linking all public institutions in the region and the more recent WI-PIE, a regional programme for the diffusion of the broadband to both individuals and enterprises.

An important project is Torino Wireless, which was launched in 2001. The objective of the project is creating and developing the Piedmont high-tech district, by increasing contribution of high tech sectors in the regional economy. Through this project, the Foundation Torino Wireless acts as an ‘enterprise hub’, offering high tech SMEs an integrated access to technological expertise, incubation infrastructures, marketing, business development and management expertise, networking opportunities and financial support. Apart from supporting innovative local firms, the Foundation also tries to attract in the area innovative firms from other part of Italy and from abroad. In the area of high tech start ups, the incubator programme I3P of Turin’s *Politecnico* (i.e. Italy’s main engineering university) is particularly successful, as demonstrated by the award of Best Science Incubator won in 2004, after *Tsinghua Science Park of Beijing* in 2002 and the *Bio-Business Centre of Oxford* in 2003.

Among other initiatives worth mentioning, there is a project targeting three industrial districts (Alba, Biella and Oleggio-Borgamento) named “From the industrial districts to the digital districts”, which is aimed at sustaining the adoption of ICT in small and medium sized enterprises specialised in traditional sectors such as textile, clothing, food.

On the front of rural policies, on the other hand, Piedmont is the region of some of the best known Italian wines, which are produced in the lands of *Langhe* and *Monferrato*, which attract many tourists for the beauty of the landscape, as well as the quality of food and culture. In this field, a recent regional law has been enacted that promotes the creation of two new typologies of district: i.e. the rural districts and the high quality agri-food districts. Through the identification of these districts, the Regional Government is trying to promote an integrated approach to local development, addressing at the same time agriculture, tourism, handicraft, the environment and the cultural values of the territories.

Spain: The region of Andalusia

The Autonomous Community of Andalusia is the southernmost region of Spain. Extending over 87 000 sq. km, the region has almost 9 million inhabitants. It is geographically diverse, with extensive rural areas and several large capital cities. The government of Andalusia is decentralised and is similar to countries with a federal political system. Andalusia has traditionally been an underdeveloped region, although it has undergone a rapid process of change in the last 20 years.

From 1980 to 1990 the region experienced an intense process of modernisation, particularly with regard to the following issues:

- Building of modern infrastructures.
- Rationalisation of obsolete industrial and agricultural sectors and growth of new sectors, especially tourism and agri-food.

- Development of universally accessible public services (*i.e.* social services, healthcare and energy). Great importance has been placed on education, leading to universal secondary education and the expansion of higher education.

By the beginning of the 21st century, economic welfare in Andalusia was on a par with national standards. However, Andalusia continued to be marked by its lower economic competitiveness (73.5% of per capita GDP of Spain in 2001) due to a lag in the accumulation of productive private capital and business innovation and a lack of qualified human capital.

In the year 2001, the regional government undertook a strategy of political action called the ‘second modernisation’. This strategy was aimed at integrating the region into models of development typical of knowledge societies and comprised numerous measures in the political and social spheres.

- *System of governance.* The departments of the regional government were re-organised in line with the so-called ‘interactive model’. This consisted of integrating all the policies related to specialised educational services, higher education, R&D, energy, ICTs, innovation and business support.
- *Measures aimed at entrepreneurship and business improvement.* In addition to tax incentives and public aid for innovation, the most important measures were taken at two levels: a) support of innovative companies through the creation of a large venture capital technological corporation formed by the regional government, the banking sector, universities and large companies in the region; b) extended support for self-employment and the creation of small businesses through the provision of economic aid and consultancy services.
- *Measures aimed at the educational sector and the labour market.* This included: a) opening the university to the industrial sector through the creation of spin-offs, cooperative research projects and the exchange of human resources with companies; b) training human resources for high-level scientific and technical positions to promote excellence and spur international mobility; c) extend professional training to post-secondary education through agreements with companies.

To sum up, Andalusia is an example of a rapid change from traditional policies based on a linear model of innovation to policies aimed at interaction between administration, educational system and business sector.

Spain: The Basque Country

In the 1980s the Basque Region was affected by a strong industrial crisis with a high rate of unemployment and socio-economic instability. The R&D concept was almost unknown in the region. To overcome this situation, and thanks to the existent degree of autonomy from 1979, the Basque Government planned a long-term strategy consisting of different regional and EU co-funded initiatives and plans. Through these three decades the Basque economy has completed with success an expansive cycle and now faces a second big economic transformation. The Basque regional development strategy has been structured into three different stages:

- *1980-1996:* During the first stage a supply oriented policy was implemented in order to build the science, technology infrastructure and capabilities to push the business basis. The Technological Centres and the Technological Strategy Unit were created together with specific actions to support R&D business units. The first steps of the Technological Strategy Planning were developed together with the First Industrial Policy Plan and the Industrial

Technology Plan. During this stage, the basis for the current Science and Technology Network was established.

- *1997-2005*: Once the technological infrastructure was developed, the next step focused on the creation of the technological demand, making entrepreneurial cooperation grow and generating intra-sectoral links. Business clusters represent a relevant output of this stage. The activities of the Technological Centres were brought in line with the business clusters, thus ensuring the alignment of supply and demand policies. The second Industrial Policy Plan, the Science and Technology Plan and the Science Technology and Innovation Plan were launched. These plans were combined with other EU co-funded initiatives and an inter-institutional Plan for EC promotion. A specific Plan for Information Society was also launched. During this stage, the Basque Science and Technology policy was consolidated and the strategy oriented towards social and business needs.
- *2006-2015*: During this period the regional development strategy is oriented to results, business diversification and social competitiveness. The challenge is to spread innovation culture among the Basque society, improving excellence and taking advantage of the opportunities offered by globalisation for the Basque society. In this framework, the Business Competitiveness and Social Innovation Plans have been launched together with other long-term initiatives: Basque Strategy 2015, Science Technology and Innovation Plan 2010, Bio BASK2010, nano BASK 2015, etc.

Sweden: The Scania region

Scania (*i.e.* *Skåne* in Swedish) is located in the southernmost tip of Sweden and hosts 1.2 million people. The region suffered quite severely from the crisis and decline in European ship-building and other heavy industries during the 1970s. It has however made a relatively fast transition towards a more knowledge-based economy. Particularly the area around Lund has developed a dynamic industrial structure specialised in biotechnology and ICT. This is mainly the result of the presence of Lund University, the main actor in the knowledge exploration subsystem of the Scania regional innovation system. The university covers a wide spectrum of disciplines including the Faculty of Engineering, the Faculty of Science and the Faculty of Medicine and is considered as one of Scandinavia's most prestigious institutions for education and research. An important role in the development of these high-tech industries was the creation in 1983 of the *Ideon* science park, which was the first and still is the largest science park in Nordic countries. This initiative was the outcome of collaboration between representatives of regional industry, policy-makers and Lund University as a response to the decline of heavy industry in the region. Currently, *Ideon* hosts approximately 200 companies mainly in IT and biotechnology. Scania is also well-known for its biotechnology cluster Medicon Valley as part of the Swedish-Danish cross-border Öresund region.

In contrast to these successful high-tech developments, the region is confronted with major problems in the dominating traditional sector, *i.e.* the food industry, which is faced with increasing difficulties to compete with regions in Eastern Europe as a result of cost disadvantages. The importance of this industry can be illustrated by its share of employment. While life science accounts for approximately 7 600 employees, IT for 13 000 employees, the food sector outnumbers these sectors with 25 000 employees. This number increases to 40 000 when closely related industries are taken into account. In terms of business activity 45% of Sweden's food industry is located in this area. Even though the Swedish food industry has managed to adapt well to the EU membership in 1995, employment in the industry has decreased substantially over recent years. This decrease was particularly strong in Scania where more than 1 000 jobs disappeared between 2000 and 2004. An important cause underlying this decline is the dominance of traditional food processing activities in

areas such as sugar, meat and dairy products, which are labor-intensive sectors, heavily based on bulk production, price competition and economies of scale. As a result, growth is low and the sector lacks structural innovative capacity to develop and produce more value-added products. This exposes the region to the relocation of production facilities. This prompted actors in the region to send a successful application to the *Vinnväxt* competition, a regional support programme run by *Vinnova*, the Swedish government innovation agency. The programme provides a 10-year support for building regional innovation systems. Once again, Lund University is playing an important role in this process.

To sum up, Scania would be especially interesting to investigate because of the key role Lund University has played in the development of the regional innovation system, which has partly consisted in supporting emerging high-tech industries (*e.g.* IT and biotech) and partly in assisting the restructuring of a traditional sector (*e.g.* food industry).

United States: The state of Ohio

The continued industrial decline of the US Midwest, including Ohio (population nearly 11.5 million people), has been long and painful. Manufacturing employment, long the economic base of the state and still well above the national average, is in steady decline. Ohio, along with Michigan, is a major location for auto production as well as other traditional manufacturing industries. This legacy has created a culture that is among the least entrepreneurial in the United States, despite a large number of colleges and universities – several of them world-class – and a relatively high profile in research and innovation. Large proportions of graduates leave Ohio after finishing their education, leaving behind a population with an educational attainment lower than the US average.

The current economic development strategy for Ohio, as proposed initially in 2002, rests on two pillars: first, a focus on *technology and innovation* and, second, an attempt to *create an entrepreneurial culture*. The technology focus identifies several manufacturing sectors in Ohio in which technology is prominent. Similar projects in individual metropolitan areas have identified clusters that could serve as a basis for regional growth in those city-regions.

In order to build an entrepreneurial economy, several fundamental changes are needed. Foremost, the availability of start-up capital – abundant in other regions of the US – is historically very scarce in Ohio. A state-wide venture capital fund (*i.e.* The Ohio Capital Fund) has begun to attract private investment. In addition, local attempts to build networks of business angels have begun in some of the metropolitan regions.

Both an entrepreneurial culture and an innovative economy revolve around networks, and the goal to improve collaboration and cooperation also is a fundamental change in the culture of a state where independence and local governance have been the norm. This extends to the state's research universities, which need to be more engaged with both business and community. In addition to this overarching strategy, which is very recent and only partially implemented, a number of separate, uncoordinated policies and programmes exist. The varying conditions in the local urban regions in Ohio have led to a long-established local, rather than a state-wide, outlook.

Finally, the change in culture is also related to attempts to attract and retain knowledge workers from elsewhere as well as to place greater priority on education for a highly skilled workforce. Such a workforce should comprise a talent base of knowledgeable workers at all levels (from technician to post-doctorate) that can develop and apply knowledge to the design and production of new products.

Ohio's development strategy has the potential to succeed in spite of cultural and historical challenges. Notably, the presence of strong higher education institutions in the state suggests that

innovation and entrepreneurship are within reach. While it is too soon for a full evaluation of the Ohio strategy, its similarity to Wales in several respects suggests that lessons can be learned from an investigation of this case.

United States: The state of Pennsylvania

Workforce development today must focus not only on the needs of job seekers, but also on the needs of businesses. Recognising this fact, Pennsylvania has recently embarked upon a new industry-led, demand-driven workforce strategy called Pennsylvania's Industry Partnerships. Industry Partnerships bring together managers from multiple companies, in some cases together with worker representatives, to identify and address common workforce needs. At the most basic level, these partnerships provide companies with a more cost-effective way to provide training to their employees—training that smaller businesses often could not afford on their own.

Pennsylvania's new strategy has its roots around 2000 when regions including Lancaster, Berks, North Central Pennsylvania, and Pittsburgh began bringing local industries together to identify their skill gaps and workforce needs. Pennsylvania was known as an industrial pioneer in the industrial age, but now many regions in the state struggle to compete in a more diverse global economy. Pittsburgh has seen a nearly total disappearance of the steel industry over the past decade and North Central Pennsylvania has lost most of its resource-extraction based industries.

In 2002, the Governor commissioned a workforce development study that described these bottom-up local efforts and recommended that the commonwealth invest in Industry Partnerships throughout the state that could permanently link workforce programmes with the skill needs of employers. In 2005 the Pennsylvania General Assembly passed *Job Ready PA*, a legislation designed to create a workforce development system that is efficient and responsive to both worker and employer training needs. The bill included USD 20 million for building and delivering training through Industry Partnerships across the state. This state investment, which augmented already available federal workforce funds, took local workforce innovations to a larger scale than any other state. Job Ready is creating and delivering training programmes responsive to the needs of businesses in every region and every one of Pennsylvania's critical industry clusters.

Today, there are more than 90 active Industry Partnerships throughout Pennsylvania, representing nearly 5 800 employers. Together, these partnerships have organised and implemented training for more than 24 000 workers. They are engaged in a wide range of activities, from training and education to youth initiatives and the sharing of best practices. Here is a sample:

- Identifying the training needs of businesses, including skill gaps critical to competitiveness and innovation.
- Aggregating training and education needs across companies and achieving economies of scale in the delivery of training.
- Helping educational and training institutions align curriculum and programmes to industry demand, particularly for higher skill occupations.
- Informing and collaborating with youth councils, business-education partnerships, parents and career counsellors and bringing employers together to address the challenges of connecting youth to careers.

- Helping companies identify and address common organisational and human resource challenges: *e.g.* recruiting new workers, retaining incumbent workers, implementing high-performance work organisations, adopting new technologies and fostering experiential on-the-job learning.
- Developing new career lattices within and across companies, enabling entry-level workers to improve skills to advance into higher-skill, higher-wage jobs.
- Developing new industry credentials that give companies confidence in the skills of new hires and provide workers more mobility and earning potential across firms.
- Promoting communication across firm boundaries to disseminate best practices and strengthen industry clusters.
- Partnering with national foundations and regional investors to connect low-income workers with partnerships of local employers in key industries.

This state-wide programme excels as an example of bringing together workforce, economic development, and educational institutions in order to provide a comprehensive and integrated continuum of services that, by matching the needs of workers and businesses, can improve the competitive advantage of the state in a global economy. Other states have pursued similar attempts at coordination, but Pennsylvania appears to be a leader in building upon the grass-root initiatives of a few of its regions and scaling them up to include the entire state.

Stage V: The final choice of the five regions

The five regional models to investigate have been chosen by the OECD secretariat in consultation with WAG, based on their interest for Wales and similar regions. The choice fell on Pennsylvania (USA), Schleswig-Holstein (Germany), Styria (Austria), Tuscany (Italy) and the Basque Country (Spain). Even though Pennsylvania is significantly larger than Wales, its model was particularly interesting because it put workforce development and skills upgrading at the core of its state-wide economic development strategy. The integration between workforce development and economic development was what made Pennsylvania interesting for Wales, especially considering that skills and education is one of the policy areas where WAG enjoys more devolved powers. Schleswig-Holstein in Germany and Styria in Austria were, on the other hand, picked because they were both regions with a strong past in heavy traditional industries which are now making the transition to more knowledge-intensive industries. This made them very similar to Wales. Moreover, Schleswig-Holstein and Styria were both of similar size to Wales and, most importantly, part of countries with a federal structure, which gave them a range of powers more comparable to Wales's. The choice of Tuscany was related to its regional governance model, which has often been praised in the political economic literature. Being a development model based on industrial districts, this case study also gives Wales the opportunity to see how developed country clusters are facing competition from emerging economies. The Tuscan model was also considered interesting in light of its emphasis on social cohesion and environmental sustainability. Finally, the Basque country showcases an example of a European region where decentralisation has achieved a more advanced stage than in Wales, including large fiscal autonomy. The Basque Country is also a previous traditional industrial region which has moved forward toward a knowledge-intensive economy. What is interesting is that there seems to have been a well planned and co-ordinated long-run strategy behind such move.

Notes

1. The OECD TL2 regions in the UK are, for instance, the nine regions of England (North East, North West, Yorkshire and Humberside, East Midlands, West Midlands, Eastern, London, South East and South West), plus Northern Ireland, Scotland, and Wales. To give some other examples, in Germany the TL2 regions correspond to the 16 Länder, whereas in France they are the 22 administrative régions and in Italy the 20 regioni.
2. Data for Iceland, New Zealand, and Switzerland were not available.
3. In effect, in the case of the Czech Republic, Hungary, Mexico and Slovak Republic an exception was represented by the respective capital regions, the 1995 per capita GDP of which was indeed larger than the 75% of Wales.
4. In particular, 5 regions of Italy's south were excluded, 3 from Portugal, 4 from Korea, and 2 from Spain.
5. Following is the list of the regions which matched also this second GDP criterion with the exclusion of Australia, Canada and Finland, whose all national regions had a growth rate higher than Wales': Sweden (Stockholm, East-Mid Sweden, South Sweden, North-mid Sweden, Mid-North Land, Upper North Land, Smaland and the Island); Norway (Oslo, Hedmark and Hopland, Trondheim); Denmark (Copenhagen); Italy (Piedmont, Valle d'Aosta, Liguria, Lombardy, Trentino-Alto-Adige, Veneto, Friuli-Venezia-Giulia, Emilia-Romagna, Tuscany, Umbria, Marche, Lazio, Abruzzi, Molise, Sardinia); Spain (Galicia, Asturias, Cantabria, Basque Country, Navarra, Rioja, Aragon, Madrid, Castile-Leon, Castile-La Mancha, Catalonia, Valencia Community, Murcia, Andalusia, Canarias, Ceuta, Melilla); Germany (Thuringia); Hungary (Budapest); Slovak Republic (Bratislava).
6. For some examples, refer to the consultation document: Welsh Assembly Government (2005), *Wales: A Vibrant Economy*, WAG, Cardiff.
7. Welsh Assembly Government (2005), *ibid.*
8. OECD (1998), *Local Management for More Effective Employment Policies*, OECD, Paris.
9. One caveat is though needed. Irrespective of the legal arrangements in terms of division or sharing of powers between central and decentralised governments, many regions of the EU are today able to design their own economic development and labour market policies by drawing on the resources of the European Structural Funds (ESF), whose focus is on regions rather than countries as a whole. More often than not, this takes the form of area-based partnerships that encompass different local stakeholders and pursue objectives such as employment and skills development, entrepreneurship promotion, social cohesion, etc. This suggests that lessons for Wales in terms of specific local economic and employment development instruments and programmes can be drawn from a much larger group of countries than those retained here. A number of examples are reviewed in the 'policy audits' part of this project.
10. Bassanini A. and R. Duval (2006), "The Determinants of Unemployment Across OECD Countries: Reassessing the Role of Policies and Institutions", OECD Economic Studies, No 42, 2006/1.
11. This measure reflects the combined effect of the replacement rate during the first year of unemployment, the duration of benefit receipt and the interaction between these variables.
12. OECD (2005), *Innovation Policy and Performance: A Cross-Country Comparison*, OECD, Paris.
13. Guellec D. and B. van Pottelsberghe de la Potterie (2001), "R&D and Productivity Growth: Panel Data Analysis of 16 OECD Countries", OECD Economic Studies, No. 33, 2001/II.
14. In economic literature, the estimated output elasticity of private business R&D ranges between 10% and 30%, depending on the data sources, the econometric specifications, periods under study, etc.

PENNSYLVANIA, USA

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1. Introduction

Recognising that the state's future depends upon the development of a workforce that is able to compete in a knowledge-based, global economy, Pennsylvania has recently embarked upon a new vision of a network of industry-linked partnerships that combines the workplace and the classroom. The industry-led, demand-driven workforce strategy is more than a job training system. Rather Pennsylvania has made strategic changes to move its workforce system to operate as a talent development system, with the ultimate goal of a workforce that can compete on a national and global standard.

Pennsylvania's new strategy traces its roots to the turn of the century when various regions within the state, including Lancaster, Berks, North Central Pennsylvania, and Pittsburgh, began bringing local industries together to identify their skill gaps and workforce needs. During the industrial age of the late 1800s and early 1900s, Pennsylvania was known as an industrial pioneer, but today many regions in the state struggle to compete in a more diverse global economy. Pittsburgh, for example, has seen a nearly total disappearance of their steel industry over the past decade and North Central Pennsylvania has lost much of its resource-extraction based industries.

In 2002, the Governor commissioned a workforce development study that described these bottom-up local efforts and recommended that the commonwealth invest in a learning and career infrastructure that builds on the collaboration of the state's workforce development entities with businesses and industry partnerships. In 2003, a newly elected Governor began implementing many of these recommendations within the executive branch, and in 2005 the Pennsylvania General Assembly passed the *Job Ready PA* legislation, which was designed to create a workforce development system that is efficient and responsive to both worker and employer training needs. The bill included \$20 million for developing and delivering training through Industry Partnerships across the state. This state investment, which augmented already available federal workforce funds, took local workforce innovations to a larger scale than any other state. *Job Ready PA* created and delivered training programmes designed to be responsive to the needs of businesses in every region and every one of Pennsylvania's critical industry clusters. The legislation also supported programmes that enhance high school, technical and vocational school and community college programmes to better prepare students for high-priority occupations.

Pennsylvania's new workforce development system is built on a network of industry partnerships that focus all workforce training and educational programmes on the skills employers need to be competitive. The system is coordinated at the state level through task forces and cabinet committees comprised of high-level administrators. Central to the administration and coordination of these regional industry partnerships are the local workforce investment boards (LWIBs); created under the federal Workforce Investment Act, which since 1998 is the nation's workforce development programme. In addition to the federal mandate of providing federal and state employment assistance and job training programmes, Pennsylvania

requires that LWIBs work together with businesses, economic development entities, and community and vocational technical colleges in their region to help develop and coordinate the full range of functions. Nearly 6 200 companies in 89 active Industry Partnerships, representing 20 industries are working collaboratively to close skills gaps and address other workforce challenges. The goal of the workforce system remains to enhance employer competitiveness and innovation, while preparing Pennsylvanians for new careers in higher-wage jobs, effectively improving the quality of life for the Commonwealth's most valuable resource, its citizens.¹

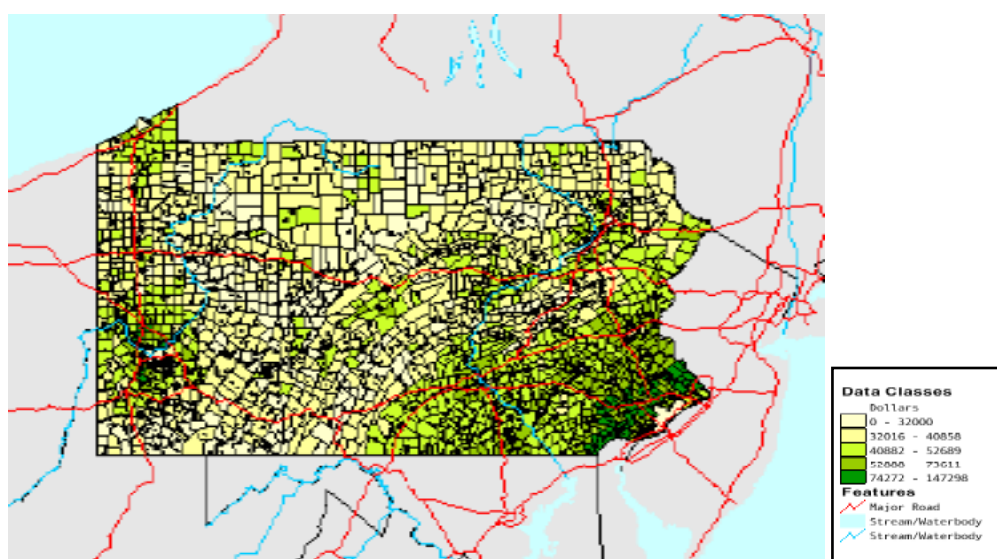
2. Brief overview of the regional economic context

a) Key regional statistics

Pennsylvania is located in the northeastern part of the United States, bordering New York on the north, New Jersey on the east, Maryland and West Virginia on the south, and Ohio on the west. The state's population is approaching 12.5 million with 6.3 million workers in the labor force. It ranks 18th in the nation for a household income of \$43 402, right behind California and in front of Wisconsin. Its poverty rate of 12.1 percent is below the national average. The state ranks 6th in population but 32nd in land area, making it the 8th densest state in the nation.

In many respects it is an urban state, with the Commonwealth's 16 metropolitan areas housing 84 percent of the state's population and generating 92 percent of its economic output. However, most of the population is on the east and west sides of the state, anchored by its two largest metropolitan areas, Philadelphia and Pittsburgh. The central section of the state is mountainous, far less populated and poorer than the rest. The map of the state (Figure III.1) shows the disparity in per capita income, with the darker colors, denoting higher income, noticeably concentrated in the west (Pittsburgh) and the southeast (Philadelphia). Pennsylvania also has an aging population, with 15.2 percent of its residents over the age of 65. Only four states, Florida included, have an older population. Population has been relatively steady from 2000-06, with an increase of 159 000 people. During that time, the state has experienced a net loss of 27 000 people, mostly younger people, to other states, but it has gained 127 000 from foreign in-migration.

Figure III.1: Pennsylvania median household income by county



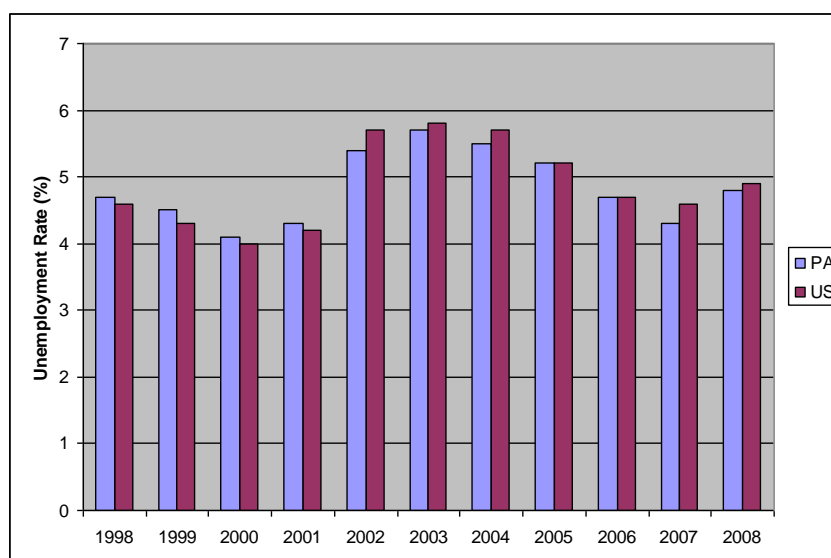
Source: U.S. Census Bureau, 2000

Pennsylvania recognises that future growth and the ability to compete globally, depends on the quality and skills of its workforce. For the past few decades, Pennsylvania has been working

to transform itself from a manufacturing industrial economy to a knowledge-based economy where the workforce needs specialised skills to succeed. In the 1950s, when Pennsylvania was a world leader in steel production and other manufactured products, 73% of its jobs were unskilled. Today, the opposite is true: 76% of Pennsylvania's jobs require skilled or professional workers and only 24% are filled by unskilled workers. Nonetheless, the state still lags behind the nation in the percentage of residents over the age of 25 with a high school education or more (84.0% for Pennsylvania vs. 85.5% for the U.S.) and with a bachelor's degree (26.6% for Pennsylvania vs. 28.0 for the U.S.).

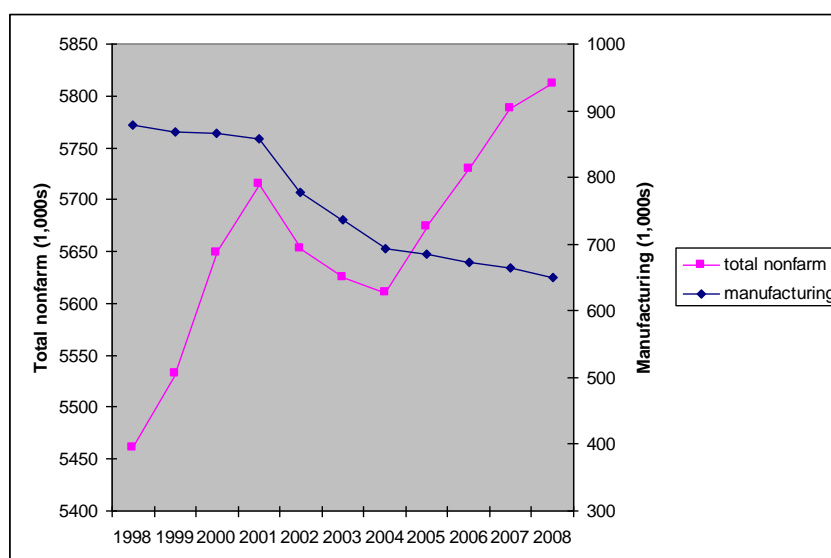
At the time in which many of the reforms were put in place, Pennsylvania and the nation were coming out of a mild recession that officially began in the first quarter of 2001. At that time, the state's unemployment rate of 4.3 percent was slightly above the national rate of 4.2 percent (Figure III.2). By the next year, the state's unemployment rate jumped to 5.4 percent and remained above 5 percent for the next three years. The state workforce reforms began in 2003. During the period between 2001 and 2005, employment fell by 41 000, but manufacturing lost 171 000 jobs. As seen in Figure III.3, even when total employment picked up after 2005, manufacturing employment continued to slide, leaving the state with only 11.1 percent of its total non-farm employment in manufacturing, compared to 16.0 percent in 1998.

Figure III.2: Unemployment rates for Pennsylvania and the U.S.



Source: Bureau of Labor Statistics, U.S. Department of Labor

As shown in Table III.3, the growth rate of Pennsylvania's gross state product between 1990 and 2002 lagged behind the nation's by nearly 10 percentage points. Sectors closely associated with population growth - construction, retail trade, Finance, insurance and real estate, and services - lagged the most. The gap between the state's employment growth and the nation's was even wider during that period. Table III.4 shows that for all industries Pennsylvania's employment growth lagged behind the nation's, with the largest differences in construction and financial activities. With this long-term deficit in the state's economic performance, and the real prospect of even tougher competition from other regions of the country and from abroad, the state's policy makers felt compelled to be proactive in stimulating the state's economy.

Figure III.3: Pennsylvania employment: total non-farm and manufacturing

Source: Bureau of Labor Statistics, U.S. Department of Labor

Table III.3: Growth in gross state product, 1990-2003

Industry	Gross state product	
	Pennsylvania	United States
Construction	54.1%	86.9%
Manufacturing	40.3	31.7
Wholesale Trade	51.5	65.0
Retail Trade	37.1	52.6
Finance Insurance Real Estate	89.0	113.2
Services	121.3	145.8
Government	51.8	69.2
Total	72.7	82.4

Table III.4: Growth in employment, 1990-2003

Industry	Employment	
	Pennsylvania	United States
Construction	8.7%	27.7%
Manufacturing	-24.5	-19.9
Wholesale Trade	1.0	6.4
Retail Trade	4.3	13.1
Financial Activities	4.3	20.6
Professional & Business Services	31.2	47.5
Education & Health	32.7	50.9
Government	6.3	17.2
Total	72.7	82.4

b) Recent economic development history

Pennsylvania has a relatively long history of emphasising workforce development and partnerships and collaboration among key stakeholders. The emphasis on regional partnerships may partly be explained by the diverse regional aspect of the state. Its relatively large geographical size and mountainous mid-section has created pockets of diverse economic

activities. Therefore, key entities within these regions tend to have a greater identity and affinity with local stakeholders than with broader state-wide organisations.

Public-private partnerships in Pennsylvania span the past four decades. For example, in 1964 business leaders in northeastern Pennsylvania, seeing the need for regional approaches to economic development to supplement the work of existing economic development organisations, formed the Economic Development Council of Northeastern Pennsylvania (EDCNP). The EDCNP brought together the two most populous counties in the region and over the years expanded its reach to five other counties. The purpose was to foster more harmonious relationships among regional entities, particularly among local governments, which had a tendency to feud over turf issues. The EDCNP also coordinated economic development initiatives and streamlined the administration of various state and local programmes.²

Regional entities have also initiated collaboration within the workforce system, even before the enactment of the Workforce Investment Act (WIA) in 1998. For example, Lancaster County implemented an industry/education cooperative programme in 1982 designed to link adult basic education programmes with specific local business, industry, and community service organisations. Project staff developed and distributed an industry/adult education awareness package to more than 1 200 industrial and educational components.³ With this initiative and others, the Commonwealth has cultivated this policy to bring about a business-driven workforce and economic development system that is responsive to the needs of people living, working, and conducting business in Pennsylvania. Its current plan is built on this firm foundation of collaboration with stakeholders including the Pennsylvania Workforce Investment Board (PA WIB), economic development and educational entities, and the business community.

In 1998, the Team Pennsylvania Workforce Investment Board (Team PA WIB), the state-level workforce investment board established under WIA, embarked on a collaborative process to develop a comprehensive workforce system in the Commonwealth. This collaborative process resulted in a number of significant accomplishments including the development of the state's Unified Plan, a Title I Policy Paper, a Youth Policy Position Paper, and other directives and policies. Stakeholders representing business, local workforce investment boards, training providers, one-stop operators, educators, and others participated in these activities. Since these initial collaborative efforts, the Team PA WIB has been working not only to build the workforce system with its partners – the Departments of Aging, Community and Economic Development, Education, Labor and Industry, and Public Welfare – but also to ensure its quality and responsiveness. Pennsylvania has a strong network of CareerLink sites across the state anchored by the web-based system that allows all residents access to employment opportunities.⁴ The state also has 22 local workforce investment boards (WIBs), which have engaged in strategic planning activities and are now working to implement those plans. Further, the Commonwealth has agency partners that are willing to address issues in a cooperative and collaborative approach resulting in a host of unique cross-agency initiatives.

3. The regional development strategy

a) Rationale/conceptual framework of the strategy

Antecedents of the current regional development strategy took place in the early part of this decade. Although the state's unemployment rate and other current indicators did not lag that far behind the national average in 2003, when the new workforce initiatives were introduced, Pennsylvania's economy was mired in more chronic and deep-rooted problems. With Pennsylvania experiencing continued declines in its core traditional manufacturing sectors, out-migration of talented residents looking for better opportunities in growing industries elsewhere, and an overall slow population growth, the State recognised the need to take a more proactive role and invest in its workforce and prepare them for jobs in Pennsylvania's growth industries. The two most recent Governors - Schweiker and Rendell - championed further investment in the

workforce system and greater collaboration among key stakeholders. The bi-partisan state assembly supported this effort by enacting legislation, popularly referred to as *Job Ready PA*, which provided additional authority to the administration to carry out their vision and additional funding for training and other programmes.

The workforce development initiative was only one component of a much broader economic stimulus programme that slated more than \$2.6 billion for investment in the state's \$400 billion economy (GSP in 2003 USD). The legislative, enacted in 2004, funded more than 18 programmes, primarily through incurring additional debt phased in over several years. The stimulus package included community revitalisation programmes, basic infrastructure investment, business investment resources, venture capital guarantee funds for early and mid-stage start-ups, and technology transfers through community/university partnerships. The state has had, for years, a comprehensive tax incentive and subsidy programme to attract and retain businesses. In addition, for 25 years, Pennsylvania has supported a statewide network - the Ben Franklin Technology Partners - that serves as a catalyst for advancing the state's knowledge-based economy. Therefore, Pennsylvania's Assembly was not faced with a choice of funding a workforce development initiative versus other economic development programmes. Rather, it pursued a comprehensive package of economic stimulus measures, many of which were based upon prior programmes and thus augmented with additional funds.⁵

The workforce development strategy embodied in the Job Ready PA legislation and carried out by the administration was influenced by a study prepared by Keystone Research Center, a non-partisan research group in the state. Governor Schweiker, immediate predecessor to Governor Rendell, the current office holder, commissioned the Keystone Research Center to prepare a paper outlining the economic challenges facing Pennsylvania and offer recommendations. The Center interviewed 50 workforce policy makers and practitioners across Pennsylvania. From those interviews, the report concludes that a well-functioning learning and career infrastructure is a critical resource for future competitiveness and economic opportunity in Pennsylvania. The report defined learning and career infrastructure as institutions and networks that span multiple employers and educational providers, enabling workers to acquire work-relevant knowledge and gain economic security and career advancement.

Emphasising additional public investment in worker training ran counter to the commonly held perception of the failure of public training programmes to improve job opportunities for workers or address skill needs of employers. However, the report argued that such workforce development efforts are essential for the state to compete in the knowledge-based economy and that such efforts will not take place without state support and leadership. "This learning and career infrastructure will not emerge automatically via the magic of the market any more than did the infrastructures that fueled growth in the 'old economy' – a reliable telecommunications and utility infrastructure, the interstate highway system, a stable financial system."⁶

The report viewed the role of public workforce dollars in broad and systemic terms, not in terms of helping small numbers of disadvantaged or dislocated workers find new jobs. The report emphasised the need to make regional "human capital" markets function more efficiently, to identify gaps in the human capital market and then encourage employers and other stakeholders to come together to fill the gaps and to focus on key industry needs rather than on individual, isolated business requests.

More specifically, the report set forth eight recommendations:

1. Build on the efforts of prior state administrations.
2. Encourage local WIBs to draw their employer and labor members from leading industry training partnerships.

3. Promote collaboration and teamwork on workforce issues among state departments by establishing an interagency “high road” workforce and economic development team in the new administration; housing the staff of the State Workforce Investment Board within the Governor’s Policy Office; and requiring all departments to gain approval of their workforce programme strategic plans and annual budgets from the State Workforce Investment Board.
4. Promote professional development and the spread of best practice to help WIBs and Career Link staff re-invent their role in workforce development.
5. Fund a labor workforce development institute that will build the capacity of labor unions and worker associations to strengthen the Pennsylvania workforce development system.
6. Seek matching foundation funds to create a Pennsylvania Network of Sector Practitioners (PNSP) modeled on the National Network of Sector Practitioners.
7. Launch the “give back a week” programme whereby business leaders and top operations manager would commit 40 hours in a year to collaborating with the strengthening of the learning infrastructure on which their companies depend.
8. Shift workforce dollars toward a new “Growing Faster” initiative that would seed-fund and strengthen high road training partnerships linked with key industry or occupational clusters in regional economies.

Less than a year later, the Brookings Institution released a report on Pennsylvania’s economic future that underscored several of the recommendations made in the Keystone Research Center study. The report, “Back to Prosperity,” highlights the critical barriers impeding Pennsylvania’s progress. It cites concerns that the state’s workforce development system was unfocused and spending too much money on programmes that do not meet the long-term economic development objectives. While programmes to help the economically disadvantaged or dislocated workers to find jobs are important, less than 5 percent of the \$1.2 billion the state distributes in state and federal funds for workforce development supports specific employer-driven funds.⁷

The study goes on to recommend that the state should set a goal to invest in workers and industries that will help the state produce a more competitive, higher wage future. To accomplish this goal, it should identify and monitor the education and skills demanded by key industries through research and partnerships and it should support formal collaborations among business leaders, private sector intermediaries, workforce training organisations and educational institutions to continually evaluate workforce needs and design programmes to meet them. The report advocates that the state identify industry clusters and niches it could cultivate, and support the formation of partnerships around these clusters to coordinate training and other workforce initiatives and to leverage private resources.⁸ It also contends that the intense localism of the state’s 2 566 municipalities, compounded by the state agencies own fragmentation, impedes the ability of various entities, private and public, to work together to make needed progress.

Another influential report that helped shape the state’s strategy for effective workforce development and economic development initiatives was prepared by the IBM Business Consulting Services and commissioned by the state. While not prepared in time for the initial launch of the Job Ready PA legislation, its conclusions and recommendations reinforced further pursuit of the principles embodied in the legislation. Entitled “Action Plan for Investing in a New Pennsylvania—Identifying Opportunities for Pennsylvania to Compete in the Global Economy,” it recommended examining the state’s capabilities through the lens of prospective

investors.⁹ It identified industry clusters in which the state has a clear global competitive advantage. But it also concluded that investors are concerned about access to a sufficient number of qualified workers when determining where businesses will establish operations. The report went on to recommend that access to and the use of community colleges should be expanded and the Commonwealth should continue its integration of economic development and workforce development to maximise its coordination between educational institutions, workforce systems, and the business community. The report stressed that Pennsylvania can achieve greater success by increasing the level of collaboration among state officials, regional economic/workforce development leaders and business. The state responded to the report's conclusions by stating that "effective partnerships ... are absolutely imperative if Pennsylvania is to remain a competitive leader in the global economy (p.1)."¹⁰

Governor Rendell, who came into office in 2003 soon after the Keystone Research Center report was released, quickly acted upon many of its recommendations, which were subsequently supported by the Brookings Institution report and the IBM report. His first step was to create by executive order the Economic Development Committee of the Cabinet. In forming the Committee, he cited Pennsylvania's economic situation and the anticipated benefits of coordinated policy development, the need for a coordinated policy development and planning effort that would result in improved management and productivity of state government economic development programmes, more efficient use of scarce resources, and greater evaluation of programme performance.

Therefore, the Committee was charged with a mission to:

- Coordinate programmes and policies affecting economic growth, job creation and retention, and workforce development across state agencies.
- Develop policies and programmes to foster business development and job creation.
- Evaluate and redirect, as necessary, the objectives of state economic development and tax policy.
- Establish the criteria for measuring the effectiveness of state policies and programmes related to economic development, job creation, and community revitalisation.
- Monitor market conditions that could affect economic development in the Commonwealth.
- Promote policies that encourage the wise stewardship and conservation of the natural resources of the Commonwealth.

The Governor and his cabinet of agency administrators embarked on a state-wide strategic planning process that resulted in four key goals that they believed were critical in competing in a global marketplace:

- Strengthen Pennsylvania industries and create industry-led training strategies by building industry partnerships - employer/employee consortia that involve businesses and workers in the design and delivery of training to the state's key industries
- Provide adult workers with the opportunity to advance their education and training through expanded access to training and postsecondary education.
- Prepare youth for the careers of the future through investment in innovative high schools and connecting career and technical education with higher-wage, higher-skill jobs

- Implement rigorous performance-based accountability standards to ensure that workforce dollars are invested wisely.¹¹

The strategy to meet these goals is multi-faceted. One prong seeks to rebuild education and training systems and create career pathways and ladders through:

- Increased training of incumbent workers.
- Greater investments in technical training of high school students.
- Better articulated educational offerings for students.
- Finding ways to give adults credit for their work experience.

A second, complementary prong focuses on industrial development and regional coordination by:

- Establishing and building economic and workforce identities across local political jurisdictions.
- Leveraging and aligning public and private investments regionally.
- Transforming the local and regional economy through innovative and effective talent development.

The overarching theme is to pursue all of these strategic components within a visible interconnectedness of all the innovation workforce, economic and education initiatives taking place at the state and regional levels.

b) Implementation and delivery arrangements of the strategy

Economic Development Committee of the Governor's Cabinet

Recognising the need for strong state leadership in promoting regional coordination of workforce development programmes, economic development initiatives, and educational endeavors, Governor Rendell formed a cabinet-level committee that included leaders from each of the state programmes that affected the state's workforce development and economic development infrastructure. He established the Committee by executive order with the power and duty to:

- Review and coordinate all economic development and community revitalisation programmes managed by state agencies.
- Coordinate the review of economic development projects and investments to ensure that they are supported by the programmes, actions, and decisions of other agencies.
- Make recommendations on policies and programmes that will more effectively and efficiently foster economic growth and community renewal.
- Make recommendations on strategies and policies fostering development that conserves land and open space and attracts businesses near existing housing, social services, and public infrastructure; rehabilitates infrastructure and previously developed land; encourages transportation options; and promotes strategic investment in transportation that encourages the revitalisation of older communities.

- Monitor energy markets and public infrastructure that have the potential to affect economic development and make recommendations on strategies to promote diversification of energy resources and increasing the reliability of energy supplies.
- Evaluate and make recommendations for the coordination of workforce development programmes managed by state agencies, including adult education, job training, job retraining, job search, and employer-operated training programmes.
- Recommend policies and programme enhancements that encourage the conservation and wise stewardship of natural resources and encourage community preservation and revitalisation.
- Evaluate the public policy objectives underlying state business tax policy and make recommendations to the Governor for appropriate changes.
- Develop performance measures for economic development and community revitalisation programmes managed by state agencies.
- Identify economic, environmental, and social trends of concern that require coordinated responses from Committee members.

The functions and authority of the Committee are broad-sweeping, reflecting the high priority the Governor placed on pursuing a sustained and coordinated effort to “jumpstart” the state’s economy. The comprehensive scope of responsibilities given to the committee also recognises that, in an era of mobile physical and human capital and intense global competition, a region needs to offer a higher quality of life to attract and retain high-value added economic activity. To address these challenges, a working group of the Committee was charged with deriving a set of principles and criteria by which all the state, regional, and local workforce development and economic development entities would abide. The principles, listed in Box III.1, go beyond workforce issues and cover land use and physical infrastructure investment, but show the comprehensive nature of the Committee and its purview.

Workforce Development Task Force

The Workforce Development Task Force is a subcommittee of the Economic Development Committee. It is comprised of senior policy and programme staff from the five departments involved in workforce development: Corrections, Education, Community and Economic Development, Labor and Industry, and Public Welfare. As chair, the Labor and Industry Deputy Secretary for Workforce Development coordinates all workforce development programmes across the five departments and is responsible for policy initiatives designed to improve Pennsylvania’s economic competitiveness and create economic and educational opportunities for the state. The Task Force focuses on programme coordination and alignment, creating new programmes but also ensuring that implementation of existing programmes is on target. The task force also establishes guidelines and implementation strategies for priorities agreed upon by the Governor, the state Workforce Investment Board, the Economic Development Cabinet, and the legislature. As a way of fostering greater coordination and cooperation among state government agencies, the deputy director of workforce development sits on the economic development council and an economic development representative sits on the workforce development task force.¹²

Box III.1: Principles for Economic Development and Workforce Development in Pennsylvania

The principles and criteria were developed over two years by a working group of the Economic Development Cabinet.

Redevelop first -- Support revitalisation of Pennsylvania's many cities and towns and give funding preference to reuse and redevelopment of "brownfield" and previously developed sites in urban, suburban, and rural communities.

Provide efficient infrastructure -- Fix it first: use and improve existing infrastructure. Make highway and public transportation investments that use context sensitive design to improve existing developed areas and attract residents and visitors to these places. Require private and public expansions of service to be consistent with approved comprehensive plans and consistent implementing ordinances.

Concentrate development -- Support infill and "greenfield" development that is compact, conserves land, and is integrated with existing or planned transportation, water and sewer services, and schools. Foster creation of well-designed developments and neighbourhoods that offer healthy life style opportunities for Pennsylvania residents.

Increase job opportunities -- Retain and attract a diverse, educated workforce through the quality of economic opportunity and quality of life offered in Pennsylvania's varied communities. Integrate educational and job training opportunities for workers of all ages with the workforce needs of businesses. Invest in businesses that offer good paying, high quality jobs, and that are located near existing or planned water & sewer infrastructure, housing, existing workforce, and transportation access (highway or transit).

Foster sustainable businesses -- Strengthen natural resource based businesses that use sustainable practices in energy production and use, agriculture, forestry, fisheries, recreation and tourism. Increase our supply of renewable energy. Reduce consumption of water, energy and materials to reduce foreign energy dependence and address climate change.

Restore and enhance the environment -- Maintain and expand land, air and water protection and conservation programmes. Conserve and restore environmentally sensitive lands and natural areas for ecological health, biodiversity and wildlife habitat.

Enhance recreational and heritage resources -- Maintain and improve recreational and heritage assets and infrastructure throughout the commonwealth, including parks and forests, greenways and trails, heritage parks, historic sites and resources, fishing and boating areas and game lands offering recreational and cultural opportunities to Pennsylvanians and visitors.

Expand housing opportunities -- Support the construction and rehabilitation of housing of all types to meet the needs of people of all incomes and abilities. Support local projects that are based on a comprehensive vision or plan, have significant potential impact (e.g., increased tax base, private investment), and demonstrate local capacity, technical ability and leadership to implement the project.

Plan regionally, implement locally -- Support multi-municipal, county and local government planning and implementation that has broad public input and support and is consistent with these principles. Provide education, training, technical assistance, and funding for such planning and for transportation, infrastructure, economic development, housing, mixed use and conservation projects that implement such plans.

Be fair -- Support equitable sharing of the benefits and burdens of development. Provide technical and strategic support for inclusive community planning to ensure social, economic, and environmental goals are met. The accompanying criteria for investment are project-specific measures in nine categories that will help achieve the state's development and conservation goals. They are to be used to evaluate various project proposals in all agency programmes. The criteria supplement, but do not replace, agency programme guidelines.

Announced November 2006 by the Economic Development Committee

Pennsylvania Workforce Investment Board

The Pennsylvania Workforce Investment Board (PA WIB) is the Governor's principal private sector policy advisor for the state's workforce development system. As specified in both the federal WIA and the current Pennsylvania Workforce Development Act, with the exception of four legislative members, the Governor appoints the remaining members with an emphasis of bringing together the relevant state agencies and business leaders from the ten targeted state-wide industry clusters. Since the formation of the PA WIB under WIA in 1998, the foundation of the Board's efforts has been five building blocks for Pennsylvania's approach to workforce investment. The building blocks are:

- Shared responsibility for improved performance.
- Continuum of services for jobseekers and employers.
- Informed customer choice.
- Fact-based decision-making through enhanced employment statistics and accountability.
- Lifelong learning through continuous acquisition of skill enhancements and knowledge.

The building blocks are not agency, programme, or provider specific. Rather, they are a universal and collaborative approach to building and improving Pennsylvania's system.

The PA WIB formed three committees that focus on the Board's key functions. One committee, the Alignment Committee, makes recommendations on how the state's various workforce, welfare, education, economic development, and other departments can work together to improve outcomes both at the state and regional levels. The committee currently spearheads multiple projects, including those involving local/regional development entities under the auspices of the Department of Community and Economic Development.¹³

The K-16 Committee focuses on developing strategies to improve the state's educational achievement levels, specifically targeting ways to increase the number of state residents with postsecondary degrees, diplomas and industry-recognised credentials. The PA WIB also has councils and partnerships that focus on ways to help identify workforce development issues regarding youth and that address Pennsylvania's significant need for qualified health care workers.

The Performance Management Committee provides ways to implement and improve the state's Performance Management Plan. Unveiled in 2004, the Plan establishes rigorous accountability standards for all workforce programmes in order to monitor the effectiveness of individual programmes and make corrective action when needed. It calls for monitoring trends in key economic, workforce and education indicators; gathering quantitative programme performance data using common measures across all state programmes, and providing strategic direction through the analysis and guidance of these data. First, the plan presents a series of workforce, economic and education indicators that are organised to describe current conditions and recent trends. These indicators are used to compare Pennsylvania to other states, as well as to the entire U.S. They also provide insight into regional differences within Pennsylvania. State and regional policy makers and programme managers can use these statistics to determine Pennsylvania's overall competitiveness compared to other states and nations, as well as to identify regional challenges and strengths. Second, the quantitative measures provide statistical outcome information on public investments in specific programmes and/or initiatives. Third, the strategic measures evaluate how well Pennsylvania's workforce investments are addressing the Commonwealth's key workforce development challenges.¹⁴

The emphasis on performance accountability extends to the local workforce investment boards as well. In 2006, the High Performance WIB Standards were created with input from LWIB staff, PA WIB members, and key Administration officials. The standards provide a mechanism by which LWIBs are recognised and rewarded for their proactive efforts to be catalysts for innovative approaches to a wide range of regional workforce challenges. The High Performance Standards pursue the following goals, including the formation of industry partnerships:

- Understanding the regional labor market and surveying the needs of regional employers
- Improving PA CareerLinks' performance by linking training to industry partnerships' needs
- Organising industry partnerships in targeted industries to identify high priority occupations that correspond with regional demand.

Implementation of the High Performance LWIB Standards requires each Local Workforce Investment Area (LWIA) to conduct a self-assessment to determine how the activities and outcomes of the LWIB compare to the standards (exhibited in Box III.2). This is both an information gathering and an information dissemination exercise. It provides an opportunity to inform LWIB members about critical strategies that the state is interested in seeing implemented locally as well as providing internal feedback on how the LWIB was performing against those strategies. As an incentive for improving the strategic use of workforce funds, the state awards grants to LWIBs that meet the High Performance WIB Standards.

Box III.2: Standards for High Performance Local Workforce Investment Boards (LWIBs)

The following statements are used as a self-assessment by LWIBs to gauge whether they are achieving the standards.

- I) The LWIB has analyzed the regional labor market using the most available data and is effectively using this information to guide policy and investments.
- II) The LWIB is investing resources to promote the development of skills and career ladders in the Commonwealth's High Priority Occupations.
- III) The LWIB has organised or actively supported the development of industry partnerships in key targeted industry-subclusters and these partnerships are developing innovative approaches to improving their competitiveness and promoting best human resource practices.
- IV) The LWIB has a clear strategic direction and has aligned relevant regional resources such as regional workforce, education, community development, welfare and economic development organisations, programmes and initiatives to that direction.
- V) The LWIB has both a broad-based and a targeted cluster-linked integrated business services plan. The business services plan ensures continuous outreach to employers, the identification of employment opportunities and the posting of these opportunities to the PA CareerLink System.
- VI) The LWIB is ensuring that its PA CareerLinks provide excellent and fully accessible services to both employers and job seekers.
- VII) The LWIB has established a youth strategy aligned with the regional labor market analysis and the state's high priority occupations.
- VIII) The LWIB maintains sound fiscal practices, develops the budget with Board members' input and the budget process ensures that WIA investments are aligned with the strategic direction established by the State Board.
- IX) The LWIB is in compliance with the negotiated requirements of the Pennsylvania Performance Management Plan.
- X) The LWIB is structured, staffed, and funded so that it can carry out its oversight and strategic roles in the local area.

Source: "Pennsylvania's Standards for High Performance Local Workforce Investment Boards," Pennsylvania Workforce Development website.

Industry partnerships

Industry Partnerships are the center piece of Pennsylvania's strategy of meeting the skills needs of businesses, the career goals of workers, and the broader economic development goals of the state (see Box III.3). They are considered a kind of "workforce intermediary" that helps connect workers and businesses. An industry partnership is a multi-employer collaborative that brings together the workforce development system, industry management and employees to improve the competitiveness of a cluster of companies. The companies may produce similar products or services, or they may share similar supply chains, critical human resource needs, infrastructure requirements and business services. These partnerships serve as a foundation to identify the training needs of an industry sector and develop effective and responsive training solutions to enhance the cluster's competitive position. The Commonwealth's workforce development strategy seeks to utilise education and training dollars to generate cutting edge skills needed by employers while promoting opportunities and advancement for workers and job seekers.¹⁵

Industry partnerships offer several advantages in meeting the training needs of businesses. By engaging businesses within clusters, partnerships can combine training needs for multiple firms with similar skill needs, reducing duplication of services and achieving economies of scale and scope in delivering training services. By focusing on the skill needs of specific industries, partnerships can help educational and training institutions align curriculum and programmes to industry demand and help develop new industry credentials that give companies confidence in the skills of new hires. Partnerships also promote communication among firms, managers, and workers that can stimulate innovation, potential economies of scale in purchasing and other economic activities and dissemination of best practices.

The state currently has 89 active industry partnerships, comprised of more than 6 100 companies in 20 industries. For the fiscal year 2007-2008, the state has developed a \$20 million Industry Partnership Program to further support targeted industries. Of this, \$15 million is targeted to incumbent worker training for existing and projected job opportunities in high-priority occupations, and \$5 million is for organising and staffing sectoral workforce intermediaries. New and existing partnerships are eligible to apply for funding, as long as they meet specific eligibility requirements. To ensure collaboration and alignment with other regional entities, LWIBs must be represented in the partnerships.¹⁶

A Sector Strategy Academy has been developed to expand the competency of workforce development practitioners and Industry Partnership members. The Sector Academy strengthens the quantity, quality, and sustainability of the partnerships as a means of improving economic opportunities for communities, and economic competitiveness for employers and industries. Although the academy is not specifically a practicum on functioning as a workforce intermediary, it provides training in skills needed to effectively anticipate and design strategies to meet industry's workforce and skills shortages.

Workforce intermediaries align additional investments in education and training, such as investments in vocational schools and occupational training delivered by community colleges. Private foundations have engaged with the Pennsylvania Industry Partnership Project to collaborate in supporting an intermediary-based workforce strategy. This interest is most developed in southwest Pennsylvania, led by the Pittsburgh Foundation and Heinz Endowments, to help the foundations define investments that would best institutionalise workforce intermediaries.¹⁷

Complementing the Industry Partnership Program is the Industry Partnership Worker Training Program, which targets funds to the common high-skill training needs of multiple employers within an industry cluster. Training funds are available to partnerships that have identified the training needs of the industry sector and have developed effective and responsive

training solutions established by the industry partners. Applicants must demonstrate that employers within the cluster have been surveyed and interviewed and have identified high skill training needs.

Box III.3: Examples of industry partnerships

Life Science Career Alliance

The Southeastern Pennsylvania Regional Workforce Investment Board Collaborative and the Delaware Valley Healthcare Council created this Industry Partnership to focus specifically on the workforce issues surrounding an industry critical to the economic growth of the region. This Alliance is a five-county regional partnership in Southeastern Pennsylvania supported by hospitals, foundations, and the five southeast LWIBs. Its 28-member board includes health care executives, workforce professionals, labor leaders and educational executives. The Alliance assists employers in obtaining training assistance, organises career awareness activities, and researches trends in both health care and biotechnology.

The Southwestern Pennsylvania Manufacturing Initiative

This partnership is comprised of four regional WIBs, Duquesne University in Pittsburgh, and economic development partners. The partnership is finalising a regional strategic plan to support manufacturing clusters in a ten-county area.

Diversified Manufacturing Industry Partnership

The Central PA WIB has taken a leadership role in organising this regional partnership. This partnership focused on creating a comprehensive retention and growth strategy that supports the regional modular/manufacturing housing and plastics manufacturers. It helped to increase the success of the assessment, education, and training strategy that responds directly to the diversified manufacturing industry's needs for specialised training interventions. The partnership also identified the skill set necessary for ensuring successful advancement of incumbent workers into management positions. It is in the process of developing a training assessment tool that could be used by participating companies as well as the broader membership to assist in the professional development of construction managers. Since forming, this partnership has trained 300 people.

Food Manufacturing Partnership

Montgomery County's Workforce Investment Board developed a Food Manufacturing Partnership involving 11 companies and a grant of \$208 000 from the Commonwealth of Pennsylvania through the Department of Labor and Industry. In collaboration with Montgomery County Community College, current workers in this industry will be trained in new production line equipment processes and safety skills.

Source: Pennsylvania Workforce Development website "PA Competitive Industries."

Industry clusters

The state has identified 10 targeted industry clusters and eight sub-clusters that are eligible for programme funding. Each of the targeted industry clusters consists of a group of industries that are closely linked by common product markets, labour pools, similar technologies, supply chains, and other economic ties. The clusters are based on detailed industry analysis and input from LWIBs, educators, and representatives from the Departments of Labor and Industry and Community and Economic Development. When the industry clusters were first constructed in 2004, nine clusters were chosen, comprising nearly 70 percent of the state's employment and focusing on those industries that have a possible competitive advantage, suggested by their high location quotient (greater than one), and potential long-run growth (Table III.5).¹⁸ Since then, the energy sector has been added as the tenth industry cluster.

Table III.5: Targeted industry clusters in Pennsylvania

Targeted Industry Cluster	2005 Average Monthly Employment	2005 Average Annual Wages
Life Sciences	895 155	\$44 237
<i>Bio-Medical</i>	83 234	\$74 834
<i>Healthcare</i>	811 921	\$41 097
Business and Financial Services	821 444	\$50 055
Education	557 633	\$38 032
Advanced Materials and Diversified Manufacturing	435 348	\$48 080
<i>Chemicals, Rubber & Plastics</i>	70 467	\$50 150
<i>Electronics</i>	62 848	\$55 091
<i>Metals and Metal Fabrication</i>	130 657	\$46 366
<i>Printing</i>	38 046	\$40 984
<i>Vehicle & Vehicle Equipment</i>	43 871	\$53 589
Building and Construction	350 889	\$45 436
Agriculture and Food Production	302 225	\$28 134
<i>Food Processing</i>	79 529	\$39 024
Information and Communication Services	197 629	\$62 652
Logistics and Transportation	148 421	\$39 745
Lumber, Wood and Paper	104 564	\$36 921
Targeted Industry Clusters	3 813 308	\$39 713
Total Statewide	5 581 758	\$40 114
Percent of Total in Targeted Clusters	68.3% of total employment	99.0% of average wage

In some cases, a region may identify an industry cluster not on the list that they believe is of critical importance to its local economy. Industry partnerships can apply for partnership, training, and education funds to support such a cluster, but they must first demonstrate that a labour market analysis has been conducted to identify the importance of the cluster to the region. For training dollars, partnerships must demonstrate that employers within the cluster have been surveyed and or visited and have identified specific high skill needs.¹⁹

Going forward, Industry Partnerships provide a consistent definition that allows for the comparison of the industrial structure of PA's regional economies; identifies major employers in significant clusters as a spring board for building industry partnerships; and provide a basis for occupational data analysis - skills, knowledge, abilities - by grouping industries together that share workforce needs. They also provide a mechanism to direct resources to the preparation of the commonwealth's workforce for jobs that provide family-sustaining wages and meet the needs of growth-generating industries.

c) Sample of main policy programmes and tools

Pennsylvania's workforce and economic development strategy is based primarily on efforts to coordinate and align existing state and local programmes more effectively, while augmenting them with a few new initiatives. During 2003-2005, when the Job Ready Pennsylvania legislation was enacted by the Pennsylvania Assembly, the state's economy was still feeling the effects of the recent recession and continual decline in its manufacturing and resource-extraction industries. The state budget, although reaching \$23 billion in expenditures, was tight and for the 2005-2006 fiscal year, the state legislature added only \$800 million in new spending. Despite these austere times, Governor Rendell asked the legislature for \$100 million to fund his Job Ready PA initiative and received all but around \$10 million that he requested. The legislation spans a variety of education and training programmes with relatively small investments in each of several areas. About half of the new money was targeted at meeting labour demand in specific occupations and industries. The other half was used to raise the general education levels

of students and better prepare them for the world of work. The additional \$90 million leveraged the \$2 billion spent by the commonwealth on its existing workforce and education systems.

Table III.6 shows the approximate allocation of the funds requested by the Governor to specific programmes and the reallocation of existing state resources into programmes included under the Job Ready PA umbrella of programmes.²⁰ The Governor asked for \$100 million in new funds and more than \$70 million in redirected funds to the funding foundation for the initiative. The Assembly authorised all but \$10 million in a tight budget year.

Table III.6: Governor's proposed job ready PA budget, 2005-06

Program	New State Funds (\$000)	Reallocation of Existing State Resources (\$000)
<i>Secondary Education:</i>		
High School Reform	\$4 700	
Tutoring	\$38 000	
Dual Enrollment	\$5 000	
Career and Technical Education	\$1 455	\$8 000
Adult Literacy		\$7 500
<i>Higher Education:</i>		
PHEAA	\$8 980	\$50 000
Community Colleges	\$22 800	
Recognising Prior Learning	\$60	
<i>Workforce System:</i>		
Prosperity Awards		\$2 600
Starter Kits		\$3 000
Industry Partnerships	\$20 000	
<i>Total:</i>	<i>\$100 995</i>	<i>\$71 100</i>

First, secondary schools received additional funding to help prepare students for the work world. Specific targets included:

- High School Reform, in which money is targeted at doubling the number of high schools participating in Project 720, an initiative to increase rigor in the high school curriculum, encourage smaller classes, strengthen counseling, and provide other support services.
- Expanded Tutoring, which would double the number of students receiving help in the Educational Assistance Program to over 65 000.
- Dual Enrollment, which allowed more high school students to earn college credits while completing high school requirements.
- Career and Technical Training, in which funding was redirected for additional state-of-the-art equipment and curriculum enhancements in career and technical education programmes.
- Adult literacy programmes, in which funds were redirected to target the literacy skills of single parents returning to work.

Second, higher education institutions and the Pennsylvania Higher Education Assistance Agency (PHEAA) would receive additional resources:

- Increased funding for community colleges.

- New and redirected funding from PHEAA, in which resources were targeted to new programmes and occupations such as nursing, jobs in Keystone Innovation Zones, manufacturing technicians, and childcare and direct care workers.
- Funds were made available to help recruit faculty researchers to Pennsylvania colleges with funding for labs, equipment and research staff.

Third, the workforce development system would get a targeted infusion of funding to help the jobs cause:

- Prosperity awards, which provide new money as incentives to local workforce investment boards to create and implement operations and programming that's consistent with state-wide economic competitiveness goals.
- Industry partnerships, in which funds are provided to regional coalitions of employers in targeted industries to encourage new hiring initiatives and train incumbent workers.²¹

Federal programmes

In addition to the new and existing programmes funded through state revenue, Pennsylvania has also leveraged federal funds by applying for and receiving federal projects. For example, the U.S. Department of Labor has awarded Pennsylvania two WIRED (Workforce Innovation for Regional Economic Development) regions. In early 2006, the “Wall Street West” partnership in the business and finance cluster received \$15 million over three years to build a high capacity infrastructure so businesses can establish back-up and secondary operations centers, which are required by the U.S. Securities and Exchange Commission guidelines established after the 2001 terrorist attacks on the east coast. The system provides incentives for major banks and other financial institutions in the New York City area to back up their electronic transaction processing facilities in an area away from their main facilities. The Commonwealth also received a U.S. Department of Labor grant to train technicians who can operate, troubleshoot, and maintain complex industrial equipment that involves multiple integrated systems. By tying into these programmes and the traditional federal-state partnership providing labor exchange, unemployment insurance, and job training programmes, the state has aligned itself to some degree with the national strategies as set out principally by the U.S. Department of Labor.

4. Outcomes of the strategy

Workforce development and economic development programmes are developed for the most part through an evolutionary process. Current programmes are built upon past programmes. In some cases, new initiatives are primarily a change in name only or a rebundling of existing programmes. In other instances, new elements are introduced. Pennsylvania's *Job Ready PA* incorporated a mix of both. It built upon past practices of industry partnerships, regional collaboration, federal Workforce Investment Act Programs, and the community college and university system. To this foundation, it appropriated additional funding for selected programmes, expanded tutoring and dual enrolment high school/college opportunities. These programmes are by no means unique to Pennsylvania; most states have a similar array of programmes and incentive structures.

One of the potential difficulties with an evolutionary process of designing and implementing programmes is that individual programmes and components of programmes are not well integrated and coordinated. States are often quick to adopt programmes from other states or devise ad hoc responses to pressing issues. In doing so, they end up cobbling together a menagerie of programmes instead of a well-constructed and integrated system of services and

incentives. Pennsylvania is an example of a more thoughtful and deliberate system of workforce and economic development services and activities that meet many of the criteria of best practice put forth by respected organisations. Of course, Pennsylvania's approach and implementation is not perfect, but it has made strides in the area of forming partnerships, vertical and horizontal collaboration at the state and regional levels, customer focus, evidence-based decision making, and leadership.

a) Extent to which objectives have been achieved

The Commonwealth cites several pieces of evidence that they contend shows the progress it has made in talent development strategies over the past several years. The Strategic State Workforce Investment Plan, which the state is required to send to the U.S. Department of Labor in fulfilment of WIA requirements, contains the following statements:

- Strong consistent growth in Pennsylvania's total job count over the past year has resulted in more jobs in Pennsylvania than ever before in state history.
- The Commonwealth has received national recognition for comprehensive and innovative workforce development efforts.
- IBM Consulting Group recently ranked PA #1 for foreign and domestic investment. Last year, Pennsylvania did not rank in the top 10.
- The IBM study also ranked Pennsylvania #2 in new jobs created by foreign and domestic investment.

In addition, the Pennsylvania Workforce Development website states that:

“Governor Rendell's industry-driven workforce development strategy is having noticeable effects. We served 34 940 business last year—13 percent market penetration, up from around 1 percent during 2003. The Pennsylvania CareerLink system increased by 375 businesses—from 15 748 in 2005 to 16 123 by Sept. 30, 2006.”

Clearly, the state administration sees their strategies as successful. One independent source to corroborate the state's view is an evaluation by Social Policy Research Associates (SPRA). The Washington Workforce Training and Education Coordinating Board asked SPRA to review what other states have done to consolidate, coordinate, and integrate their workforce systems. SPRA elicited the help of a panel of national experts representing key workforce programmes to select six states for their best practice. The panel selected Pennsylvania as one of the six states.

From interviews with officials from the six states, the study discerned certain themes that emerged regarding the realisation of a successful change. Many of these themes, listed below, are shared by other organisations, such as the National Governors Association's Center for Best Practices, and the OECD/LEED, as important for successful coordination and integration of workforce and economic development systems.²² Comments from the SPRA report and facts from the other sources that illustrate Pennsylvania's fulfilment of many of these themes are inserted into the categories below.

1. **Develop a vision and a strategy.** The report cites Pennsylvania as undertaking a system-wide strategic planning process that resulted in two key goals that were embraced by the key state agencies involved in workforce development. The state developed a multitude of initiatives as steps toward meeting these goals, and the workforce partners are putting their funds behind the strategic goals.

2. **Identify the desired outcome, then choose a reform to match.** The state set out to integrate and coordinate the workforce and economic development system, and put in place high-level task forces to achieve the goal.
3. **Collect data to support the chosen reform approach.** Pennsylvania revamped their management information system in 2002 in order to integrate information about individual customers from several state agencies, instead of maintaining separate systems that cannot share data about participants. That helped to integrate and coordinate programmes. The state also identified industry clusters based upon rigorous empirical analysis and incorporated that information into their decision-making.
4. **Engage multiple levels of leadership.**
 - a) Governor's leadership is critical. Pennsylvania's Governor led the efforts to reform the workforce development system, by articulating a clear vision for the state and its local partners.
 - b) Governor's cabinet must also be committed to change. The Governor insisted that agency heads come together in a cabinet-level committee to coordinate efforts at the state-level. He appointed, via executive order, a deputy director for workforce development of the state to coordinate all state workforce development efforts among agencies that for the most part remain separate entities. He also insisted on cross-representation between workforce development and economic development.
 - c) Local leaders must be empowered to make decisions that allow them to tailor the change to their areas, in the context of strong state leadership. The Governor emphasised Industry Partnerships, in which local business and workforce leaders formed alliances, with the technical assistance and funding from the state, to address the needs of businesses within key industry clusters located in their region.
 - d) The state Assembly passed a bi-partisan bill to fund many of the initiatives proposed under the Governor's strategic plan.
5. **Putting funding behind priorities demonstrates the state's commitment to change.** The Governor proposed a budget that included new funding for several initiatives that were critical to the strategic plan and the Assembly funded most of them. The Governor also reallocated some of the existing funds to focus on components of his strategic plan.
6. **Workforce development, economic development, and education must be aligned.** The Pennsylvania WIB has a committee specifically devoted to aligning economic development and education initiatives with workforce development programmes. There also exists mutual representation on boards and councils. For example, the deputy director of workforce development sits on the economic development council and an economic development representative sits on the Workforce Leadership Group.
7. **Change strategies must make businesses the primary customer.** Pennsylvania emphasises an employer-driven workforce system and has identified key industries that receive priority in worker training and other workforce programmes. Industry partnerships, comprised of local business leaders and the LWIBs, are also encouraged and fostered through state funding and technical assistance. LWIBs are expected to promote industry partnerships in their regions and are held accountable for being proactive in doing so.
8. **Coordination and integration must become engrained in the culture of the organisation.** It is too soon to glean whether the culture of the key entities in the

initiative have been sufficiently transformed. It takes more than a simple restructuring of government agencies, but rather it requires a cultural transformation among management, staff, and policy makers.

Therefore, from an implementation perspective, the strategy appears to be meeting many of the criteria that are considered best practice in developing a comprehensive workforce/economic development and education strategy and in coordinating and leveraging the various entities to achieve the objectives of the strategies. How much the strategies and new programmes translate into economic and worker outcomes, is difficult to say. Public statements from the Governor's office and state agencies speak of increases in the number of jobs in the state and of new investment from domestic and international sources. Press releases from the Governor's office reference studies have shown improvement in the competitiveness of Pennsylvania since the new strategies were implemented, such as the IBM Consulting Group report mentioned earlier. Without a credible counterfactual, it is not possible to begin to understand how much of the improvements can be credited to a change in government policy and the implementation of new programmes and to economic and other factors that are unrelated to the government's efforts.

Beginning to devise and implement the new strategies at the trough of a business cycle provides generous opportunities for the employment situation to improve without any help from the new policies. In examining Figure III.24, it is tempting to conclude that the state's unemployment rate is lower than the national average after the programmes were put in place and higher before implementation due to the programmes themselves. However, that would be too naïve a conclusion, before considering many other factors involved. This does not mean, however, that the policies had no effect on the state's overall employment situation, the competitiveness of individual businesses that participated in the programmes, or the employment outcomes of individual workers who received services directly or job opportunities indirectly from increased job creation. Rather, my point is that it is not possible to say how much the programmes affected individuals, businesses, and the economy.

b) Strengths and weaknesses of the strategy

Strengths

The strengths of the set of policies and programmes put in place by Pennsylvania from 2003 forward relate to leadership, coordination, and partnerships; the weaknesses relate primarily to funding and sustainability. The strength of the strategy and programmes, as previously mentioned, begins with the consistent leadership provided by the Governor and then the follow through by top administrators on the Governor's cabinet. Coordination across agencies at the state level, with a designated top official in charge of alignment, makes a significant difference in successfully implementing and sustaining a comprehensive workforce/economic development system. Many states that have been less successful have lacked this key component. Furthermore, support from the legislature in passing a bill that included funding for many of the programmes integral to the strategy broadened the base of support. Some states that have attempted reforms of this sort have not received the same support from their legislative bodies.

In addition, tightly integrating the state Workforce Investment Board into the process helped to bring coordination down to the regional and local levels, since the local workforce investment boards are vertically integrated with the state board. Clearly specifying expectations regarding the role of LWIBs in forming and nurturing partnerships within their regions, and setting up performance criteria to hold the LWIBs accountable for this role, is another important avenue by which the vision, strategies, and problems were shared and adopted by local entities, public and private. Private sector participation was enhanced at the local level through the industry partnerships and the LWIBs, and at the state level by the decision to place key industry leaders on the State Workforce Investment Board.

Weaknesses

The weaknesses relate to questions of sufficient resources to initiate new programmes and partnerships and sustain existing ones. The Job Ready PA legislation that provided the initial funding for many of the programmes was meagre from the perspective of the needs that it was asked to address. An additional \$90 million is helpful for starting some new initiatives in targeted locations and for targeted industries, but not enough to ramp up the breadth and intensity of employment and training services state-wide. On the other hand, the Assembly devoted roughly 12 percent of the increase in expenditures that year to the Job Ready PA legislation, which given the broad slate of needs during a recession shows considerable commitment to the programme.

Another weakness of the programme, or at least in its continued operations, is the lack of consistency in the message from the Governor's office. There are many avenues through which the Governor's message is heard. One is through the websites and published documents of the various state departments. Another is through the budgeting process, particularly when the Governor presents his budget to the Assembly and thus to the people of the Commonwealth. It is in the budget process that I see a lack of consistency. In the 2005-06 budget, Job Ready Pennsylvania is prominently featured, since that was the year it was enacted. The next year, Job Ready Pennsylvania is mentioned again in the budget, but less prominently displayed, as perhaps expected. But in the following year, there is no mention of Job Ready Pennsylvania in the Governor's budget highlights. Elements of the original strategy are still there, but the important question is whether the package of programmes is still seen as a system. Although it is not the way of politics, in which voters expect something new each year, for a system to remain in tact, it is essential for the leadership to continue to portray the strategy as a system and to keep the brand "Job Ready PA" in front of staff who are trying to operationalise it and participants who are interacting with and benefiting from it.

Future of the programme

Looking forward, the question is sustainability. That can come through continued government support with equal or larger budgets for these programmes. It also comes from leveraging public funds with resources from the private sector. The hope for most industry partnerships that have been started across the country is that after the initial seed money has brought the private sector to the table, they will step up with their own funds, either cash or in-kind, and sustain the effort under the presumption that the benefits to the private sector are worth paying for. In more cases than not, this expectation has not been met. Rather, the private sector begins to drift away from participating in regional alliances once the government no longer provides the catalyst. It is not uncommon for private foundations to step forward and provide money to nurture these alliances when the state cannot afford to meet the entire financial obligations, as witnessed by the joint funding of regional alliances in Michigan by the state and a private foundation. However, that funding is also typically short term. There are exceptions to the tendency for regional alliances/industry partnerships to run a short course, and the relatively long history of industry partnerships in Pennsylvania that precedes the current effort to grow and sustain them may run counter to the trend.

The future success of the programme depends upon the ability to maintain viable partnerships and collaboration among key stakeholders. Keeping businesses engaged is critical. Without businesses' input and support, workforce development systems do not have the necessary information to meet their demands. Experience among other states reveals that it is difficult to maintain businesses as active partners. In addition, without coordination of state departments directly involved with workforce development, economic development and educational institutions, there is a disconnect among these agencies and non-government entities involved with these agencies at the regional and local levels, resulting in poor design and

fragmented delivery of services. Political forces have a way of undermining alignment, and diverging agendas of local and/or state political bodies could be a contributing factor.

Unintended consequences arise from even the most thoughtfully crafted systems. In the case of Pennsylvania, there is the possibility that the emphasis on a demand-driven model could divert resources from programmes designed to assist the economically disadvantaged and dislocated workers. Another possible unintended consequence could arise from the emphasis on regional partnerships. The Keystone report, much of which became the blueprint for *Job Ready PA*, attributed a fragmented workforce system to the intense localism among Pennsylvania's 2 500 or so municipalities. Encouraging regional partnerships could exacerbate that fragmentation. Countering strong regionalism with stronger and better coordinated state agencies could lead to a system that is not responsive to local needs. Therefore, a delicate balance needs to be struck between these two factors. Finally, targeting industry clusters can be a risky strategy. Some regions may not have the assets or experience to accommodate industries identified by the state. For others, by the time the workforce is trained and the infrastructure is put in place to support a particular cluster, that group of industries may be out of favour or the competition from other places is too intense for the region to successfully compete.

5. Potential for the transfer of the strategy

According to the document “Wales: a Vibrant Economy,” there are many similarities between the economies of Wales and Pennsylvania and between their workforce development and economic development strategies.²³ Both economies have experienced a significant erosion of their traditional economic base. For Wales, it's a move away from the extractive resources and heavy manufacturing to more knowledge-based industries.

Unlike Pennsylvania, however, Wales appears to have an influx of migrants into the region, many of whom bring with them a high level of skills. The problem, though, is that regional businesses do not provide sufficient job opportunities to employ these individuals in positions that are commensurate with their skills levels. Discouraged, the tide may eventually turn and Wales will not be able to attract and retain the high-skilled workers, which are the key to a future of greater prosperity and growth. The Welsh government has identified a number of sectors that are widely agreed to be important for future growth (including high technology, automotive, aerospace, agri-food, tourism, financial services and the creative industries. (p. 15)

There are other similarities in the strategies between the two governments. The Welsh Assembly has identified five key drivers of growth and has implemented policy around them: the key drivers are innovation, entrepreneurship, skills, investment, and trade. More specifically, key actions include supporting job creation and helping individuals reduce barriers to employment; revitalising communities; assisting businesses to increase value-added per job and earnings by investing in infrastructure, attracting more high value-added firms and improving the skills base of the workers. To do this, Wales stresses merging top-level government agencies to achieve more efficient and effective delivery of services; joining up government; and promoting public/private partnerships. Finally, Wales is reported to have made progress over the past decade and wants to solidify that progress and achieve even greater gains, which is a goal of Pennsylvania's policy makers as well.

What can Wales learn from Pennsylvania's efforts? It appears that Wales and Pennsylvania share many key elements in their respective strategies. Therefore, possible lessons may be related more to implementation than to structure. The essential organisational elements are the committees of top-level officials, the key role of the State Workforce Investment Board and its relationship with the LWIBs, including the performance accountability mechanisms, and the industry partnerships. These are all elements that can be put in place in other areas.

What are not necessarily transferable, but must be in place to a large extent beforehand, are the leadership, trust, and culture of partnerships and collaboration. This is not to say that Wales or other places lack these characteristics. On the contrary, Wales may be better endowed with these attributes. The point is that they cannot be easily transported from one place to another. They must be nurtured from within. They are embodied in key leadership positions and in the culture of the organisations that are asked to come together to form meaningful partnerships. Pennsylvania appears to have had a culture in place that fostered partnerships at the regional level, but not necessarily partnerships across regions. The Governor, through his leadership and ability to articulate a vision that resonated with other key stakeholders across the state, was able to build a broader state-wide system based on the existing industry partnerships. He knitted together the existing partnerships into a state-wide system through his leadership at the state level, both within his cabinet and with legislatures, to coordinate agencies and activities at the state level. Then with the vertical relationships in place and further strengthened between the State Workforce Investment Board and the local boards he was able to extend his vision to that level. Obviously, much of the structure was already in place, which may not be the case in other areas, but it took leadership and a receptive culture to pull it together into a system.

6. Conclusions and recommendations

In 2003, the Commonwealth of Pennsylvania, under the leadership of its newly elected Governor, set forth to reform its workforce and economic development system into a network of industry-linked partnerships that focuses on training workers to meet the needs of targeted industries. The goal of the workforce system is to enhance employer competitiveness and innovation, while preparing Pennsylvanians for new careers in higher-wage jobs, effectively improving the quality of life for the Commonwealth's citizens. The system was built upon existing industry partnerships and vertical relationships within the system of the state and local workforce investment boards, which were created in 1998 under the federal Workforce Investment Act. The initiative was not merely a set of programmes, but more importantly it established a structure by which the new and existing programmes were knitted together and the culture and performance accountability mechanisms that held them together to form an integrated system.

The Pennsylvania reform had a firm basis upon which to build, and it had the leadership at the state level to get it started. According to several studies of best practice in coordinating and integrating workforce development, economic development, and educational activities, the Pennsylvania initiative had many of the key elements already in place and had the right leadership to bring them together in a systematic way. The question facing Pennsylvania, or at least those observing its continued progress, is whether or not the reform elements of forming partnerships and fostering coordination and collaboration is engrained enough in the culture of the entities involved to sustain the effort once the leadership has moved on to other issues or has changed with a new gubernatorial election. In the years since the enactment of *Job Ready Pennsylvania* legislation, it appears that the Governor has moved to other priorities in his new budgets, while the key agencies still give attention to the initiative.

Several recommendations come out of the Pennsylvania experience:

- Workforce development, economic development, and education must be aligned to meet the current and future needs of businesses and to provide a continuum of opportunities for workers to improve their skills.
- Leadership at the state and local level is critical to forge a true integrated system among separate state agencies, regional organisations, and private sector entities.
- A culture of trust, collaboration, and partnerships is essential; such a culture can be developed and learned over time, but it is advantageous to have it already in place.

- A sustained commitment to the vision of an integrated system is important for long-run sustainability, through both continued and unwavering leadership and reliable funding.
- Designating a top cabinet-level official to be responsible for coordinating the key state agencies and to be held accountable for achieving proper alignment of programmes and services is strongly advised.
- State-level coordination improves coordination at the local level, and vertical as well as horizontal integration is necessary.

What makes the Pennsylvania experience interesting and worth studying is not a unique set of workforce development programmes or economic development incentives. It is difficult to find states that do not have similar sets of programmes and development tools. Rather, it is the way in which the programmes have been brought together through horizontal and vertical coordination, regional partnerships, evidence-based decision-making and leadership. Would policy makers implement the same development strategy again? Best practice would dictate that the principles set forth in Section IV should be followed in order to create a coherent and responsive system. But two states or local regions following the same principles could and should come up with different combinations of programmes and activities if they are to be responsive to the specific needs of their regions. However, sharing experiences, as with Pennsylvania and Wales, allows policy makers to see where the various paths may lead in identifying and responding to their workforce and economic development needs.

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Notes

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SCHLESWIG-HOLSTEIN, GERMANY

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1. Brief overview of the regional economic context

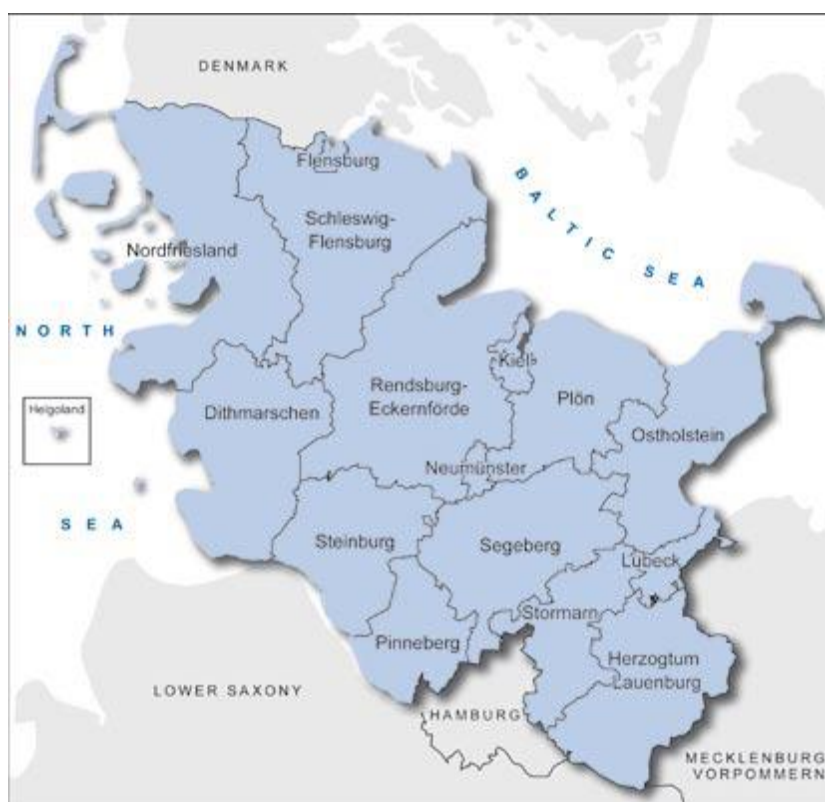
a. Key regional statistics

Schleswig-Holstein is the northernmost state (*Land*) in the Federal Republic of Germany, located between the North Sea and the Baltic Sea. It is bordered in the North by Denmark and in the South by Hamburg and the states of Lower Saxony and Mecklenburg-Vorpommern (Figure III.4). It has about 2.8 million inhabitants, with two official minorities, namely about 50 000 ethnic Danes in the northern part of the state and between 50 000 and 60 000 people belonging to the Frisian ethnic group. With 179 inhabitants per square kilometre it is characterised by a population density which is well below the national average. The two largest cities are Kiel, which is the capital and has about 234 000 inhabitants and Lübeck, which has about 211 000 inhabitants. Administratively it consists of four county boroughs (*kreisfreie Städte*), namely, Kiel, Lübeck, Neumünster and Flensburg, and eleven administrative districts (*Kreise*) (see Figure III.4). Functionally, the southern parts of Schleswig-Holstein form one area with Hamburg and neighbouring areas of Lower Saxony. There have been proposals made several times to unify Lower Saxony, Bremen, Hamburg, Mecklenburg-Vorpommern and Schleswig-Holstein into one single state, sometimes called “Nordstaat”. There have also been several attempts made to co-ordinate policies with neighbouring Hamburg (Schrader *et al.* 2007). In the most recent and far reaching attempts last year, the prime ministers of both states met at an important meeting at which an extensive study was presented in order to show future co-operation potentials between the two states (Schrader *et al.* 2007).

b. Recent economic development history

The regional economy of Schleswig-Holstein consists of a broad range of industries, both in services and manufacturing. Schrader *et al.* (2007) recently carried out a detailed study on the strengths and weaknesses of the regional economy of Schleswig-Holstein in comparison with Hamburg and Germany as a whole. They found that in comparison to other states in Germany, Schleswig-Holstein has a relatively weak manufacturing industry, in terms of both value added services and employment.

The employment in services as a share of total employment has increased from 68% in 1991 to 77% in 2006. The problem, though, is that the transformation from a manufacturing to a service-oriented regional economy, has led to a relatively lower per capita income in Schleswig-Holstein. The state hosts mainly lower value added services, such as tourism and retail, and to some extent services in the public sector. This is in contrast to Hamburg, where we find higher value added production-oriented services, which has led to increasing and relatively high incomes per head. Within the relatively small manufacturing industry, the largest industries are mechanical engineering, the food processing industry, medical and precision instruments, as well as chemical and pharmaceutical industries.

Figure III.4: Map of Schleswig-Holstein with its administrative districts

The export rate of the manufacturing sector of Schleswig-Holstein was at 40.7% in 2006, which is somewhat below the German rate of 41.9% as a whole. Nevertheless, the gap has been reduced markedly in the last years. Regionally, the largest concentration of manufacturing industry can be observed in the districts that border Hamburg, such as Pinneberg, Segeberg and Stormarn, and to some extent in Lübeck, Kiel and Flensburg. Statistics on occupations show that Schleswig-Holstein has relatively few people working in marketing, management and consultancy. Also research and development is relatively under-represented and the qualification level of employees is relatively low. Within the manufacturing industries, only mechanical engineering is relatively research and development-intensive. Total research and development expenditure in Schleswig-Holstein, which includes private, government and academic spending, is 1.1 percent. This is one of the lowest levels in Germany, which attains 2.5 percent as a whole. Unemployment rates are at about the same level as Germany as a whole and as a consequence of the picking up of the nation wide economy they dropped in the last years. A severe problem for policy makers and the economy is still the heavy indebtedness of Schleswig-Holstein's public sector (€8 300 per capita), which is one of the highest in Germany and limits financial scope for economic development policies drastically.

2. The regional development strategy

a. Rationale / conceptual framework of the strategy

Some of the policies affecting regional development and employment in Schleswig-Holstein have their origins in the policies of the federal government in Berlin. Labour market policy and unemployment placement, for example, are central tasks of the federal government and hence Schleswig-Holstein has little influence on these measures. Furthermore, economic development policies are less important than sectorally focused activities, such as research supporting programmes that always imply a strong regional impact. However, in Germany there is a separation of policy competences between the states (*Länder*) and the federal government

so that Schleswig-Holstein, nevertheless, sets up several important regional development activities.

Schleswig-Holstein runs a regional development strategy, which can somehow be described with a lack of conceptual stringency. At the same time, there are some different elements that altogether tackle important features of regional development, but these policies do not build upon a consistent or theoretically founded framework. The overall aim of the combined regional development policies is to generate growth and jobs in Schleswig-Holstein. The state government therefore tries to enhance investments and innovations, which is specifically symbolised by the integration of the Ministry of Science and the Ministry of Economic Affairs into one ministry in 2005. It was the first time that this occurred in Germany and was due to the results of a state-wide election that brought a government change. The two big parties, the Christian Democrats and Social Democrats, namely formed a coalition government and had to compromise their differing economic development approaches. But also before the establishment of this grand coalition government, the regional development strategy lacked a defined rationale. To achieve the aim of job and growth generation, several cornerstones appear relevant (Ministry of Science, Economic Affairs and Transport Schleswig-Holstein 2008c).

The first cornerstone aims at improving the financing conditions especially for small and medium-sized enterprises. Because of the business structure in Schleswig-Holstein, which is dominated by small and medium-sized enterprises, these conditions play a vital role for developing the economy. Several programmes such as the “Seed- and Start-Up Funds Schleswig-Holstein” or the “Immediate Action and Credit Programme for Small and Medium-Sized Enterprises” (*IB.KMUDirekt*) support the firms, who often do not obtain credits or suffer from higher interest rates when compared to bigger firms. Furthermore, they enhance founding and setting up of new businesses. These programmes are financed by state sources, partly combined with federal money and European funds. The implementation is carried out by special service institutions such as the Business Development and Technology Transfer Corporation of Schleswig-Holstein (*Wirtschaftsförderung und Technologietransfer Schleswig-Holstein; WTSH*) or the Medium-Sized Business Investment Company Schleswig-Holstein (*Mittelständische Beteiligungsgesellschaft Schleswig-Holstein*) which altogether make up a rather well functioning supply of financial service providers.

A second important cornerstone of the regional development strategy is the “Schleswig-Holstein Funds”. It is sourced with around €80 million each year and supports certain selected projects which deal with growth, jobs, research and education. It therefore does not follow a fixed strategy but increases grants, supports particular / individual projects and small programmes so that it can be seen as an additional component within the regional development strategy. Nevertheless, it often functions as a multi-purpose support programme and sometimes initiates important activities that otherwise might not have been realised.

As a third cornerstone, the state has set up a cluster strategy that aims at fostering fields of competence. These policies add a more sectorally focused element to the regional development strategy. For the selected clusters, development concepts are set up and special cluster managements are installed. These clusters shall raise the competitiveness of the supported industries and regions and hence generate income and employment. Further details are given in section 2d.

The fourth cornerstone represents the most important component of the development strategy. Due to the relatively poor financial situation of Schleswig-Holstein, the state combines its monetary resources with funds from the European Union and additional federal money into one key regional policy initiative. Running from 2000 to 2006 it was under the heading “Z.I.E.L.” (*German abbreviation for “Zukunft im eigenen Land”* - “Future in our own Land”) that the biggest part of regional development policy was carried out. It consisted of three

programmes. There is no superordinated strategy, but the programmes are assembled under the title Z.I.E.L. and administrated by three different ministries. In this way it is argued that the specific problems and needs are targeted by their respective tailored means (Ramböll Management 2003).

One programme inside Z.I.E.L. was “Future in the Countryside” (*ZAL – Zukunft auf dem Land*) that was sourced by European and national funds and money of Schleswig-Holstein. It provided for modernising the agricultural structure and strengthening the rural areas, as well as measures concerning environmental or compensatory measures, coastal protection and forestry.

The second programme “Employment for Schleswig-Holstein” (*ASH – Arbeit für Schleswig-Holstein*) intended to improve the qualification of employees and to foster the employability of jobless persons. It focussed on six fields of measures, for which there were €275 million provided by the European Social Funds (ESF) and the state. The measures included support for a job qualification, especially for youth; encouraging the setting up of new businesses, especially by the unemployed; enhancing the participation in life long learning and further education, integrating the unemployed into the job market; consultancy for businesses and further projects. Thus, parts of these measures were the implementation of national policies that had to be conducted by the state.

The main regional economic development policy component, however, was the “Regional Programme 2000”, the third programme inside Z.I.E.L. The Regional Programme 2000 should help to foster and implement the structural change particularly in the economically underdeveloped regions. Projects were given grants for investments and certain other activities that were defined in the programme guidelines. These grants differed depending on what kinds of projects were carried out. As this was the most important regional policy instrument of Schleswig-Holstein, its strategic pillars, objectives and delivery arrangements will be the focus of attention of this study, as well as its successor programme. The budget was about €362 million, nearly two thirds of which were financed by the EU Structural Funds, about €103 million was financed by the federal regional policy programme (*Gemeinschaftsaufgabe*), and the rest was financed by the state of Schleswig-Holstein. These different sources resulted in a mixture of programme guidelines and allowances concerning where and how to use what money (Ramböll Management 2005).

Consequently, the Regional Programme 2000 virtually divided the state of Schleswig-Holstein into two areas. The subsidies were restricted to the more rural, peripheral and economically underdeveloped districts (*Kreise*) in the northern, western and eastern area of Schleswig-Holstein. On the other hand the wealthier southern districts (*Kreise*), located north of and having close commuter relations with the growing and thriving metropolis of Hamburg were not eligible.

With the new period of EU regional policy that will last from 2007 until 2013, there was a programmatic shift of strategy due to the Lisbon Agenda which affected the most important economic development programme in Schleswig-Holstein, too. Moreover, in 2005 a new state government was elected in Schleswig-Holstein, which also wanted to change regional development policy. Regional councils, who act as intermediary between the local economy and the Ministry of Economic Affairs, however, also had influence on the content of the new programme. In a series of intensive workshops of the ministry together with the regional councils and their experiences in devising and implementing regional projects, new topics were adopted in the new programme. The evolution of the initiatives and its programmes demonstrates how regional economies must learn to adapt to changing conditions and different needs in the globalising economy.

Cornerstone number four, the regional policy initiative Z.I.E.L., with its three individual programmes, expired in 2006 and was replaced by a successor initiative that represents the most important cornerstone of regional development strategy in Schleswig-Holstein.

Currently, the primary regional development initiative for the state of Schleswig-Holstein is the Future Programme Schleswig-Holstein. It will run from 2007 to 2013 and has a volume of €1.4 billion public subsidies, which are supposed to generate an overall investment of more than €3 billion. The Future Programme Schleswig-Holstein, such as its predecessor, consists of several individual building blocks and is again administrated by different responsible ministries:

1. Future Programme Economy.
2. Future Programme Employment.
3. Future Programme Rural Areas.
4. Future Programme Fishing.

The Future Programme shall enhance growth, employment and innovativeness in Schleswig-Holstein. Moreover, it is to encourage and make investments in the people, the economy and the regions (Ministry of Science, Economic Affairs and Transport Schleswig-Holstein 2008a).

In order to achieve this, the strategy has two levels. The first level aims at the so called efficiency target (*Wachstumsziel*) and implies the enhancement of growth and innovation which is implied in the Lisbon-Strategy and in the overall concepts (*Leitbilder*) of German regional planning (*Raumordnung*). Therefore, the financial support and location decisions shall be concentrated on the best performing – mostly more densely populated – regions, as they promise to generate a superior contribution to the whole economy of Schleswig-Holstein when compared to other regions.

The other level aims at the equity target (*Ausgleichsziel*) which is particularly important for Schleswig-Holstein because of the rural and economically underdeveloped regions on the one hand and the disparities, when compared with the more competitive urban regions, on the other hand. Thus, there is not only the political will to conduct this two level strategy, but there are also scientific doubts about a primarily equity-focused strategy (Armstrong & Taylor 2000).

To adjust to these two requirements there are a mixture of instruments which are performed by the state. Particularly in the main programme, the Future Programme Economy, the tension between the targets is apparent. Within its more than €700 million of subsidies, about one half is funded by the EU-structural funds that focuses mainly on the efficiency target, hence the funds shall be used in this manner and for certain other determined aspects. A quarter of the amount (around €170 million) is sourced by the federal regional policy programme (*Gemeinschaftsaufgabe*), which focuses on the equity target and so mainly compensatory activities are financed. The remaining quarter is funded by the state of Schleswig-Holstein itself and can be used more flexibly.

The main changes from Regional Programme 2000 to Future Programme Economy are the following (Roloff 2008):

1. Concerning the content of the support, there is now more focus on innovation, research and development, and science.

2. In comparison to the past, individual firms are now supported more. They can get support for research and development, innovation projects, innovation related investments and start-ups.
3. The support programme is now valid in the whole area of Schleswig-Holstein. In the Regional Programme 2000, only the objective 2 regions within the state were eligible for support. After it became clear that the financial support from Brussels would unexpectedly rise no less than 60% - which was caused by an overall strong increase in support for the Structural Funds, due to the Lisbon regulations and its paradigm shift to focus more on research and development, innovation and science in the regions - the decision was taken to not restrict the spending of money to certain regions. Due to regulations of the federal regional policy (*Gemeinschaftsaufgabe*), however, there are some limitations. It is for instance difficult to support large enterprises located just north of Hamburg.

The focus of attention in this study will be on these two main components, namely Regional Programme 2000 and Future Programme Economy, as they are the central economic development programmes and responsible for most regional subsidies for investment, growth enhancement and innovations. Nevertheless, the other three programmes of the current strategy shall also be introduced (Ministry of Science, Economic Affairs and Transport Schleswig-Holstein 2008a):

More than €200 million are disposable for the Future Programme Employment which is half financed by the European Social Fund (ESF). It concentrates on three areas to enhance the competitiveness of human resources and hence firm capabilities.

- Area A is about “increasing the adaptative and competitive capacities of employees and firms” and aims at the strengthening of already existing potential. Eligible activities include advanced vocational training, advisory services and supporting projects that qualify entrepreneurs in their pre-start-up phase.
- The Area B “improving the human capital” shall contribute to reducing unemployment amongst young people by giving them a perspective of the labour market. Eligible activities include supporting the creation of new apprenticeships, training job hunters or regional vocational tutors – activities which aim at the first stage of initial training. A further scope aims at training activities for teenagers who have special needs, transnational projects, and the support of job orientation.
- Area C deals with the integration of disadvantaged persons, permanently unemployed persons and the preservation of their employability. Eligible activities are, for example, helpdesks for women & jobs, alphabetisation courses and further regional projects.

Whereas the Future Programme Employment gives priority to young people, employees, the companies themselves and their participation in advanced vocational training; the Future Programme Economy concentrates on the modernisation and creation of infrastructures for job-training and off-the-job-training, as well as establishing network-structures in this sector. For these reasons, there are potential synergetic effects arising out of the two programmes for the enhancement of job related qualifications.

The Future Programme Rural Areas aims at four different objectives. The first one is to improve the competitiveness of workers and firms by investing in individual firms and fostering advanced vocational training, particularly in the food industry, agriculture and forestry. The second objective targets the preservation of natural and cultivated landscape by promoting the cooperation between agricultural companies, nature conservation and water management

activities. Thirdly, the quality of life in rural areas should be improved and the rural economy be further diversified. Finally, with the concept of “AktivRegion” the state encourages and finances bottom-up strategies for boroughs to cooperate and hence develop joint regional development strategies to overcome selfish provincial policies, a concept dedicated to the LEADER+ basic principles.

More than €460 million are available within the scope of the Future Programme Rural Areas, which is – such as its predecessor “Future in the Countryside” (ZAL) – half financed by the European Agricultural Fund for Rural Development (EAFRD).

The last building block, the Future Programme Fishing is a relatively small programme (€32 million) which enables the fishing industry to modernise, to operate in a sustainable manner and to support the regions where the fishing industry declines.

As can be observed, the conceptual framework of the regional development strategy is a rather loose assembly of individual components, except that all of the cornerstones shall generate growth and jobs by enhancing investments and innovations.

b. Strategy pillars and objectives

As already mentioned, there is a lack of strategy in the overall regional development policies of Schleswig-Holstein but on the other hand the most important policy instruments “Regional Programme 2000” and “Future Programme Economy” are clearly based on strategic conceptualisation. Including the largest part of the regional economic development funds, their strategic pillars and objectives are explained in the following section. Because the Schleswig-Holstein Funds and the other cornerstones are not characterised by a strategic defined approach or fixed objectives, they will not be dealt with here.

The Regional Programme 2000 aimed at fostering innovation, growth and jobs, particularly in the economically underdeveloped regions of Schleswig-Holstein. To achieve this overall aim, it consisted of four pillars each of which addresses important strategic fields. These fields were chosen by the apparent economic needs, as well as political demands from the respective regions. Furthermore, there were preconditions made by the EU and the federal policy programme on how and where to use the money (Ramböll Management 2003).

A. Modernisation of the manufacturing base

The measures in this pillar are focused on the support of business oriented research and development-capacities and on investments in the generation of permanent jobs. This deals directly with the problematic economic structure of the eligible regions and its low innovation potential. Its eligible actions and defined objectives were the following:

- Construction or extension of technology- and innovation-centres or business incubators (Objectives: foundation and settlement of innovative companies especially of emerging industries).
- Enhancing technological potential and technology transfer (Objectives: Intensifying cooperation between research facilities and small and medium-sized enterprises, research and development activities).
- Company innovation support (Objective: enhancing the innovative capabilities of companies by research and development support).

- Economical utilisation of information and communication technologies (Objective: improving the capacities and consultancy regarding information and communication technologies particularly in small and medium-sized enterprises).

B. Raising the competitiveness of firms (particularly small and medium-sized enterprises)

This pillar aims at the contribution of small and medium-sized enterprises to human resources, technological capabilities and the generation of jobs in the eligible regions, particularly because of their relevance for Schleswig-Holstein. The supportable measures were further specified:

- Development of industrial real estate and business parks (Objective: improving the conditions for settlements of companies and/or their extension).
- Installation and improvement of advisory and consultancy structures for small and medium-sized enterprises (Objective: creating a transparent advisory structure for small and medium-sized enterprises and entrepreneurs).

C. Improving local development

In the rural areas a modernisation and diversification of the business locations shall be achieved. To conduct this, deficits in the soft infrastructure are to be removed by urban development, job training, environmental protection, tourism and culture. The targeted measures and objectives are:

- Qualification / training measures (Objective: investments in the infrastructure related to further education and job training).
- Promotion of tourism (Objective: improving the tourist infrastructure and support non-investing projects - marketing, market research, supply and attractiveness-improvement).
- Measures within integrated concepts for problematic urban areas (Objective: supporting a sustainable development, *e.g.* reuse of idle city space or former military areas).
- Multi-purpose facilities for improving the local business environment (Objective: improving the location condition and image, *e.g.* fairs, conventions and events).
- Support for company formation, expansion or modernisation (Objective: generation of additional income for a region by creating competitive firms and hence supporting further investments).

D. Raising the regional competitiveness – business oriented infrastructure

Within this pillar the infrastructure of lagging regions shall be improved to catch up to national or even international standards. Eligible measures and objectives included the following:

- Airport upgrading (Objective: the utilisation shall be raised via the improvement of security standards).
- Harbour construction (Objective: expansion and modernisation of infrastructures related to harbours to handle more passengers and freight).

Furthermore, a fifth pillar finances technical assistance that includes support for advisory, studies, expertise and so on. An overview of financial means will be given in the section on outcomes of the strategy.

The prevailing Future Programme Economy also consists of four strategic pillars, which shall altogether raise the competitiveness of Schleswig-Holstein as a business location and of the residing firms, and hence shall improve the employment situation. By choosing these four pillars, there is a combination of the equity and the efficiency target, because different pillars address different issues and hence with this interplay and focus on the most important development issues the overall aim is more likely to be tackled. As already mentioned, there is a paradigm shift towards more growth orientation, but yet some of the fields remain similar and hence still eligible (Ministry of Science, Economic Affairs and Transport Schleswig-Holstein 2007b).

1. Boosting Knowledge and Innovation

Within this pillar, the capability and speed of innovations in the Schleswig-Holstein economy shall be improved. The objectives are further specified:

- Cooperation, technology transfer and networking between science and economy (particularly small and medium-sized enterprises).
- Strengthening of contract research.
- Securing and creation of new employment in research and development.
- Establishing new firms and attracting entrepreneurs of future-oriented technologies.
- Upgrading the skills of the workforce.
- Promotion of innovations, particularly for the preservation of resources in small and medium-sized enterprises.

2. Raising the Competitiveness of Firms

This second pillar particularly aims at the small and medium-sized enterprises and their propensity to invest. The targeted objectives are as follows:

- Securing and creation of new jobs.
- Enhancing investments in capital equipment for the modernisation and expansion of the industrial economy and its capital stock.
- Enhancing private investments in innovative or risky enlargements, or restructuring of firms.
- Saving the human resources of companies by the implementation of a family-friendly staffing policy.
- Supporting regional development plans and cooperation.

3. Upgrading the business oriented infrastructure and sustainable activities

This pillar focuses on improving the locational conditions for existing firms and the conditions for establishing new firms. Specific objectives are:

- Development or qualitative upgrading of the business-oriented infrastructure, if required.
- Increasing the occupancy of business parks and commercial premises as well as of multifunctional facilities.
- Avoiding the usage of free space when expanding the settlement and traffic area.
- Securing the function of Schleswig-Holstein as a trading hub by raising the cargo handling and passenger traffic in Lübeck and Kiel.
- Risk prevention and protection of threatened areas in coastal regions, if business is concerned.

4. Developing specific regional potentials

Within the fourth pillar economically underdeveloped regions shall be able to expand their indigenous strengths such as tourism or culture economy. Specific objectives are:

- Enhancing a sustainable urban development in the high and middle level centres (*Ober- and Mittelzentren*).
- Increasing the attendance to touristic destinations of the tourism regions and increasing the numbers of overnight stays.

Furthermore, there is again the fifth pillar, namely technical assistance that includes support for advisory, studies, expertise and so forth.

In contrast to the Regional Programme 2000, statistics are not yet available for conceded grants. Nevertheless, different financial resources are provided for these pillars. The largest part of the money is budgeted for the first pillar “Boosting Knowledge and Innovation”, that is intended to receive more than €220 million in grants. More than €140 million of public subsidies will be spent on “Raising the competitiveness of firms” and shall induce overall investments, when combined with capital of the conducting enterprises, that will reach more than half a billion euros. These first two pillars that aim at the growth oriented strategy account for around seventy percent of the projected total public subsidies and more than seventy-five percent of the total costs and overall investments, which is much more than in its predecessor and emphasises the paradigm shift (Ministry of Science, Economic Affairs and Transport Schleswig-Holstein 2007b).

c. Implementation and delivery arrangements of the strategy

The former Regional Programme 2000 and the current Future Programme Economy as main elements of the regional development strategy can both be characterised by a top-down and a bottom-up approach simultaneously, in regards to their implementation.

The bottom-up component is made up of regional agencies and regional councils, who together shall foster local and regional development in their respective regions. There are four regional agencies (*Geschäftsstellen*) in each of the four sub-regions, which were constituted for the regional policy programmes. Financial grants are given to the regional agencies as technical and organisational support. They carry out public relations and provide the public with broad information. They also provide regional firms with information about the regional policy programmes and information on how to obtain subsidies. This includes advisory workshops and organising events but also the acquisition of projects. Furthermore regional agencies help with the monitoring and assistance of regional projects. In addition, project initiators are given help

in the process of developing applications and are accompanied until approval. The regional agencies interact closely with the local business development offices and hence try to build up networks of all relevant actors. Finally, they shall participate in the regional economic development and sometimes also realise the cluster management. Close interactions are maintained with the second bottom-up component, namely the four regional councils, for who the regional agencies prepare, organise, conduct and reinforce the meetings.

These regional councils (*Regionalbeiräte*) consist of a broad group of representative organisations, such as polytechnics, universities, chambers of commerce, trade unions, churches and NGOs. There are some EU-regulations on how to compose the councils, and usually important local politicians and local governments are involved, too. Inside the regional councils at their regular meetings local preferences are coordinated. In addition, priorities concerning regional infrastructure projects are given and will finally be recommended as suggestions to the Ministry of Economic Affairs. In this way they try to balance the individual interests and choose the projects that seem best for the entire region and hence function as a regional advisory committee. Hence, the regional councils represent the decision-making unit inside the regions for the regional participation process while the regional agencies act as operational and executing units, who carry out everyday business.

Moreover, the regional councils and agencies participate in working out regional development strategies, implementing them and establishing linkages to the regional planning that is currently an independent issue (Ministry of Science, Economic Affairs and Transport Schleswig-Holstein 2007b).

The top-down-approach focuses on the responsibility of the Ministry of Economic Affairs in the final judging of the approval of submitted applications. There are several special departments (*Fachreferate*) in the Schleswig-Holstein ministries that are responsible for the projects, in regards to the content. These special departments help with the acquisition of projects, support the project initiators, cooperate with the regional agencies and finally make statements about the feasibility of the projects. The statements influence the decision making process of the coordinating department for Regional Programme 2000 in the Ministry of Economic Affairs and influence the ongoing opinion making process. In Future Programme Economy they influence the final decision of the person in charge, namely the responsible Minister of Economic Affairs.

After approval the special departments supervise – with regards to complying with the rules – the implementation of the projects, which is accompanied by external service providers such as the Investment Bank Schleswig-Holstein (*Investitionsbank Schleswig-Holstein*) and the Business Development and Technology Transfer Corporation of Schleswig-Holstein.

Concerning the delivery arrangements in the Regional Programme 2000, applicants approached the regional councils with their project ideas and proposals. For most eligible measures the proposals were made by single boroughs, towns or villages, whereas for several measures firms have been the concrete project applicants. The regional agencies then helped with formal requirements and gave advice to the applicants. This application was sent to the coordination department and after a first eligibility check, concerning the regulatory guidelines of the different grant sources, forwarded to the special departments. As these special departments are responsible for their respective political fields and hence know best the situation, they examined the contents of the projects and judged the applications by their professional background. Those first judgements went back to the regions. The regional councils then came into play and discussed their individual regional projects and set priorities. These prioritised support recommendations were submitted to the ministry and then debated in a further working group (*IMAG -Interministerielle Arbeitsgruppe*) that consisted of regional members, ministry officials and further public participants. The working group decided by majority, in a kind of state-wide competition, which projects were approved and granted. Only

the quality of submitted project applications should be decisive, although such bargaining processes always do include some kind of compensatory actions. A service provider, the Investment Bank Schleswig-Holstein, then processes the grants and payment transactions, and should also control for the carrying out of the projects. Most of the projects, which supported innovation in companies, had to undergo a slightly different procedure. These applications were checked and judged by an external service provider, namely the current Business Development and Technology Transfer Corporation of Schleswig-Holstein that handles the complete process according to clearly ministry-defined regulations (Ramböll Management 2003).

A steering committee, that is made up of several state secretaries of the three related ministries additionally functioned as a monitoring group in the Regional Programme 2000 and coordinated the political interplay of the three pillars of the initiative Z.I.E.L.: Future in our own Land (*“Zukunft im eigenen Land“*). However, only rare cases where conflicts arose have been handled by this steering committee.

After having evaluated the Regional Programme 2000, several evolutionary changes have been implemented in the current Future Programme Economy. For example, it differs concerning the participation processes of the four sub-regions and hence the bottom-up component. This was due to the fact, that the selection and granting procedures lasted a long time. Instead of holding a working group, the submitted regional project recommendations are now decided upon by the ministry exclusively. By abolishing the *IMAG*, granting and decision procedures shall be accelerated which is an important factor in contributing to the programme success. On the other hand, however, it reduces transparency and the building of consciousness in the four sub-regions and of its actors. Again a trade-off appears between desirable regional participation and efficient implementation of the policy programme. Furthermore, in the previous programme period most of the submitted projects were debated in the regional councils whereas in the Future Programme Economy usually only certain “regional” projects are reviewed by the regional councils and priority lists are set up. This is partly due to the greater extent of Lisbon-oriented projects that focus on the efficiency target and hence involve more innovation and knowledge contents.

Now, there are three kinds of projects, which differ slightly concerning the proceedings (Ministry of Science, Economic Affairs and Transport Schleswig-Holstein 2007b):

1. Innovative projects

The innovative projects are usually performed in cooperation with universities or public research establishments and include activities such as supporting centres of competence at universities and research facilities, upgrading the business-related research infrastructure, joint projects between science and business or the support for advanced scientific training. Sometimes actors such as the University of Kiel approach the ministry directly for support, but in fact, the acquisition of concrete projects is arranged and promoted by several institutions such as the Business Development and Technology Transfer Corporation of Schleswig-Holstein, the special departments, the regional agencies and sometimes by potential applicants themselves. During the examination processes sometimes the help of expert advisory committees is called for, depending on the complexity of the project.

2. Support for enterprises

The support for enterprises implies the enhancement of company innovations, individual activities to increase the competitiveness, easier access of small and medium-sized firms to capital market and innovation assistance. All tasks and features concerning all project steps from development of applications to the execution are carried out by an external service provider who is clearly restricted to guidelines. The

Business Development and Technology Transfer Corporation of Schleswig-Holstein handles projects with regard to innovations in companies and the *Investitionsbank Schleswig-Holstein* does so for other support activities for enterprises.

3. Regional and other projects

This category of projects mainly includes infrastructural activities such as centres for technology and entrepreneurs, advisory and services facilities for small and medium-sized enterprises, multi-purpose facilities, land recycling, sustainable urban development and improving tourism. The procedure is similar to the innovative projects, but instead of the expert advisory committees, regional councils function as counsellors and regional priority based suggestions influence the decision of the ministry. In addition the regional agencies play a more important role in monitoring and advising the project applications as the technical component is less complex compared to innovative projects.

d. Sample of main policy programmes and tools

In this section there will be a more detailed overview about several components of the individual cornerstones of the whole regional development strategy, namely the financing instrument *Mittelstandsfonds Schleswig-Holstein (MSH)*, some supported projects of the Schleswig-Holstein-Funds, Cluster Policies and granted projects of the Regional Programme 2000 and the Future Programme Economy.

The *Mittelstandsfonds Schleswig-Holstein* (Fund for Medium-Sized Businesses Schleswig-Holstein) provides venture capital especially for medium-sized businesses and hence represents a tool in the cornerstone of improved financing conditions. It was initiated by the state government and is mainly financed by several local banks and credit institutions, whereas the state, due to subsidy regulations, only holds a deficiency guarantee. Medium-sized businesses that reside or that plan to invest in Schleswig-Holstein can attain capital and thus exploit existing growth capacities. In this way the lack of capital resources in many companies shall be overcome and job growth be initialised.

In the framework of the second cornerstone, the Schleswig-Holstein Funds extended some programmes that turned out to be meaningful. Additionally it sources important single projects. One example of support is the upgrading of nanotechnology in Schleswig-Holstein. For this reason a new main research department has been installed at the University of Kiel including a state-of-the-art electron microscope. The state therefore provided €1.7 million of the Schleswig-Holstein Funds to support high-tech research and the possibility to generate innovations and technology transfer out of the university. Furthermore in Lübeck the establishment of a renowned Fraunhofer Research Institute is projected in the field of life sciences. With the Schleswig-Holstein Funds the research at the university is strengthened to achieve the upgrading of already existing excellent structures. This would be a milestone in the scientific history as there is only one further independent research institute in Schleswig-Holstein, a fact that underlines the structural weakness with regard to innovations.

The third cornerstone of the regional development strategy is the Cluster policy of Schleswig-Holstein, which started in 2004 when the Ministry of Economic Affairs launched the “Strategy of Cluster policy in Schleswig-Holstein”. Although formally separated from the Regional Programme 2000 and the Future Programme Economy the cluster policy of Schleswig-Holstein has links with them, both concerning the content of policy and financially, as some cluster initiatives benefit from financial support made available in the framework of the two programmes. Within this new item of state-wide economic policy eight sectoral fields of competence were chosen that are based upon already existing structures and cores for regional

clusters. Besides results of branch surveys and in-house knowledge, political considerations were likely to have impact on the final choice of these fields (Schrader *et al.* 2007).

Nevertheless in most clusters there is no spatial delimitation, so the whole Land Schleswig-Holstein is a cluster area. This might be due to regional political reasons and thus to the equity target, so that there is no excluded peripheral area, but otherwise in this way it is difficult to address the efficiency target because of lacking spatial concentration. Furthermore many clusters are thematically rather loosely defined and hence dedicated to a broad scope of inclusion. This is, however, problematic concerning the identification with and the generation of synergy inside the cluster (Schrader *et al.* 2007). During the past years there have been some smaller changes to the original list, and at present the following ten fields of competence are defined:

1. Cluster chemicals industry.
2. Cluster food industry.
3. Cluster ICT and media.
4. Cluster life sciences.
5. Cluster logistics.
6. Cluster aviation.
7. Cluster micro- and nanotechnology.
8. Cluster maritime economy and technologies.
9. Cluster tourism.
10. Cluster wind energy and regenerative energies.

To support these clusters two main kinds of policies are undertaken. Firstly, financial grants are given to the cluster managements that are heterogeneously organised throughout the state, partly by building upon and augmenting already existing structures and organisations, and partly by setting up new organisations. Secondly, the support instruments and policy on subsidies of the state of Schleswig-Holstein were to some extent focused on projects, which are facilitating the development of the respective clusters. For instance, many lead projects of the Schleswig-Holstein regional policy such as investments in research infrastructure and establishments of centres of excellences are dedicated to clusters (Ministry of Science, Economic Affairs and Transport Schleswig-Holstein 2007a).

Examples are the construction of MariCube, a science and business park and centre of competence for blue biotechnology and marine aquaculture which represents efforts to strengthen the maritime cluster. It targets synergetic effects of research and industrial exploitation of marine technologies. Associated with the maritime cluster is the purchase of an underwater robot for marine research at the Kiel Leibniz Institute of Marine Sciences (*IFM-GEOMAR*), which represents an investment of more than €4.5 million. The cluster wind energy and regenerative energies benefit from the project “FINO 3 – Centre of competence usage of offshore-wind energy in the North Sea and development platform for technology transfer and nature conservation” and shall help small and medium-sized enterprises and research institutions to test and develop processes and products related to the usage of offshore wind energy.

Furthermore there are currently efforts with Hamburg to establish closer collaboration with respect to cluster policies. The Cluster “life sciences” already exists as a cooperative liaison for health, medical and biotechnologies in Hamburg and Schleswig-Holstein, but there are several other possible fields of joint actions for cluster policies, of which only a few have been intensified so far.

Examples of cluster policies in Schleswig-Holstein

1. Maritime Cluster

The maritime economy in Schleswig-Holstein is made up of around 45 000 employees and a turnover of at least €5.5 billion. A state-wide cluster management was set up by the state in 2005 and shall complement the activities of the Ministry of Economic Affairs that already launched the strategy to make Schleswig-Holstein a “European maritime model region” until 2015 (clustermanagement maritime cluster 2008). The cluster management shall mainly provide information and communication, raise the awareness of members and related actors, generate and take care of joint projects, sustain cooperation and innovations and finally, it shall carry out marketing and public relations as well as help to internationalise the maritime activities. In order to achieve these objectives certain measures such as networking, fostering the ability to cooperate and the initiation of joint technological projects are realised. For example there is a combined research group including actors and potential partners that advances an innovative conception concerning the construction of “modular scientific research vessels”. Furthermore, projects are supported, *e.g.* the “Ocean Monitoring System” or “research on gas hydrates”. Workshops are held that shall develop synergies and identify possible ideas across several disciplines. Finally the cluster management provides assistance to business development and databases for cooperation, technology and products. Moreover, important progress was made during the last years by strengthening further education and providing study courses which are directly aimed at maritime technologies in Schleswig-Holstein.

In addition, the state-wide initiative “sea our future” concentrates on technological and innovative projects with value creation and employment generation in Schleswig-Holstein. A derived masterplan “maritime technologies” defines six sectoral technological priorities, namely marine supply industry, shipbuilding, offshore wind energy, offshore and marine technology/marine research technology, port industries/maritime logistics and marine aquaculture/ blue biotechnology (Ministry of Science, Economic Affairs and Transport Schleswig-Holstein 2007c).

A further closely related scientific flagship initiative is the cluster of excellence “The Future Ocean” that is funded by the German Research Foundation (*DFG*) and includes network partners of five faculties and twenty-six institutes at the University of Kiel as well as the *IFM-GEOMAR*, the Kiel Institute for the World Economy (*IfW*) and the Muthesius Academy of Fine Arts.

2. Cluster tourism

Tourism is for some rural areas in Schleswig-Holstein the main income source and hence it is an important sector with its more than 130 000 employees and a turnover of around €4.5 billion. As it is often the starting point for regional development, in general there is a considerable amount of investments for tourism. This is illustrated by the eligibility of several measures in the Regional Programme 2000 and prevailing Future Programme Economy or Future Programme Rural Areas. As there is severe competition in the tourism sector, continuous adaptations have to be carried out and hence at the end of 2006 Schleswig-Holstein launched a new tourism strategy. It focuses, *inter alia*, on the optimisation of the fragmented tourism structures in the state, the implementation of a quality and qualification system for touristic establishments and particularly on the development of a state-wide marketing concept for

orientating the touristic marketing on three defined target groups: “families with children”, “best agers” (consumers from 50 years onwards) and “sophisticated aficionados”.

Further issues are maintained such as the support for quality improvement in sailing tourism, particularly at the Baltic Sea, that is financed with half a million euros, or the signposting of cycling paths in Schleswig-Holstein. Moreover the University of Applied Science West Coast (Fachhochschule Westküste) established a degree course “International Tourism Management” to meet the increasing demands for professional corporate administration (Ministry of Science, Economic Affairs and Transport Schleswig-Holstein 2008b). Several other further education activities were initiated by the relevant actors in the Land. The cluster policy takes actions particularly in the enhancement of cooperation, marketing for Schleswig-Holstein, and development of specific tourism offers. As the cluster policy is in a rather early stage, many actions and projects are still in progress and it is difficult to estimate results. This is particularly interesting because for Schleswig-Holstein it is an important industry, but on the other hand the fragmented structures and lacking cooperation threaten positive efforts and efficient policies (Herzberg 2006).

3. Cluster wind energy and regenerative energies

The west coast and especially the region around Husum is a vigorous location of wind energy in Germany. Directly and indirectly approximately seven thousand jobs have been created in the state, the cumulated investments add up to more than €2.5 billion and the generated electricity comes to almost thirty percent of the power requirement of Schleswig-Holstein. A cluster management was installed and since then (*Windcomm*) combines the interests of the wind energy sector and acts as a regional networking agency. Current issues are, for example, the positioning of the harbours Husum and Brunsbüttel for offshore activities, Re-Powering (which means the replacing of old power stations with more efficient ones) and wind testing facilities. Furthermore research and development and technology transfer is fostered with regard to wind energy but also to other renewable energies. An important example is the participation in the research platform “FINO 3.”

A major task is the preparation of conventions, contacts and participation in trade fairs such as “Husum windenergy” – one of the major trade fairs for wind energy worldwide. Through these means the Schleswig-Holstein wind energy sector shall be connected to the global market. Locational marketing and carrying out of Public Relations add up to a concerted appearance, which is undertaken by the cluster management.

Concerning the academic component, research on fields of wind energy usage is bundled in the Center of Excellence for Wind energy Schleswig-Holstein, Cewind that is also supported in the course of the cluster promotion. Herein, research and development projects as well as a newly initiated degree programme, Master of Science (M.Sc.) in Wind Engineering, are conducted by the faculties of six Universities: The Department of Engineering of the University of Kiel, the University of Flensburg, and the engineering departments of the Universities of Applied Sciences of Kiel, Flensburg and West Coast as well as the private Nordakademie. Moreover, the further education programme “service technician for wind energy plants” and the centre of learning (*BZEE Husum*) are established in close interaction with the regional wind energy firms and the chambers of industry and commerce. Having achieved these efforts in cooperation with the relevant actors, the cluster management shall be extended to all renewable energies in the near future (Clustermanagement wind energy and Renegerative energies 2008).

A sample of the fourth cornerstone of the regional development strategy presents some projects and enforcements of the expired Regional Programme 2000 and the prevailing Future Programme Economy.

The measures were subsidised with varying percentages. For instance, harbour construction and development of business parks, that accounted for nearly one third of the budget were subsidised up to 40 %. The rest had to be paid by the individual towns or boroughs. Exceedingly disadvantaged or poor locations, towns and villages were allowed to receive up to 60 % of the total costs as support. Tourism and other infrastructural projects could receive up to 50 %. Furthermore there have been projects that were seen as having a special state-wide significance and hence these could have gathered up to 70 % of the total costs as support. In addition, companies could receive grants for investing in certain projects, such as the improvement of the ICT-sector, machinery, equipment or advanced vocational training.

A selection of projects that were granted in the framework of the Regional Programme 2000 shows the spectrum of eligible measures and its practical implications (Ramböll Management 2003 and 2005):

- Media Docks in Lübeck (a center for new media and information technology).
- A centre for fibre compound research and processing at the University of Applied Sciences in Kiel.
- Construction of the multi-purpose “Campus-Hall” in Flensburg.
- Remodelling of a road into a harbour promenade in Husum at the North Sea.
- Reconstruction of an ancient settlement in the Viking museum at Haithabu.
- Support for developing the promenade in Hohwacht at the Baltic Sea.
- Construction of a new ferry and cruise terminal at Kiel harbour.
- Development of more than 40 business parks and industrial real estate projects.
- Numerous smaller amounts (around €100 000) for innovative company projects, from the development of new analytical technics for pharmaceuticals to the manufacturing of a special harvesting machine for a hedge lumber.

Aided Projects in the current Future Programme Economy, amongst many others, are (Ministry of Science, Economic Affairs and Transport Schleswig-Holstein 2008a):

- Installation of foreign trade consultancy for handcraft companies.
- Purchase of harbour cranes in the Flensburg harbour.
- Formulation of a tourism conception for the island of Föhr.
- Digital collection and publication of selected museum inventories by innovative web-based and database technologies.
- Expansion of advanced training networks.
- Financing of regional managements for conversion areas.

3. Outcomes of the strategy

a. Extent to which objectives have been achieved

Since the Future Programme just started last year, it is too early to look at its results. The former Regional Programme 2000, however, has been evaluated by Rambøll consultancy (Rambøll management 2005) and this section will thus focus only on this older programme. The eligible measures were classified in the fields listed below. The additional figures explain the amount of total financial grants, which were given for projects in these fields until the end 2004 – the latest available figures.

Altogether, this main regional policy programme of Schleswig-Holstein supported from 2000 until the end of 2004 – which is two thirds of the scheduled programme period – a total number of 655 projects in different categories. For these projects total financial support of €235 million has been granted, which represents nearly two thirds of the total monetary scope of the Regional Programme 2000. These subsidised projects included an estimated overall cost of approximately €611 million, so that the public financial grants initiated considerable investments in the Schleswig-Holstein economy. Nevertheless the results for the individual regions vary notably. The two cities of Flensburg (€257 per Capita) and Lübeck (€240 per Capita) stood out with the highest financial support on average, while the Schleswig-Flensburg (€52 per Capita) and Rendsburg-Eckernförde (€64 per Capita) districts received markedly less. This situation is mainly due to the fact that Flensburg and Lübeck benefited from relatively large and expensive infrastructure projects related to their harbours, which was a large part of the expenditures (see Table III.7). The other eligible districts gained between €107 and €190 per Capita public subsidies from the Regional Programme 2000. The overall effect of regional aid to structurally weak regions seems to be limited, as most structurally weak regions could not close the gap with Schleswig-Holstein (Schrader *et al.* 2007). On the contrary, in some areas, such as Flensburg in particular, concerning both income per capita and development of employment and unemployment rates, the gap has grown between 2000 and 2006 (Schrader *et al.* 2007).

Table III.7: Eligible fields of measures in the *Regional Programme 2000*

	Total Grants (end 2004, EUR millions)
1. Development of industrial real estate and business parks	34.6
2. Qualification / training measures	22.7
3. Construction or extension of technology- and innovation-centres or business incubators	26.3
4. Installation and improvement of advisory and consultancy structures for small and medium-sized enterprises	1.1
5. Promotion of tourism	38.3
6. Enhancing technological potential and technology transfer	7.2
7. Economical utilisation of ICTs	7.3
8. Harbour construction	26.7
9. Measures within integrated concepts for problematic urban areas	8.2
10. Multi-purpose facilities for improving local business environment	12
11. Airports	6.5
12. Expertise, regional managements, development strategies	3.3
13. Company formation, expansion or modernisation support	27.9
14. Company innovation support	9.3

Source: Rambøll Management (2005): Actualisation of the mid-term evaluation of the Regional Programme 2000, p. 17, 18.

What has been achieved, are fundamental improvements in the infrastructure, mainly for tourism, business oriented infrastructure and soft factors such as the education and university sector. Concerning the quantified employment goals, the implementing Investment Bank notices that 10 500 jobs have been secured or created by the support of the Regional Programme 2000,

which is distinctively less than intended before. However, these figures should be interpreted cautiously as it is difficult to estimate if all of these results have really been caused by grants or are rather windfall gains for firms. Furthermore, many effects could be caused by crowding-out or dislocation and finally, most of the jobs represent “secured jobs”, a term that is loosely defined and hence vague (Ramböll Management 2005).

Nevertheless, many projects have been carried out, cooperation and networks have been initiated, and local and regional development has begun in several cases. This has sometimes been less than the objectives which were set. Furthermore, it is difficult to enhance progress in regions where the economic structure is mostly weak.

Summing up, the Regional Programme 2000 concentrated on the classical support for business oriented infrastructure, harbour construction and tourism projects, but also on funding the enhancement of competitiveness of enterprises and projects related to the information society.

For this reason and because of the limited area that was eligible, the Regional Programme 2000 focused more on the equity target than the Future Programme Economy that concentrates its spending on innovation and growth. Nevertheless, a pure growth oriented strategy would intensify the regional disparities, as the economically underdeveloped regions at the west coast and in the north could participate only to a small extent in an efficiency-centred regional policy programme. Consequently the Future Programme Economy combines both elements, whereas the cohesion policy is targeted particularly with the fourth pillar. By contrast, the boosting of knowledge and innovation focuses on the agglomerations and the economically more successful regions of the state. Finally, these programmatic contents are intended to raise the competitiveness of the enterprises and improve the innovativeness in Schleswig-Holstein, which is structurally underdeveloped. In this way the state-wide regions shall all benefit from the Future Programme Economy (Ramböll Management 2005).

b. Strengths and weaknesses of the strategy

The Regional Programme 2000 has been evaluated by Rambøll, a consultancy based in Hamburg. One positive lesson learned from the programme, was the well functioning regional councils and the bottom-up approach concerning initiating and proposing projects. This system raised motivation and enthusiasm for regional support projects, it also avoided a useless competition between mayors for infrastructure, as the co-operation between local authorities is fostered. Moreover, regions within Schleswig-Holstein learn from each other about successfully implemented projects. The main negative lesson was the problem with the so-called N+2 regulations of the EU, which means that moneys need to be spent within two years after approval of the project proposals. This regulation should speed up the implementation of approved EU projects. The ministry, however, has hardly any influence on speeding up these processes and, particularly in the case of projects carried out by local authorities, there are often delays in implementing the projects.

With regard to the content, a potential strength of the Regional Programme 2000 is the provision of basic infrastructure in economically underdeveloped regions. As they were the focus of the economic development programme, the construction of business parks, harbours and similar basic measures provided for an important development principle. The results concerning growth and innovation efforts show, that the providing of these infrastructures represents an essential but not sufficient condition for the improvement of the regional economy. Thus, the Future Programme Economy was for several reasons more tailored towards innovation and knowledge related activities, but still includes equity-target related activities. By doing so it aims at the most severe weaknesses of the Schleswig-Holstein economy. At the same time, one can doubt whether this new policy really focuses on the demands of the regions.

Concerning the cluster policies, Schrader *et al.* (2007) are relatively critical in their report, which is based on expert interviews with policy makers. In general, they state that policy makers are inclined to minimise political risks by selecting those clusters that have proven to be successful in other regions. Moreover, they often find it difficult to stop supporting clusters after having funded the establishment over the years. With regard to Schleswig-Holstein, they criticise the too long list of clusters, which are defined too broadly both with regard to the industries belonging to the cluster, as well as geographically (the whole state of Schleswig-Holstein). One example of such a broadly defined cluster is the maritime cluster, which consists of very diverse industries, such as offshore technology, maritime tourism, shipbuilding, harbour logistics, sea-related research and biotechnology. They also criticise the strong influence of policy makers on cluster management of the clusters; they often force them to find partner firms in all regions of Schleswig-Holstein, which is often detrimental to the efficiency of cluster development. Due to the diversity of types of cluster management, private, public, new or existing organisations, the volume of public support for the clusters also strongly differs. There is not yet a coherent strategy of the state concerning the long-term financial support of the clusters nor concerning the criteria used to evaluate the cluster initiatives, which leaves many cluster managers in uncertainty about the future. There have also been conflicts due to a too strong involvement of state or semi-state actors, such as the Business Development and Technology Transfer Corporation of Schleswig-Holstein, in the management of clusters. This has also led, in some cases, to problems in involving private actors in the cluster development (Schrader *et al.* 2007). Most initiatives are based on weak studies, which often do not include an analysis of the networks between companies.

4. Potential for the transfer of the strategy

a. Transferability of the whole strategy

The transferability of the whole strategy is questionable for two reasons. First, the Future Programme is very broad in scope and lacks an overall concept. Secondly, in general one needs to be careful with benchmarking exercises and advice to regional governments with lessons learned in other regions (Hassink & Lagendijk 2001; Hospers 2006). Since the context of application of policies differs between regions, there will generally be a need for adaptation, even when the intention is just to copy or 'borrow' a regional development concept. Despite the increasing importance of interregional institutional learning, there has been little explicit theorising about this issue. Sabel's (1996) regional experimentalism approach is one of the few approaches which address interregional institutional learning in a more explicit way. He notices that, at the moment, very little systematic diffusion of knowledge and learning of regional policy making takes place. Sabel urges institutions to learn the same lessons firms have learned from the Japanese learning-by-monitoring approach. Sabel thus points to the need for systemic comparisons of regions' architecture of economic policy and particularly stresses possible learning effects when there is a time lag in experiments between different regions. Particularly in Europe one of the main arguments in favour of interregional learning processes has been the institutional diversity within the continent: one should benefit from the strengths of the diversity of innovation policies in regions and nations. In contrast to these arguments in favour of interregional learning processes, many doubts have been expressed, in particular by economic geographers, about the possibilities of these processes given the specificity of regional economic structure, institutions and cultures (Hospers 2006). Asheim (1997, page 22) is one of the few authors who tries to differentiate between a specific and general level of knowledge transfer, as he states: "The more important the specific factors are, the more difficult it is to transfer experiences from one region to another. ...the most specific socio-cultural factors... cannot be 'repeated' in another region. ...the general lessons... [are] much easier to transfer between regions" (Asheim, 1997, page 22). The latter general factors are, for instance, supporting small and medium-sized enterprise networks, a positive attitude towards modernisation or the promotion of private-public co-operation. In our view, a region such as

Wales should try to find such general factors in regions with a similar economic history and these factors must help to improve its weaknesses.

b. Transferability of specific successful policies

One of such general factors is the organisation of the regional development programmes, in particular the relationship between bottom-up and top-down structures. The decentralised structure in Schleswig-Holstein with regional agencies and regional councils formulating development projects, which has been weakening during the shift from the Regional Programme 2000 to the Future Programme Schleswig-Holstein, is, as such, an organisation structure, which might be interesting for Wales. In the past, namely several academic papers have criticised the too strong involvement of academic thinkers in the regional development strategy of Wales, notably Kevin Morgan and Phil Cooke (2004) were mentioned in several articles (see Lovering 1999; Boland 2007; Bristow 2005). There is an impression that bottom-up structures are relatively weak in formulating regional development policies and that particularly local academia and external experts, such as Michael Porter, have a strong influence (Boland 2007). The relatively strong influence of sub-regional actors on development projects can also be found in other states of Germany, such as in North Rhine-Westphalia and Lower Saxony. A constant tension, however, can be observed between regional participation, on the one hand, and an efficient implementation of the regional programme on the other hand.

Also the Strategic Framework for Economic Development of the Welsh Assembly Government (WAG 2005) suggests the relatively weak link between bottom-up initiatives at the local level, on the one hand, and the overall strategy of Wales, on the other hand. Although partnership with local actors is often mentioned and local priorities are addressed through several mechanisms such as the Wales Spatial Plan, called People, Places, Futures, Area Action Programmes of the six Spatial Plan areas in Wales and the 22 Community Strategies, the national framework seems to be relatively dominating. This is illustrated by the fact that “the groups charged with taking the Spatial Plan forward” ... “will also be well placed to translate this national framework into action at a local level” (WAG 2005, p. 28). This sounds more like a top-down approach than in the case of Schleswig-Holstein, where the state framework seems to be less precise and dominating, leaving more leeway for regional development projects initiated at the local and regional level.

5. Conclusions and recommendations

The rationale for selecting Schleswig-Holstein as a case-study was the similarity with Wales. In the past in the framework of the four motors of Europe programme, Wales often oriented itself towards dissimilar strong regional economies in Europe, such as Baden-Württemberg. There are some striking similarities between Wales and Schleswig-Holstein, namely they are both relatively peripheral and thinly populated with only a few urban areas (Cardiff, Swansea, Wrexham in Wales and Kiel, Lübeck, Flensburg in Schleswig-Holstein); both regions have a history of restructuring traditional industries (coal-mining in Wales, shipbuilding in Schleswig-Holstein); both have a coastal location, with potentially similar endogenous potential, namely in maritime related industries, tourism and wind energy. In addition to presenting the general economic policy of the state of Schleswig-Holstein, the report has focused on two main areas, namely on the changing regional development programmes, on the one hand, and on selected cluster policies, on the other hand.

Concerning the cluster policies, some concrete cluster policies were discussed that might also be potentially important in Wales, namely those to support the maritime industry, the wind energy and regenerative energies and tourism. Concerning the partnership policy, the strategy of the Schleswig-Holstein government regarding the long-standing partnership with Hamburg, as has been mentioned in the introduction of this report, might be relevant for Wales given the fact that it neighbours larger conurbations as well, such as the area around Cheshire, Manchester,

Liverpool, the Birmingham area and the M4 corridor to London. Although there is a long-standing relationship, recently the co-operation has been intensified and last year a study was carried out as a framework for more intensified co-operation in the fields of a common economic region and a common knowledge region, exemplified with a co-operation treaty between the universities of Kiel and Hamburg (Schrader *et al.* 2007). Last year there was an important meeting between the prime ministers of both states at which the extensive study has been presented in order to show future co-operation potentials between the two states. Although the Strategic Framework for Economic Development of the Welsh Assembly Government (WAG 2005) mentions the importance of the proximity of the conurbation of Chester, Cheshire, Merseyside and Manchester for the positive economic development of the North East of Wales, concrete cooperation and coordination policies are not discussed in the report.

However, given the reasons mentioned above one needs to be cautious in recommending quick fixes based on studying policies in other regions. Moreover, there are probably more policy pitfalls than policy lessons to learn from Schleswig-Holstein. The new Future Programme Schleswig-Holstein just started last year and it is still too early for an evaluation. The older programme, Regional Programme 2000, did not have a very exciting content but had some elements of sub-regional influencing development projects, which provide interesting general lessons for other regional governments, such as Wales. The cluster policies of Schleswig-Holstein contain several policy pitfalls, such as the broad sectoral and regional definitions, the problematic selection processes and the too limited role of companies in initiating and devising policies.

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Mr. Manfred Bühring: Executive for Future Programme Economy at the regional agency “EA Nord”, Flensburg, June 16th 2008.

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STYRIA, AUSTRIA

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1. Brief Overview of Regional Economic Context

a. Key regional statistics

Styria (“Steiermark”) is one of the nine provinces (“Bundesländer”) located in the south east of Austria. As a federalist country Austria has a (albeit rather weak) federalist structure. Therefore, legislative power is shared between three tiers of government: federal, provincial (“Länder”) and local authorities. Yet the provinces play a rather important role within this government structure, especially with respect to regional planning and economic development.

- In terms of size (16 392 km²) Styria is the second largest of the provinces, with the fourth largest population (1 203 million) in Austria (Austria: 83 871 km², 8 298 million inhabitants).
- The working population in 2007 was 448 364 (Austria: 3 227 449) “active” employed (*i.e.* not including formerly employed, those on parental leave, and military service), of which 136 000 were employed in the industrial sector and 307 000 in the service sector.
- With a share of 30 percent Styria is still an above average industry-oriented regional economy; nevertheless Styria is comprised of large rural areas in the southern region and densely wooded areas in the northern alpine region.
- The median income (2006) was €2 031 (Austria: €2 057).
- The gross regional product in 2005 was 12.6% of Austria’s total (and hence lower than its population percentage).
- Gross regional product per capita (2005) was €25 700 (Austria: €29 800).
- Gross domestic product per worker (as a rough indicator for productivity) was €57 200 (Austria: €63 800).
- The number of unemployed in 2007 amounted to 31 942, the rate of unemployment according to Austria’s statistical definition was 6.4 (Austria: 6.2), and according to EU-definition was 4.0 (Austria: 3.9).

b. Recent economic development history

Suffering in the 1970s and 1980s from the problems of a typical ‘old industrial area’ dominated by a large national industry based for a long time on raw materials (iron ore, wood, magnetite, brown coal, salt) and being exposed to a new economic situation due to the fall of the

Iron Curtain on the border, Styria was confronted with considerable challenges. The 1980s and the beginning of the 1990s were characterised by a low level of growth in regional output, an unbalanced labour market, and structural problems, such as an insufficient rate of firm formation and a low rate of innovation. According to most key economic figures Styria was among the last of the nine provinces at that time.

In particular, the problems of the basic industries mainly located in the northern part of Styria, turned out to be the major bottleneck for economic development. These industries were dominated by large state owned firms that were highly vertically integrated and had lost their headquarter functions in the 1960s and 70s to the national centre of Vienna. In most cases, planning, R&D and marketing/distribution functions (*i.e.* those responsible for the monitoring of markets and technology) have been lost. This situation almost led to bankruptcy of these firms only to be saved by large amounts of tax-payers' money and by subsequent phases of lay-offs safeguarded by social programmes (such as early retirements). At the end of the 1980s most of these firms were re-privatised and down-sized. Firms needed to learn to collaborate and to develop the potential to innovate as a strategic resource. It was a situation with a very abrupt – and strongly delayed – change, from a Fordist way of production to flexible specialisation.

A massive structural change of the regional innovation system in Styria has been observable since the beginning of the 1990s, especially in the steel related sectors such as the mechanical engineering sector, the machinery, and the automobile sector, but also in the related services. High degrees of diversification and broad unspecified clienteles have been reduced to market niches and technological specialisation, and higher lot sizes have enabled a higher integration of functions maintaining flexibility by leaving scope for automatisisation. A number of start-up centres and business and technology parks established early in the region (Austria's first Technology Park was established in Graz in 1986) have assisted in the creation of innovative businesses which quickly achieved above-average growth rates. Technological upgrading (including the introduction of quality and measuring standards) also opened doors to a new clientele. Such upgrading has been accompanied by an extension of responsibilities to smaller firms and system suppliers both in terms of quality and price-setting.

Innovation in these sectors was influenced by the availability of specialised knowledge. For firms who were already active in R&D a shift from demand-pull driven, to science-push driven R&D, seems to be evident. This process was supported (meanwhile) by five universities within the region, the establishment since the middle of the 1990s of newly created university colleges ("Fachhochschulen") and the intensification of science-industry relation via newly established competence centres. A public research organisation (Joanneum Research) owned and supported by the regional government (and reorganised in the 1980s) also served this purpose.

Industrial restructuring of a region and the building of regional innovation capabilities have to be seen as long term processes which require a bottom-up approach (in particular where SMEs' needs are well understood) and cooperation and permanent communication with national policy actors. The region succeeded in creating a strong technologically advanced base of small and medium sized firms. The successful catching-up process in Styria since the middle of the 90s is reflected in the innovation-data in all sectors. A first macroeconomic glance at the region offers the impression of high concentrations of economic activity in a relatively small range of technology fields and industry. The system's learning capacity has been established in a prudent process of stabilisation of expectations as a consequence of the informal interaction of agents, who have been confronted with global challenges and competition on the one hand, and with a locally stabilising knowledge infrastructure and human resource base on the other hand.

The regional government has played a crucial role in promoting cooperation and networks in Styria during the last decade. An essential step was the early formation and support of "clusters" by around 1995: The creation of an automotive cluster provided not only a signal for

the benefits of cooperation in the regional economy but also a further incentive for international investment. Network-orientation also included policy networks, which help to develop and implement regional strategies in the sense of multi-level governance. Those crucial policy actors, who accompanied the first steps of multilateral firm co-operation and network development, have confirmed that it took a long phase to build up awareness and trust among regional firms, which had been faced by regional disintegration in the phase of belated structural change.

The fall of the Iron Curtain and the subsequent opening of borders created new opportunities for economic cooperation with adjacent countries and regions. Styria experienced a strong increase in its trade relations with the reforming economies both via exports/imports and via direct investments. Styria especially, with its industrial base and hence its strong export orientation, could benefit disproportionately by this sudden creation and growth of new markets. Nevertheless in the earlier phases of this removal of borders, fears of potential competitors also arose, especially on the labour markets. It took continuous efforts to soften these sometimes deeply rooted aversions against the conscious intensification of ties with not only neighbouring countries.

This development was also driven by a continuous process of redefining the tasks and strategies of policy and found its expression by a series of official concepts such as “Wirtschaftsleitbild Steiermark “(Economic Model Styria”) (1995)”, “Technologiepolitisches Konzept Steiermark “(Technology Concept Styria”) (1995)”, a continuous “Wirtschaftspolitisches Berichts- und Informationssystem” (“Economic Report and Information System”, a monitoring system running since 1998) and recently an updated “Technologiepolitisches Konzept II “(Technology Concept II”) (2005)” and “Forschungsstrategie Steiermark “(Research Strategy Styria”) (2007)” where strategies and instruments for a further innovation oriented policy and an extension of the knowledge base were outlined. Styria therefore presents itself as an ideal region for a case study on knowledge based development processes and well-conceived policy design.

2. The regional development strategy

A. Rationale/conceptual framework of the strategy

The strategy of economic policy and regional development in Styria is embedded in, and the result of, a continuous process of strategy development – in this sense the development strategy does have its own development history. For the understanding of this process and the resulting present “strategy” and its rationale, a short survey of these sequences of diverse concepts will be given.

The main “rationale” at the beginning of this process was to overcome the crisis of the 1980s and the strong reliance of the Styrian economy on “old industries” with its big nationalised firms and its lost competitiveness.

The concentration on “clusters” was an important and – at that time – a new element of the economic strategy. This is for several reasons:

New management strategies of firms as well as government’s attempts to build national and regional innovation systems both implied a concentration on a more and more limited number of activities.

- Parts of the structures of the “old industrial area”, which formed an essential part of the Styrian economy, could have been regarded as a form of “petrified clusters” characterised by large vertically integrated firms producing standardised goods at a late stage of their product cycle. The attempt to rejuvenate these clusters and to create

new clusters was an important step. It consisted in starting an automotive cluster as a first signal of such a policy; this action was appropriate as some firms, a few of them even dominant in niches, already existed, but there was no network linking them and an automotive cluster is a good customer of steel and steel products (the main product of the “old” petrified cluster).

- Furthermore, Styria was the first region in Austria to apply such a cluster policy (and among the first within Europe – for this reason the EU-wide conference on “Competence Clusters” in 1996 took place in Styria). So at least at the beginning it was an explorative form of policy, and at that time policy makers were aware that clusters were a necessary, but risky element of the rationale of economic policy. Clusters as forms of specialisation of a regional economy increase efficiency but they increase risk as well: a specialist is highly vulnerable to shifts in demand or to innovations rendering his or her skills valueless.
- The nature of this cluster policy had to change in the process of development – it needed diversification, *i.e.* an extension of the number of clusters with sectoral and transsectoral focus, it also needed a change in the emphasis of political support (see below for further details – Ch. 2D)

a. Technology Concept Styria 1995

At the beginning of the 1990s, the regional dimension of economic policy, of strategic goals in general, and specifically of the technology dimension of such a strategy, gained political attention. Styria was among the first regions in Europe – and the first region in Austria – to elaborate, in a two-year-process, a “Technology Concept Styria” (1993-1995). Its explicit goal was to improve the competitiveness of the Styrian economy, facing underperformance in most of its sectors, low growth rates, lack of innovative activities and low awareness of the need for cooperation between firms and the supporting institutions.

It formulated 4 main strategic orientations:

- Increase cooperative ability. The basic philosophy was the support of cluster formation and pilot implementation in the automotive industry followed by network development in other fields such as wood, materials, human technology and ecology. It also consisted of the promotion of R&D cooperation via pilot umbrella projects and “soft” cluster support by means of information services and network management.
- Improve absorptive capacity and diffusion. It consisted of active information brokering, of regionally focussed initiatives such as “active knowledge transfer Graz”, “ARGE Technofit”, by means of information and efforts for the communication between science and the economy via newly founded CD-laboratories in connection with existing university institutes.
- Quality and qualification. This consisted mainly of newly founded university colleges (“Fachhochschulen”) and their subsequent expansion with new curricula and technology fields (such as automotive engineering, design, infrastructure management...), concepts for firm specific qualification of the workforce (partly financed through European Social Funds), the introduction and part-financing of “innovation assistants” and “innovation professionals”. It also consisted of a venture capital fund – in cooperation with private venture capitalists – for technology-oriented newly founded firms and firms in expansion.
- New institutions for implementation and network building to coordinate and focus technology oriented activities. This meant the creation of new forms of policy

implementation – instead of governmental administration semi-independent agencies – but also went hand in hand with flexible forms of cooperation, the coordination of different levels of decision making (local, regional, national, supranational) and also horizontal coordination between different subregions.

This first “Technology Concept” delivered an encompassing legitimisation of strategically oriented activities with quite diverse instruments. Its “spirit” was well summarised in 1996 by a statement of the regional minister for economic affairs, Herbert Paier, at the occasion of a “Competence Cluster Workshop” of the European Commission in Graz: “Economic policy, as viewed in Styria, aims at empowering entrepreneurs. By that we mean their ability to use global competition as an opportunity. To put it even more clearly: We would like to see ineffective mechanisms of protection replaced by ‘upgrading’ and entrepreneurial fitness. In achieving this goal, we regard the cluster philosophy, already a fixed element of the Styrian subsidy policy, to be a most appropriate instrument“.

b. “Concept(s) in progress” 1996-2004

In revolving “concepts in progress” this “spirit” was adapted on a more or less annual basis. They contained elements of goal-definition, of monitoring, of ex-post evaluation. For this purpose a “economic information and report system” (“Wirtschaftspolitisches Berichts- und Informationssystem – WIBIS”) was created consisting of a data system (comprising figures on sectoral employment, firm foundation, qualification, demographic development, tourism, labour market) on a subregional level (published every year on the internet with general access – www.wibis.steiermark.at) and a yearly “economic report” (Wirtschaftsbericht) outlining the activities and expenditures of the regional department for the economy. In addition techniques and models for analysis and impact measurement of activities in form of a regional input-output model for Styria (STYR-I-O) and later a multiregional model for all Austrian regions (MultiReg) was generated to support the strategic orientation and ex-post-evaluation of policy activities on a regional level.

This – sometimes explicit, sometimes implicit – evaluation consisted partly of the recurrent evaluation schemes of the EU Structural Funds programmes, of recurrent monitoring of the main indicators of economic development (especially by WIBIS), and of impact analysis of concrete support measures (especially by the I-O-models).

c. “Technology Concept II Styria” 2005

After a decade of activities based on the first technology concept both the development of the Styrian economy (positive structural change, catch-up in growth and employment situation, see following chapter) and the international conditions, with changed framework for regional development, asked for an up-dating of the strategic orientation. To a certain extent this second technology concept was an evaluation of the last decade. It confirmed – also by empirical data – that the main challenges of the 1990s have been met: rising innovation activities, export orientation, R+D-expenditures, intensification of networks (see 3a).

Among the new challenges of the new conditions for regional development were (i) a strong internationalisation of technology and innovation oriented activities, (ii) a forced importance of interdisciplinary base technologies (such as bio- and nanotechnologies), (iii) a changing innovation strategy of the firms (management of intellectual property, market orientation, enforced integration of external sources of knowledge), (iv) a redefinition of the basis for policy concepts (increased reliance on market forces for an optimal path of technological development brought about a concentration on fields with market and system failure), (v) increased importance of innovation systems and non-linear models of the innovation process, (vi) the multi-level character of technology and development policy with increasing tasks for the regional level.

Its main goal was defined to “improve competitiveness in order to safeguard long-term growth and employment by means of specialisation, internationalisation and cooperation”. This calls for (i) a further support of the top innovative firms as the engine of regional competitiveness, (ii) the broadening of the innovative top, (iii) the opening up of new technology fields.

This should lead to the following obtainable positions of the Styrian economy:

- Styria as the location for innovation of the future (change from a technology taker to a technology giver) by means of technological production competence, services for innovation and the ability to manage technology.
- Employment growth by means of strong R&D in combination with niche production and client specific solutions with system competence.
- Creation of a new economic space in the south east of Europe by means of tight cooperation and of supply chains in this EU future region.

From these goals and new framework conditions, four thematic fields with nine lines of actions were deduced:

- Technological strong fields of Styria as a thematic concentration and coordination to create critical sizes, generating network and learning effects as well as international visibility. Specialisation serves to build up sector specific advantages in competition.
- Innovation and technology with the support of the top innovative firms, a broadening of the basis of innovation and the opening up of new fields of technology.
- Cross sectional themes which influence all fields of technology policy and relating to firm foundation, qualification and the regional knowledge infrastructure.
- The level of governance with a coordinated, transparent and efficient policy frame and its implementation.

d. “Research Strategy Styria” 2006

The Technology Concept II was accentuated and complemented by a research strategy pointing to the need for strategic orientation and coordination of research activities on a regional level for sustainable economic development.

It proposed 4 fields of action:

- Concentration on a diverse but limited number of fields of strength; here the differentiation between developed fields, fields with development potential and emergent fields with different needs for support was made.
- Governance of the regional research system with a newly founded research council, an institutionalisation of scientific fields of strength, a recurrent dialogue between all main agents of research within the region and safeguarding of strategic policy intelligence.
- Horizontal actions with the enforcement of internationalisation and positioning in the EU future region, the promotion of human capital as a central factor of success, the development of demand competence of SMEs.

- Supporting activities in the sense of creating additional soft factors such as the generation of a creative milieu, research marketing and an integrative cooperation strategy with bordering regions and countries.

e. “The New Economic Strategy of the Land Steiermark” 2006

Explicitly based on these consecutive concepts and strategies the “new economic strategy” aims at intensifying the innovation orientation of Styria: “Innovation serienmäßig” (innovation in series). It calls for a focus on essential goals such as R&D, innovation and qualification, and is carried by the vision to position Styria as the province of Austria with the most implemented ideas and innovations on the market. It is intended to offer a strategic orientation for the coming years to firms both internally (within the department, within the Styrian government) as well as externally, regions, and the federal government.

As such this latest document in a series of concepts and strategies summarises the rationales of the last decade and focuses on the long developed pillars.

B. Strategy pillars and implementation

These 7 pillars (“strategic guidelines” in the language of the document) further develop the focal orientations of the past decade - innovation, internationalisation, clusters, and qualification. They take the framework of the European Union, with its goals and instruments (especially the European Structural and Regional Policy), as an important point of reference and the context of the “Lisbon-Strategy” innovation as a core element of the strategy. It also underlines that the clear reduction of Structural Funds resources for Styria calls for a focus on the essential guidelines such as innovation, R&D and qualification. At the same time they were largely designed in correspondence to the 2007-13 EU Structural Funds programme.

Internationalisation is explicitly underlined as an enforced challenge for the Styrian economy – with its strong export sector it is positively dependent on the export of goods and services. This effort for further internationalisation comprises both production (including innovative services) and research activities. This internationalisation can only be achieved by a concentration on innovative activities supported by R&D.

It relies on the past process of cluster orientation and network formation but tries to accommodate it to new competitive challenges. This implies the generation of new technology fields with growth potentials, and an integration and implementation of existing research capacities and research results.

It regards qualification of and within firms as an essential precondition for innovation and the process of implementation of new research results. This pillar relies on the traditionally good level of trained workers and technical personnel in Styria but recognises the lacking awareness of firms for the necessity of continuous education.

The most recent “new economic strategy” has 7 pillars which are defined by objectives and have specific focuses of implementation.

Pillar 1: Innovation

The expressed objective is to make Styria the “master of market-introduced innovations”. For this, primary goals are:

- To raise the R&D expenditures by 2010 to 4 percent of Styria’s GDP.

- To strengthen the Styrian innovation system, which include universities, competence centres, impulse centres, as well as semi-public and private R&D institutions to market oriented products, processes and services.
- To improve the knowledge and technology transfer to firms, especially SMEs.
- Improve the coordination of qualification programmes.
- Increase the private resources for R&D.
- Raise the awareness for innovation and continuous improvement.
- Improve the climate for innovation and technology.

Main targets and implementation

For this an extension and further development of leaders in innovation is regarded as a necessary priority.

The term “leaders in innovation” refers to technology and knowledge intensive companies exhibiting extensive research capacity. One point of focus here lies on providing optimal support conditions for leaders in innovation so that they will be more tightly bound to their regional location.

Leaders in innovation in Styria are characterised by:

- Intensive R&D activity.
- A high proportion of skilled employees.
- Strong cooperative networks.
- Success on the market, *i.e.* a large part of their turnover stems from the introduction of new products.

Thus, these regional leaders drive innovation for the whole of Styria. In most cases they are large firms (at least in a Styrian context but also according to the EU-definition of having more than 250 employees) and are either strongly linked via supply chains or via knowledge networks with smaller firms. In addition, these companies compete intensely on international markets, promote the regional knowledge base, and also act as the initial starting point in the further extension of innovation (by aiding the formation of networks, supply chains etc.).

As a result of ever stricter rules on competition, and increasingly tight controls on structural funding arrangements, it is likely that the possibilities for direct provision of financial support and subsidies to companies will, in future, become more and more limited in scope. The concentration on “innovation” therefore was also meant to limit the number of firms eligible to receive funding.

A further point of focus lies on extending the basis for innovation, *i.e.* employing proactive policy measures in order to approach SMEs and ‘threshold’ companies and sensitise them to programmes and procedures for innovation and qualification acquisition. Graduated funding and support programmes are employed to win companies over to engaging in systematic processes for continuous innovation.

This also implies gaining the attention of companies, who have so far not shown any interest in being part of technological innovation processes, and integrating them into the respective systematic procedures. Normally, raising company adoption capability and capacity with respect to innovation entails the introduction of improvements in strategic competence together with an up-grading in prevailing systems of qualification acquisition.

Policy programmes and tools

Thus, any policy measures which help bind companies to a specific locality will become crucial. Among the most important aspects here are: the provision of access to a pool of qualified employees; the integration of companies into R&D and supplier networks; ‘softer’ factors, such as the quality of the cultural, social and living environment available.

The provision of active support in the formation of supply networks, especially for SMEs, represents a major challenge in policy development. Supply chain management requires the targeting of specific measures at supply structures, possibly as part of regional cluster activity. Intelligent, cross-border value chains also need to be developed in order to complement regional structures.

Regional structures are ideal for such tasks since they are relatively close to the companies concerned. The benefits of proximity thus imply that ‘soft’ policy instruments are likely to be those most urgently needed in mobilising SMEs in innovation activity, i.e. instruments relating to information and advice provision. Thus, the necessary policies might include awareness raising measures, advice centres for specific needs, programmes of service provision, easily accessible programmes of financial support for those launching innovation activity and/or measures to integrate SMEs into local or cross-border supplier networks.

Concrete measures are:

- Changing the Styrian law for economic promotion (“Wirtschaftsförderungsgesetz”) to a law in support of innovation (“Innovationsförderungsgesetz”); this implied a reduction in the number of firms eligible for financial support.
- Continue the support of competence centres. After a first phase of this programme of cooperative research between academic and industrial partners a second stage (COMET – Competence Centres for Excellent Technologies) was started in 2007. Out of the 11 Austrian centres, 6 are located in Styria: a special budget of €100 million is allocated for this programme until 2016 (in addition to the national and industrial dotation).
- Elaborate a new model of support for innovation, knowledge and technology, this includes: an intensification of ties between universities and firms by means of cofinancing theses for specific needs of firms, innovation assistants (short term employment of graduated students within SMEs), innovation profi (short term employment of experienced personnel in technical and business administration); cofinancing of external consultancy costs for new product search; cofinancing of cooperation partners within research activities; consultancy in matters of new organisational forms, of quality management, and of marketing concepts.
- Arrange conferences in all Styrian fields of strength to demonstrate new trends and potentials.
- Support the “creative economy”. On the basis of a recent study that defined “creative” parts of the Styrian economy, “creative communication” and “creative strategies” are supported: consultancy costs for the elaboration of firm-specific innovation strategies,

of activities in search of new markets, realisation of new product ideas, of design, of new communication for marketing of new products and services.

Pillar 2: Locational strategy and Internationalisation

The main objective is the improvement of competitiveness and thus sustainable growth and employment. Styria should become an internationally reknown location for innovation and research as well as a location for production of the highest quality and as a centre for innovative services by means of locational marketing. This means a continuous improvement of locational qualities and the best possible presentation and communication of these qualities with the aim to attract additional firms, to increase firm foundation and to foster the expansion of firms. In addition the purpose of internationalisation is the promotion of economic integration of Styria in South East Europe (EU 27). The competitive advantage of Styria should be raised by supporting cooperation, cost and scale economies.

Main targets and implementation

It is important to facilitate the participation of SMEs in the process of globalisation. It requires not only co-ordinating existing local government support programmes on internationalisation (e.g. those provided by the Styrian Centre for Internationalisation: ICS), but also intensifying efforts at internationalisation, for example, by making use of future structural funding programmes which are designed to foster territorial cooperation.

In the last analysis, improvements in export intensity depend closely on finding market niches for successful innovation. Here strengthening the inter-regional division of labour and developing cross-border value chains remain particularly challenging activities.

Measures which are easily accessible by the public (i.e. those relating to information provision, advice, and skill acquisition) are particularly beneficial in promoting direct investment in the emerging areas of the EU.

Complementary to these, further measures targeted at the creation of vertical, cross-border value chains are used to help SMEs take advantage of existing wage differentials.

In addition, horizontal, cross-border value chain partners are also needed to help exploit potential or existing complementarities with respect to skills or competencies. Here, members of regional clusters play a major role.

Regional Cluster-Organisations play a major role from the strategic point of view. A further line of action is related to the need to develop partnerships in technology and research. This is particularly important in respect to countries undergoing economic transformation, where complementarities in R&D clearly exist.

Policy programmes and tools:

Special activities concerning this pillar are described in section D (b).

Pillar 3: Cluster, Networks, Fields of Strength

An area of particular importance concerns the development of regional fields of competence and the need to identify and target relevant areas of new technology. For the region of Styria, cluster policy has played a highly significant role in this respect; the identification of and the search for new fields of (technological and economic) strength is a continuation of this cluster policy.

It has stimulated much greater awareness concerning the need for co-ordination and cooperation in promoting economic and technological affairs and has also led to greater focus and selection in economic policy.

This led – on the basis of the Technology Concept II and the Research Strategy – to an identification of different fields and sectors of strength which were identified and differentiated by their state of development (traditional such as automotives, materials, wood/paper and emergent such as human technology and nanotechnology), sector-specific or cross-sectional (such as flexible automatisisation and computer-based mathematical simulation), degree of network relations.

Implementation centres on:

- The development of young clusters and networks.
- Continuous support and reorientation of existing clusters.
- Monitoring of networks for services and cross-sectional themes.
- Support of transregional and international dimensions of clusters.
- Transfer of innovation, technology and knowledge as an integral part of the Styrian understanding of clusters.
- Evaluation of existing and development of new fields of strength.

A special tool for a differentiated support of clusters is described in section D (a).

Pillar 4: Entrepreneurial spirit, new company formation and new forms of entrepreneurialism

In the past years the classical form of entrepreneurialism was primarily new company formation. To this still important mechanism additional forms of entrepreneurialism came into existence, “new entrepreneurs” mostly in the form of single person firms, spin-offs, franchises, and change of owners of existing firms. This new trend of company formation has to be supported by new and differentiated means and tailor-made instruments. A precondition is the creation of awareness for entrepreneurial activities and confidence which allows entrepreneurial independence to be seen not only as a worthwhile option of activity but as a rewarding option of life.

Main targets and implementation

Several support programmes for new company formation have proved successful in recent years and are continued. While the increase in the rate of new company formation confirms the suitability of such measures, the fact that more recently this rate has tended to level off, indicates that effort needs to be intensified in this direction. Support for spin offs in the industrial sector is a particular point of focus. In addition, activities relating to new company formation require greater regional co-ordination.

In view of the multitude of support and subsidy programmes currently available, it is particularly important to devise instruments that allow for careful distinctions to be made in terms of programme continuation, co-ordination, and targeting.

Awareness raising initiatives concerning new company formation are employed at a relatively early stage, particularly in schools or vocational colleges. Large companies rarely follow conscious spin off strategies. Thus, with the co-operation of sectoral representatives,

greater emphasis is placed on the significance of industrial spin offs and on the development of related schemes or awareness raising programmes.

Concrete tools are:

- Advice and support through impulse centres, spin-off centres and regional initiatives for new company formation.
- Coaching programmes.
- Financial support of new companies differentiated according to risk and degree of innovation, also by means of new instruments of financing (such as the Styrian Growth- and Technology Funds).
- Awareness raising by public initiatives in demonstration of best practices, information at universities and in the regions, as well as sensibilisation in schools.

Pillar 5: Innovative financing

The pillar “entrepreneurialism and new company formation” is complemented by programmes and tools for innovative financing. New forms of financing are still largely underdeveloped in Styria. Concrete measures need to be taken to illustrate what is possible, e.g. illustrating the various forms of holdings or equity participation available. Here it may suffice to point to a few ongoing activities:

- Extension of financing instruments especially for start-ups and firms in the early stage especially in the Styrian fields of strength.
- Evaluation of the micro-financing programme for very small firms.
- Extension of the programme of guarantees and liabilities.
- Provision of personal and company capital for innovative growth projects through the Styrian Technology and Growth Fund.

Pillar 6: Job qualification and further training and education

The main goal is the increased sensibilisation of entrepreneurs, firm managers and also of the employees for a demand and future oriented qualification and “life long learning” in support of competitiveness and innovation. A qualified workforce is a decisive factor for keeping Styria an innovation and knowledge oriented economy. Processes of innovation have to be linked with processes of qualification. It is therefore an important goal to further develop the regional infrastructure of further training and qualification.

Main targets and implementation

Questions of company training and education that are significant in the development of regional technology policies relate to matters concerning highly qualified, and skilled workers, and to the area of lifelong learning. New approaches are called for which upgrade the importance of knowledge and skills acquisition, and in particular new approaches at the higher end of the qualifications scale. Apart from the need to sensitise companies in general towards further training initiatives, new company models for educational development need to be devised and integrated into the existing structures of qualification acquisition. Training at middle levels (*i.e.* for skilled workers) needs to be customised and adapted to fit a more modular structure in order to raise openness throughout the whole system.

In Styria, and especially among the low and medium technology companies, only a relatively low value is placed on in-house training (particularly when compared with Nordic countries). It is thus essential to raise awareness concerning the significance of company training programmes. Suggested approaches might include initiatives promoting examples of good company practice or, similar to methods used in innovation counselling, proactive schemes offering companies relevant training advice.

Company training programmes which allow for an integration of educational and workplace structures need to be strengthened. The main advantage of such schemes lies in their ability to link educational theory and company practice, which greatly contributes to the development of an active learning process. Relevant areas of application are:

- Linking the introduction of new technology and innovations with acquisition of skills/qualifications.
- Linking of innovation processes with skill acquisition in the field of innovation management.

The structural weaknesses of SMEs, with respect to personnel development, are similar to those found in innovation management and they require an analogous response, *i.e.* systematic integration of SMEs into proactive training programmes.

Integrating educational and training programmes into the workplace is particularly challenging (there are problems of coordination with educational establishments, or organising freelance trainers etc.). Measures include programmes helping trainers/teachers adapt their existing material to specific company needs and thus facilitate the integration of technologies, organisational and skill acquisition processes.

Concrete tools are:

- Implementation of a systematic qualification programme especially through pro-active approaches for SMEs.
- Awareness building for the necessity of company training, as well as between companies.
- Support of company cooperation and models of learning between firms.
- Models of integration of learning and on the job training.
- Exploitation of the potential of technical qualifications and awareness raising for technical and science oriented education.

Pillar 7: Strengthening the regional (knowledge) infrastructure

Compared to other regions in Austria, Styria exhibits a relatively strong and diverse knowledge base. In addition, there has been a considerable extension in the infrastructure available for technology support and development over the last decade.

The main objective here is nevertheless to improve firms' accessibility to relevant knowledge in respect to technological innovations and to strengthen the ability of firms to cooperate in matters of innovation.

Both the educational programmes provided by the existing knowledge infrastructure as well as the possibilities for embedding companies in such structures are particularly important

for leaders in innovation. The greater the cooperation between the scientific community and the economy, the stronger these leading companies are tied to the local region. A further important role is played by the scientific community, particularly that operating outside university establishments. This provides an important bridge between scientists and industry, particularly during preliminary stages of research, and thus helps in transferring new ideas from the scientific community to the regional economy.

Main targets and implementation

Several research establishments, in particular Joanneum Research - an applied research organisation owned by the Styrian government with 14 institutes performing contract research for firms and public institutions - and the relatively recent 'Centres of Competence' have proved to be of considerable value. On the whole, such centres are believed to be major sources of value as far as the development of industry-relevant research is concerned. Industry-based, innovation-oriented models of cooperation in a small number of key companies and research institutions, all organised according to a particular overarching theme, are not only highly flexible instruments. They also provide short and medium-term solutions to project related research and development problems.

In addition this rather new and innovative form of infrastructure more traditional forms are to be consolidated and improved:

- Stronger networking between existing regional management points.
- Sector-crossing projects in the sub-regions.
- Extension of services of regional impulse and firm formation centres.
- Support of new information and communication technologies to improve locational conditions in Styria.
- Transregional networking.
- Lobbying for an improvement of transport infrastructure.
- Acceleration of administrative procedures.

C. Implementation and delivery arrangements of the strategy

The implementation of the strategy and delivery is split between two main bodies and is supervised by the minister of economic affairs and innovation of Styria and his office:

- The administrative unit of the Styrian government responsible for economy and innovation (section 14) who is responsible for the design and the development of strategy.
- The Styrian Business Promotion Agency (Steirische Wirtschaftsförderungsgesellschaft – SFG) who is in charge of implementation (including also the development of action programmes) and delivery on the market (integrating also the feedback from firms and investors). This agency was founded in 1991 as an institution that was separated out of the governmental administrative unit. In 1996, it became the sole institution for all operative activities in support of the Styrian economy. Since 2000 it also handles all Structural Funds programmes. It is semi-independent in the sense that it depends – as officially outlined in 2002 – on the strategic competence of the administrative unit but is independent in fulfilling its operational tasks.

The total budget (including EU-cofinancing) in 2007 amounted to €40 104 719 (of which €38 million were handled by the SFG, the rest of section A 14). Due to a clear reduction of the financial resources in the new Structural Fund period this is much less than in the years before: 2003 - €100 million; 2004 - €88 million; 2005 - €104 million; and 2006 - €101 million.

These two main institutions of the development and implementation of the “Strategy” are of course supplemented by many diverse institutions on different levels of policy making: the EU with its general Structural Funds policy, diverse national ministries with strong influence on the regional level, diverse national institutions for the support of business and R&D. In addition, institutions on the level of Styria but also on subregional levels: the Labour Market Services (a national institution with branches on the regional and subregional level) with many tasks in the realm of qualification, several cluster organisations, chamber of commerce, the association of industrialists, technology/business centres, regional management points on the NUTS III level. So there is a constant need for coordination and cooperation of agreements both in objectives and methods of implementation.

This also implies that the goals and instruments of different pillars have different targets: some are more oriented towards firms (large and leading firms, SMEs, specific firm groups), some more towards organisations (clusters, interest groups, managing and coordinating institutions).

After the recent approval of the “New Economic Strategy” the Styrian Business Promotion Agency was formally commissioned to integrate the pillars/guidelines into their portfolio of activities and to refocus their programmes and tools. Its organisational structure now has two main elements: it is on the one side defined by functional divisions (innovation, support and financing of SMEs, organisation/communication, financing/controlling), but also on the other side by the 7 “strategic guidelines” the implementation of which is done by all four subdivisions.

For the implementation, a number of tools has been focussed on these guidelines under diverse “action programmes” such as “R&D”, “Support for innovative investment projects”, “consulting”, “creative impetus”, “qualification in networks”.

The emphasis of the “Strategy” certainly lies – as clearly and formally expressed – on “innovation”. For matters of direct application in granting subsidies and support, the definition – although based on the indicators of the Community Innovation Survey (CIS) – is rather vague and context/case dependent. The pillars of “internationalisation” and “cluster, networks, field of strength” overlap strongly – also in the focussing of programmes and tools – with the innovation goal. “Qualification” (despite its own high value), “innovative financing” and “entrepreneurialism” in this respect are rather “supporting” pillars and instrumental for the others. “Regions and infrastructure” has its own right insofar as it serves to diminish regional disparities.

It is hard to evaluate the importance of the “strategic guidelines” according to financial resources. Firstly, since the financial statement/yearly budget is not elaborated according to this focus. Secondly, several of the programmes and tools overlap in respect to the guidelines. Thirdly, some of the programmes run for several years, some only for a limited amount of time. Finally, money is not the sole element to measure importance.

Nevertheless two instruments were created to more closely follow the implementation and the success of the strategy: the “economic radar” comprising economic development indicators and the “monitor” listing programme indicators, each of them according – as much as possible – to the specific pillars. These instruments are partly applied to show the efficiency and effectiveness of the activities (notwithstanding all problems of causality, lags, & attributes) but more generally to register and monitor all activities in the context of the strategic guidelines.

The economic radar lists the following indicators for innovation: R&D expenditures of firms, GERD percentage of GRP, number of promoted firms in matters of innovation/ number of projects, number of patents for:

- Internationalisation: number of exporting firms, percentage of exports of GRP, export sales, FDI of Styrian firms, FDI of foreign firms in Styria.
- Cluster: cooperation intensity of the Styrian economy (according to CIS IV).
- Entrepreneurial spirit: number of newly founded firms, foundation rate, percentage of technology oriented new firms.
- Qualification: number of participants at qualification activities, high/medium/low qualified workers.
- Regions and infrastructure: GRP, GRP per capita, value added, employment, percentage of firms/households with broadband internet access.
- Innovative financing: own capital of firms (according to firm size).

Programme indicators comprise, for example:

- Innovation: number of R&D projects, number of innovative products and processes, number of firms applying for the first time for innovation support, number of employees in supported firms, number of cooperation and competence centre projects.
- Internationalisation: number of internationalisation projects, number of additional jobs due to incoming firms, number of incoming firms.
- Cluster: number of supported clusters and networks, number of involved firms, number of cooperation projects, number of projects in fields of strength.
- Entrepreneurial spirit: number of firm foundation, participants at awareness workshops.
- Qualification: Number of projects for personal development, of training workshops, of interfirm training workshops, of participants/firms taking part in further qualification.
- Regions and infrastructure: number of firms in impetus centres, of regional projects, awareness workshops in the regions, number of new jobs in impetus centres.
- Innovative financing: number of projects with innovative financing, amount of own capital employed.

It would surpass the context of this study to give a detailed description and analysis of these indicators. It may suffice here to say that these instruments serve at least a monitoring of rough developments and a demonstration of results, possibly achieved by a combination of programmes and various tools.

D. Sample of main policy programmes and tools

a. Cluster organisations as private–public partners

The services of clusters provided have had a highly positive effect on the diffusion of information and on the promotion of cooperative activity. The underlying approach to cluster

policy in Styria derives from the belief that organisations operating in clusters are providers of new services which, over the short-term, are to be developed with the help of initial start-up funding, but which over the longer term should not be supported by government financing.

This built-in need for self-financing makes it necessary for clusters to focus on developing services which generate clear operational benefits for companies in a short space of time. While clusters thus support the development of new, company-related service structures, the prevailing financial considerations mean that short-term operational benefits are pushed to the fore, and long-term, strategic concerns tend to recede into the background. In such a setting it is difficult to legitimise more than a very limited role for public funding, and asking cluster organisations to be self-financial and self-directing is not at all inconsistent. On the other hand, such a policy is clearly not designed to promote long-term structural and regional development. This is all the more unfortunate given the fact that clusters offer great potential in this respect. As became evident in discussions carried out with cluster representatives, the tensions arising from such a setting are clearly perceived by those concerned. As a result, it is proposed that the tasks expected of clusters be more precisely defined with three distinct fields of activity:

- Supporting core cluster themes by devising long-term programmes lasting several years.
- Integrating clusters more closely into public policy concerns.
- Understanding clusters as providers of access to company activity and exploiting them in developing greater internationalisation, improving employee qualification programmes, promoting technological advances, etc.

In this context clusters remain independent organisations, and can still be perceived as providers of company-relevant services at normal market rates. However, in addition, clusters can take on functions related more closely to the public sphere such as the generation and supply of data, or the development of long-term scenarios for various fields of technology or economic sectors.

b. Programme and tools for internationalisation: Regional Internationalisation Strategy (RIST) and Internationalisation Centre Styria (ICS)

In 2002, RIST was started as a support programme for Styrian firms to become active in selected, dynamic regions of South-East-Europe. The basic idea was to select specific regions within 6 countries (Bulgaria, Croatia, Poland, Russia, Serbia, and Hungary) and to investigate and prepare the potential cooperation with local partners for Styrian firms. Key-account managers in these regions were responsible for contacts, the selection of potential fields and sectors of cooperation and of partners. The programme included the initiation and the support of cooperation projects, financial support in the realisation of projects, coaching and consulting of firms, the development and maintenance of a cooperation databank, and support in dealing with the local and regional administration. Activities also included the organisation of workshops both in the specific regions and in Styria.

The programme was, from the beginning, strongly focussed on a few developed markets within the regions and the fulfilment of a predominantly public demand mostly in the fields of infrastructure, environment and energy.

The budgetary background consists of a €450 000 per annum of which about two thirds is needed as basic financing of the organisation. The remaining third, finances external costs for specific activities such as key-account managers, marketing, and workshops.

Each year about 300 firms take part in this programme.

Until 2005, the programme was administered by the government; it was then integrated into the newly founded Internationalisation Centre Styria (ICS). Its task consists of the integration and coordination of internationalisation activities of the Styrian government, the Association of Industrialists and the Chamber of Commerce (which also finance the institution and form the board). The focus of its activities are newly exporting firms, especially in countries of South-Eastern Europe, but also beyond (last year an information office was opened in Shanghai) – it is “the first contact point for the internationalisation and export activities”, “the best help and assistance for global business”.

The organigram contains 4 subdivisions: territorial cooperation (mainly in the framework of the EU-objective), info-management (also including the maintenance of the RIST databank), project initiation and its support and export consulting. It was conceived as a one-stop-shop for the promotion of export activities.

Both the programme and the centre were recently evaluated (2007):

- The RIST-program was considered to be an innovative but challenging approach for the support of internationalisation activities on a regional level. RIST focuses on the most urging problems that firms are confronted with in this context. Therefore, it is useful to continue this programme, yet in a different form.
- The original mission was only partly achieved. It was useful to integrate the agenda of RIST within ICS. There was a very positive participation of the involved partners and useful activities in the field of financing and consulting. However, there were too few linkages and coordination with the Styrian economy and with other regions.
- Potentials for improvement and redesign can be seen in a broadening of the firm basis; a stronger coordination with other regions and the national level; a theme-oriented cooperation with core partners such as clusters and networks; an amelioration in communication.

3. Outcomes of the strategy

a. Extent to which objectives have been achieved

Styria has within the last two decades undergone a profound change both in economic situation and in policy orientation. Styria certainly has a considerably more global dimension now than twenty years ago: a rather closed system has been opened successively, access to a wider world has been made easier, and the policy tools have become more differentiated.

Turning to the change in economic situation the positive “outcome” of the “strategy” (to be understood as the described continuous effort of defining objectives, of implementation and instrument application over the last 10 to 15 years) can be outlined by various economic indicators.

The general objective of an increase in welfare, economic growth and the employment situation has been achieved:

- From 2002 until 2007 Styria had a higher growth rate than the Austrian average.
- The percentage of Styrian Gross Regional Product as a percentage of Austria’s GDP increased from 12.3 percent in 1995 to 12.6 percent in 2005.
- The growth in employment was significantly higher than the rest of Austria.

- The volatility of employment over the business cycle diminished: up to the early 1990s the change in employment exceeded that of Austria in the downswing phase, and in the upswing phase reached the Austrian level at best. Since then the opposite is true: Styria's change in employment surpasses that of Austria in the upswing and in the downswing it does not get lower than that of Austria.
- The change in employment structure was remarkable: although still an "industrial" region there was a strong trend towards services; within the service sector, business oriented services had the strongest growth rates; within manufacturing, technology oriented branches grew the fastest.
- The labour market situation improved: unemployment rates declined from 8.1 percent in 1997 to 6.4 percent in 2007 (according to Austria's definition of unemployment which is higher than the EU definition), the gap to the national average declined from 1 percent in 1997 to 0.2 percent in 2007.

Innovation and R&D orientation increased significantly:

- In 2004 (the latest available year) Styria had the highest R&D rate (R&D expenditure as percentage of GRP) of all of Austria's regions and exceeded the Austrian average by far (Styria: 3.6 percent, Austria: 2.2 percent); with this R&D rate Styria is also among the top regions of Europe.
- Its expenditures for R&D amounted to 20.3 percent of all of Austria.
- The growth of R&D expenditure was especially pronounced in the business sector.
- The number of researchers per 1 000 employed was 19.0 (Austria: 12.6).
- The rate of innovation (as defined by CIS) approached the Austrian average which is high in an international comparison and on the level of Nordic countries or Great Britain: according to CIS III (1998 – 2000) the innovation rate amounted to 48.9 percent, to CIS IV (2002 – 2004) to 52 percent (CIS V is just under way, CIS II is methodologically not comparable).
- Again according to CIS the percentage of "close to market innovation" is higher than the Austrian average and corresponds to the expressed objective "master of market-introduced innovations".
- Styrian researchers had a high rate of participation in the European Research Programmes; it was possible both for research institutions and for firms to establish and take part in international knowledge networks.
- Within the COMET (Competence Centres for Excellent Technologies) programme, which was newly allocated in 2007, 6 out of 11 positively evaluated Centres were awarded to Styria.

Entrepreneurship and firm foundation improved over the last decade:

- Foundation intensity (number of firm foundations in relation to 1 000 employed persons) grew from 4.5 in 1993 to 8 in 2007.
- The percentage of personal founders (in contrast to corporations) rose from 75 percent of all firm foundations in 1993 to 86 percent in 2007.

Internationalisation and export orientation of the Styrian economy underwent a dynamic development:

- Export of goods increased from €10 billion in 2000 to €18.7 billion in 2006 (nominal figures).
- The 12 new member states of the EU represent an enlarging share of these exports – in 2006 they amounted to 10.4 percent of all exports (main trading partners are still Germany with 30.7 percent, United States with 12.3 percent and Italy with 9.8 percent).
- Two thousand and six was a record year for both active (€3.8 billion) and passive (€3.7 billion) direct investments.

Reorientation of policy implementation and public subsidies

- The implementation of economic support measures and subsidies is to a very large extent executed by the Styrian development agency SFG (Steirische Wirtschaftsförderungsgesellschaft). The total sum of €38 million (in 2007) is concentrated to thematic programmes. The largest part goes to “firms in growth” (35.6 percent), to support of R&D (22.4 percent), competence centres (10.4 percent), innovative financing (8.9 percent) and qualification (7.8 percent).
- The focus of support is on SMEs – 26.7 percent of the total budget goes to firms with up to 9 employees, 18.6 percent to firms with 10-49 employees, 36.8 percent to firms with 50-249 employees.

Summarising these figures it is surely legitimate to speak of a positive outcome of the strategic efforts: there is evidence of the process of catching up in growth and employment, improvement of the labour market, an intensification of R&D, the willingness to cooperate, export orientation, entrepreneurial activities and firm foundation.

This, of course, does not imply that there is a direct and causal link from strategy to performance and that policies on the basis of strategies are the sole cause in economic development. Yet, there is good reason to argue that policy did support these developments and created favourable conditions. This leads to a discussion of the strengths and potential weaknesses of this evolving strategy.

b. Strengths and weaknesses of the strategy

Several characteristics were essential for the “strategy” to have been able to positively influence the process of structural change and economic catch-up of the Styrian economy, which will be outlined in the following section. It is nevertheless necessary to point out that the “strategy” consisted of several steps and revolving processes for which responsibility was given, in different phases, to different “agents” – politicians at different levels of policy making, different persons responsible in diverse institutions, entrepreneurs and directors of firms. So the “strategy” is the result of quite diverse documents influenced by quite diverse people. From this fact alone, some essential characteristics which certainly can be regarded as “strengths” follow.

Strategy as a revolving process

As outlined above, the strategy consists of several documents, papers, books or leaflets of various sorts – some more analytical, some more oriented towards implementation, some of them officially approved by government, some commissioned by government as an analytical base for decision making. So there was a constant stream of analysis, of policy design, of further

developed and improved instruments reacting to the specific situation and trying to give answers to new challenges. The most recent document – “Wirtschaftsstrategie Steiermark” of 2006 and approved by the Styrian government and diet – explicitly mentioned the “forerunners” such as the two “technology concepts” and the “research strategy” as a basis. Thus the strategy becomes a “living paper”.

Strategy as a participative process

Different agents were involved in generating the strategy despite the different character of the specific parts and documents: politicians, administrative units (both on regional and national levels), representatives of firms, chamber of commerce and of workers, academics. Most of the larger documents (such as the technology concept) had a steering committee and were discussed in subsequent workshops (sometimes with international participation) at different stages of elaboration.

Strategy as a signalling device and as a means of communication

In the phase of elaboration, but more as a final document, the strategy tells the public and the economic agents about the intentions of policy making. This includes the positive visions and goals for the future, steps of implementation and instruments (also the financial means) intended to be used; however, it excludes certain negative goals and activities. As an example, in the second half of the 1990s cluster formation and support of cluster organisations were addressed as a definite goal. By these means it was signalled that cooperation is a positive (and also necessary) and hence subsidised form of firm behaviour. Later on, in more developed stages of cluster formation, the cluster organisations were supposed to be financed by the members – and no longer by public money.

Strategy as a response to changing challenges

One of the main reasons for the decline of the Styrian economy in the 1980s was lack of reaction to a changing production system – from Tayloristic/Fordist way of production to flexible specialisation. The popularisation of the word “cluster” – in Styria very openly (and at the beginning controversially) used – signalled the necessity of cooperation between firms and the formation of value chains combining the specific strengths of larger and smaller firms. “Clusterisation” was therefore a response to new forms of production.

In later stages it was emphasised – more or less explicitly – that networking demands more than just material linkages and that the essence of networking consists of knowledge exchange. To enhance this form of cooperation new institutions of knowledge generation and of knowledge diffusion were created – particularly “competence centres” as commonly financed (by the national and regional government and by firms) research institutions in particular sectors and research fields – such as the “Mobility sustainable vehicle technologies”, “Integrated Research in Materials, Processing and Product Engineering”, “Competence Centre for Pharmaceutical Engineering”. In a sense this was also an explicit reaction to the challenges of a “knowledge society”.

Another obvious challenge was globalisation – from a Styrian perspective enforced by the opening of the borders in the early 1990s. The necessity of transregional and international cooperation in production and research was emphasised in the diverse strategies. New institutions, programmes and instruments were also developed to support firms – especially SMEs – in their attempt to internationalise.

Transregional cooperation with adjacent regions and countries was also regarded as a means to create critical minimum sizes – of value chain creation, of common research attempts,

and also of a common exploitation in marketing for a growing market (e.g. transregional efforts to create a common “brand” in tourism for wellness coupled with culinary dimensions).

Changing character of cluster policy

Cluster policy is the most evident element of the last decade of the strategy. It had some very specific features (and surpassed the “industrial district” and purely sectoral approach):

- It was used very early as a response to the problems of “old industrial areas”.
- It was used as a signal for the need for changing business behaviour and the need for differentiated cooperation.
- It was not restricted to specific sectors but often had horizontal character (eco-cluster, human-technology-cluster).
- It was diversified and comprised several fields.
- It tried to make clusters self-sustainable in the sense that often public subsidies, for cluster organisations in general, stopped for a certain period and were only continued for specific “public” interests.
- It concentrated in later phases on creating necessary preconditions for the sustainability of existing and the emergence of new clusters; in earlier phases this consisted of looking at “cores” of interconnected (material) linkages between sectors (via a regional I-O-model) and hence the potential for supplier relations. Later on, the preconditions for knowledge networks were created: competence centres, stronger relations between universities and firms, interfirm (organisational) learning. Regional research policy became an essential part of a specified cluster policy.
- Part of the new cluster policy consists of searching for new fields of strengths. These are not only “clusters” in a purely sectoral sense but potentials of interaction of research and demand / supply conditions on the market. Hence the differentiation of traditional and emerging fields of horizontal activities in need of support (e.g. computer simulation that can be used in different sectors, human technologies being produced in a variety of branches).
- The local and the regional dimensions of cluster policy have served its purposes and now need enlargement. Hence the emphasis on internationalisation – ICS is also addressing cluster organisation and initiates and supports their attempts for ties on an interregional and international level.

Are there any weaknesses?

From what has been summarised so far the “strategy” is consistent, takes up relevant challenges, addresses important questions, gives reasonable answers, suggests plausible implementations and develops practical instruments. It also contains the “state of the art” insofar as, in many stages, international comparisons were undertaken and experiences in other countries were consulted.

“Weaknesses” are therefore difficulties and challenges that such strategies are confronted with; they are also outlined in some of the documents and addressed with respect to the Styrian situation.

- An important challenge remains the tension between policy design and implementation. The possibilities for implementation necessarily change in the process of application. Technology policy depends on an ever more complex backdrop of regional decision makers. This increasing complexity is being driven by both technological and political factors. In addition, one should not forget that the subject matter of innovation and technology policy is highly heterogeneous in scope, and is made up of a variety of policy fields, diverse institutions and numerous agents. Thus, any potential solutions will require highly complex strategies of intervention.
- It will become increasingly necessary to co-ordinate and synchronise a number of policy fields, in particular those relating to research, technology, economic factors, internationalisation, education and training. It will also be necessary to integrate and use agents outside the policy process, for example various interest groups or representatives. The existing technological strengths in Styria provide one possible framework for achieving these goals.
- An example is the role of universities and other research institutions in Styria. Even though Austrian universities are primarily dependent on the federal government for financial support, more local co-ordination of educational programmes, particularly at university level, could be attempted. This would allow the needs of the regional economy to be met more easily. Regional research structures must be organised such that they are attractive to potential users and must be designed to meet the needs at hand.
- Thus, regional research policies need to be co-ordinated with the objectives of technology policy. In addition, research infrastructure should be sufficiently open so as to enable strategic cooperation with large companies to take place, and thus help bind them to the region. Cooperative research institutions do in fact act as such a ‘binding agent’ and as an incentive for companies to develop local ties. In terms of ‘soft’ factors, the attractiveness of a location for employees needs to be ensured by means of integrated programmes for town and regional planning.
- Another difficulty – on a more general political level – is the changing constellations of political power. In the latest elections (2005) the party leading for decades lost the majority. This led to a new accentuation of visions and goals. It also led to a stronger accentuation of differences – both in goals and in implementation. Sometimes this new situation favours conflicts leading to a paralysation of activities. From a longer perspective this might be regarded as a necessary function of democracy and political reorientation, from a shorter perspective it might paralyse the signalling character of strategies. It sometimes favours rather “popular” short-term goals not consistent with longer term strategies.
- A further weakness also connected with the intricacies of politics: despite all evocations of transregional and transnational cooperation, policy orientation is mostly limited by political-administrative borders.

What may be regarded as a further dimension of “weakness” are the still existing difficulties and remaining challenges of the development of the Styrian economy. Despite the long lasting phase of catching up and despite the successful structural change, the level of the Styrian economy is still well below the Austrian average – Gross Regional Product per head of Styria only amounts to 86 percent of Austria’s. To someone acquainted with the convergence literature this is not so surprising – processes of catching up and of convergence take time (and it may be positively pointed out that the process is one of convergence and not of divergence). Nevertheless there is still a considerable gap in economic fortunes.

This leads to more specific weaknesses:

- The main dynamic behind recent development was provided by a relatively small number of leaders in innovation. However, clear deficiencies regarding innovative ability remain among the broad mass of companies. Thus, what is required is not only a further shoring up and promotion of innovative leaders, but also simultaneous, gradual and systematic integration of regional SMEs in all processes of innovation, cooperation and skills or qualification acquisition.
- Recent regional renewal took place as a result of companies undertaking extensive investment in new technology. This led to clear gains in productivity. However, to a large extent these investments were probably undertaken in an effort to make up lost ground. Any strategy truly aiming at growth cannot rely on existing industries. Continued future growth depends on targeting structural change at those sectors with the greatest potential. In essence, this requires a gradual development of international growth sectors while at the same time promoting the continuation of existing economic centres as best as possible.
- Despite the relatively large amount spent on training and education in general, several deficiencies remain concerning personnel training and skills/qualification acquisition. For example:
 - The generally low level of people taking part in further education.
 - The low level of further education within companies.
 - The low level of technicians and engineers and of those trained in the natural sciences.
 - The dominant position of traditional paths to education.
 - The increasing rate of specialisation in education and training as a result of accelerating technological change.
- The transfer of knowledge especially to SMEs remains a further – and constant – challenge. The transfer of scientific knowledge to small and medium sized companies is not something that occurs automatically (*e.g.* via the relatively infrequent contact between industry and the science base), nor does it occur anywhere as rapidly as desired. In this respect, it is necessary to ensure that expectations remain realistic.
- The primary role of transfer centres, technology and science parks is seen to lie not only in their functions as promoters of technological focus and agents for knowledge and technology transfer, but also in their ability to make network activities public, and thus lead to the formation of new centres of regional competence. Achieving improvements in present levels of personnel is an obvious prerequisite in this respect.

4. Potential for the transfer of the strategy

a. Transferability of the whole strategy

The strategy both in its specific documents and as an enduring process is certainly a specific response to the situation of the Styrian economy and its challenges. Several aspects of this situation and of the resulting challenges are rather specific to Styria, some are rather general and have to be met by every (more or less) developed region in the European Union (and Wales is certainly amongst the more developed ones).

As a consequence it would certainly be wrong to regard the Styrian strategy “as a whole” as transferable for Wales in the sense of a one to one replica of an economic recovery and reorientation programme which in the case of Styria was rather successful. But it would also be misleading to see only specific parts as transferable and not general aspects of the strategy, especially if we take for granted the evident similarities between Styria and Wales: both being exposed to strong structural changes due to strong traits of “old industrial areas” in the past, both slightly having the character of peripherality, both lacking a strong agglomerative centre with international headquarter attractiveness (both capitals being middle sized towns in a European context). In addition, Wales had a positive growth performance in recent years with similar success indicators as Styria.

“Taken as a whole”, therefore, several general elements of the Styrian strategy (partly mentioned as “strengths”) are transferable:

- The strategy is considered as a process which reacts to changing situations. If we take the last 15 years as the relevant period under scrutiny the forms of cooperation between firms, the character of innovation, the importance of knowledge, the degree of globalisation changed – accordingly policy took a different focus. Wales should also emphasise the ongoing character of any strategy (this also includes the participative element which nowadays is almost compulsory in whatever form).
- The strategy is a signalling and focusing device of policy. The guidelines and pillars serve as a strong message of what the intention is and what will (and partly what can) be done. It is also a restriction: this – and only this – will be done (as far as this is politically possible). This also means that the strategy should be consistent – but not encompassing. Not all goals – social, environmental – can be included. The Styrian strategy has a clear focus on economic policy in its new form of innovation, technology and research orientation. Compared to this the document of Wales (A Vibrant Economy) seems rather broad.
- The Styrian strategy – covering a longer period and consisting of different kinds of documents – is a combination of different elements with different kinds of contents and different means of communication (for this reason they were listed and described in Chapter 2): shorter booklets as quasi-official documents of the government, longer concepts on the basis of research undertaken (and sometimes published as books), reports on what has been done and will be done in the next future. Wales could also use this multi-facetted approach where different kinds of messages can be transmitted – some more “political”, some more “technical”.
- Implementation and the tool box tell what is available and what will be done in concrete. In this sense also: what can the agents (firms, entrepreneurs, employees, researcher, also agents in support institutions) of a regional economy expect to get and what kind of incentives are offered in order to induce certain kinds of reactions. The tool box did not change dramatically – it is rather a question of changing emphasis: more indirect forms of support, not necessarily more money, more focus on (immaterial) dimensions of infrastructure, also on institution building and support. A certain vagueness will always prevail because what really will be done depends on the single cases and situations. Yet in the document of Wales the formulations seem rather goal-oriented (and wishful) and inadequately tool-oriented and instrumental: (too) many goals are listed on a very general level – economic growth, social justice, environment. Being aware that the document is “not intended to be a detailed delivery plan” (p. 9), it nevertheless hardly addresses any potential conflicts between more detailed goals (employment, earnings, quality of life) and its specific approaches.

b. Transferability of specific successful policies

Having pointed out that the strategy is not directly transferable as a whole, and also being aware that some of the objectives, problems and also forms of implementation connected with specific tools are rather similar in almost all regions of developed economies (knowledge orientation, qualification, innovation orientation, innovative financing, etc.) three specific successful policies with strong relevance for Wales can be suggested:

- Cluster orientation.

This is probably the best known “product” of Styrian regional policy within the last 15 years for which Styria is acknowledged not only in Austria but also in the adjacent regions and countries. The term was used as a signal for the necessity of cooperation, of building links between SMEs to be admitted as suppliers for larger firms, but also as a measure of qualification and learning. Although the automotive cluster was the classical example it led to the development of cluster structures also in other sectors and across sectors (eco-cluster, human technology-cluster). It was connected with a changing support for cluster organisations and attempts of interregionalisation and internationalisation (see 3b above).

This kind of policy – however it is called: clusters, network formation, firm cooperation - is hardly present in the Wales document. There are some hints to territorial co-operation, the need for agglomeration benefits (and the lack of them), and specific sectoral approaches (pp. 57-59). But the development of interconnected cores of economic activity within and between sectors and firms and their not only material but also knowledge oriented links are not clearly addressed.

- Identification and development of fields of strength

This is a consequence of cluster orientation and a necessary further step: where are the future fields of strength – either sector-specific or cross-sectoral, how are they defined, in what stage of development and hence in what need of support are these fields at the moment. As a kind of regional technology foresight it is connected with activities in education, qualification and skill development.

In the Welsh document this question is addressed and an initial set of ten sectors, regarded to be important for future economic growth, is identified. Here the challenge – partly mentioned – is to look at the different potentials, their connectivity and their need for differentiated support.

- Research and institution building for generation and diffusion of knowledge

This again is a further step in the development of not only traditional cluster policy but of regional policy in general. It was recognised that innovative clusters do not consist so much of material links, but of immaterial networks of knowledge exchange. Styria actively assumed responsibility in matters of research. In particular, the “competence centres” - as an institution linking science and industry in specific industry-oriented fields of research, co-financed by industry, the national government and regional authorities - created new hubs of knowledge generation and diffusion. Competence centres are now in their second stage after careful evaluation and concentration.

The Welsh document acknowledges the importance of research in various places yet points out that Wales has few responsibilities in research. At the same time the “Innovation Action Plan” encourages stronger links with higher education, emphasises

the vital role of universities and suggests KB4B as a broker between higher education and calls for a more focussed science exploitation strategy.

In this domain especially, lies a high potential of transferability of the Styrian experience – the support of knowledge generating and diffusing institutions is a task of growing importance for regions.

- Support of internationalisation

With the Regional Internationalisation Strategy (RIST) and the Internationalisation Centre Styria (ICS) two attempts have been undertaken to support SMEs especially in their quest for new markets, predominantly in specific regions of South-East-Europe. At the beginning, RIST was probably overreaching but with its integration in ICS it became more structured and integrated in parallel internationalisation support measures.

There is no direct replicability of this programme given the geographical position of Wales. Nevertheless it is an open agenda for how the support of internationalisation activities can be – given the (for good reasons) limited scope of direct export subsidies – institutionalised. ICS could serve as an apposite benchmark.

5. Conclusions and recommendations

Styria – in the 1980s still an “old industrial area” and a region in decline – has undergone profound changes both in economic situation and in policy orientation.

In the strategy over the last 15 years, Styria took on new responsibilities, adjusted the focus of implementation and extended the variety of instruments. This strategy consists of consecutive and each time newly elaborated documents of different character. The focus was, and is on the promotion of clustering and network building based on innovation- and knowledge infrastructure oriented instruments. These activities are centred on SMEs, have a revolving mid-term perspective and as a goal an improvement of location and regional competitiveness. The opening of borders was a challenge as well as an opportunity to increase interregionalisation and internationalisation and to use them actively as strategic orientations.

The outcome of this process – as can be shown by recent (mostly for 2006 and 2007) indicators of growth and employment, of innovation and R&D activities, of entrepreneurship and firm formation, of export orientation and internationalisation, of a reorientation of policy implementation and public subsidies – can certainly be interpreted as a success. The strategy and its implementation is not the sole cause for this improvement but there are good reasons to argue that policy did support these developments and created favourable conditions.

The strengths of the strategy lie in its continuous and process-oriented character with strong participation of different agents and stake-holders of the Styrian economy, and its constant response to changing situations and challenges. The strategy was also actively used as a means of communication about the visions, goals and intended steps of implementation. The strategy can therefore be regarded as a consistent process of managing change.

Weaknesses are partly due to the inherent tension between policy design and implementation, the systemic character of the innovation process and the impossibility of fine-tuning this process, the intricacies of regional governance structures. In addition to this are all the still existing difficulties and remaining challenges of the further development of the Styrian economy which – despite a strong phase of catching-up - is still lagging behind the Austrian average.

Three main recommendations can be drawn from the Styrian experience with cautious application for the Welsh economy:

- Styria has increasingly “clustered” as a form of regional production systems. This was a well-designed response to the problems encountered in the previous phase with large inflexible firms. “Clusters” were understood as a signal for the need of firm cooperation at different levels, supported by different forms of organisations and services. It can partly compensate for lacking agglomeration advantages. Any regional strategy today must be aware that cooperation is a decisive element of the innovation process, that it constitutes the local response to globalisation and is a region specific tool for global competition.
- As for the specific support of this internationalisation – apart from the general “upgrading” of economic competitiveness – there is a limited scale of measures. The focused exploration of a limited number of regions in potential export countries and the institutionalised form of a centre of coordination of the activities of several policy makers is a specific Styrian experience. Adapted forms can be considered for Wales.
- Research and the promotion of R&D activities is a new and also important task for regions. This manifests itself in various forms of support for SMEs to get integrated into systematic processes for continuous innovation. But this also calls for new region-oriented institutions for knowledge generation and diffusion. “Competence Centres” and the establishment of their own public research organisation were specific responses for the Styrian economy and may be adapted also for the research needs of the Welsh economy. This could call for an identification of industrial firms with a sufficient background in research and willing to cooperate with firms having a similar research orientation and finding corresponding basic research potentials in the region (from universities, semi-public research institutions) and forms of financing (split between national and regional government and industry). This can also be seen from a broader perspective: one of the tasks of strategies is the search for new regional fields of competence and the need to identify and target relevant areas of new technology.

TUSCANY, ITALY

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1. Brief overview of the regional economic context

The population of Tuscany is 3.6 million inhabitants, producing about 7% of the total national GDP. Tuscany is one of the most dynamic regions of Italy, with a high propensity to export goods and services. Traditional industrial districts, specialised in the so-called “Made in Italy”, play a very important role for the economy of the region: Prato (textile), Santa Croce sull’Arno (leather production), and Arezzo (jewellery) are among the most important industrial districts in Italy and other smaller but very important local production systems can be found in the region.

In 2000, the employment rate in Tuscany (Table III.8) was higher than the Italian average (+6.4) and its rise in the period 2000-05 was higher than the national average (Table III.9). In 2005 the total employment rate in Italy as a whole was 57.5%, namely 6.2% less than in Tuscany (63.7). The unemployment rate during recent years was lower in Tuscany than in the rest of Italy. Thus, in terms of the labour market, the region has experienced a better performance than Italy as a whole.

Table III.8: Total employment rate, Tuscany and Italy, in the period 2000-2005

	2000	2005	% 2000-2005
Tuscany	60.8	63.7	2.9
Italy	54.8	57.5	2.7

Source: processed data from REDP

Table III.9: Unemployment rate, Tuscany and Italy period 2004-2008

	Tuscany	Italy
2004	5.2	8
2008	5.0	7.4

Source: processed data from REDP

During recent years (2000-2005) the regional GDP experienced a better performance than the Italian average: it grew by 6.3% in Tuscany, while at the national level the rise was 5.4%. Finally, it is important to note that Tuscany is the second Italian region for public expense in the R&D sector (0.7 of regional GDP) and the third in terms of the relative weight of employment in R&D.

However, the economy of the region, strongly specialised in export, is facing important challenges due to the growing competition of developing countries that are now increasing their capability to compete in international markets with medium-quality and low price goods.

A large part of Tuscan firms are ‘craft’ firms (a total of 117 766). Manufacturing craft firms tend to concentrate in industrial districts, but there are also a significant number of craft firms in other kinds of local systems and in other sectors, such as construction, personal services, transports, etc. This explains the relevant attention that this kind of firm has in the regional model of the political economy.

Tourism is another core sector in the region, with more than 11 000 hotels, camping and *agriturismi* for around 40 million tourists per year. More than 70 000 people are employed in the sector, contributing to 8% of regional GDP.

The above-mentioned tendencies are also widely confirmed in the industrial districts of Tuscany that are facing important reorganisation processes (Becattini, 1997, 2001, Dei Ottati 2004; Becattini and Burroni, 2005; Becattini and Dei Ottati, 2006; Bellandi, 2003). However, looking more closely at these areas, important specifications in Tuscany compared to other Italian industrial districts emerge, regarding productive organisation as well as regulation mechanisms.

Looking in detail at the productive structure it emerges that industrial districts are less widespread in Tuscany than in other regions such as Veneto. The variety in Tuscany’s territorial division of labour is in fact much broader: there are local systems with a rural and tourist connotation (Southern Tuscany), areas with large industrial firms in decline (Piombino area), urban-metropolitan areas, etc. (Zanni e Leborg, 2002; Bacci, 2002, 2004; Cavalieri, 1999; Casini Benvenuti 2007).

As we will see further ahead, the presence of smaller firms compared to the majority of Italian industrial districts constitutes another important element in Tuscany’s specificity, even if some studies have shown the importance of medium-sized firms in the promotion of competitiveness in Tuscany (Bacci 2002, 2004).

Here it is important to note that in order to better understand the economy of the region we also need to focus on its governance structure. There are theoretical and empirical contributions concentrated on regional and local capitalism that compare case studies from different countries. This growing interest is a natural consequence of the increasing importance of how local institutions are organised, due in part to globalisation effects and consequent organisational changes that have ‘anchored’ businesses to a local institutional context, and in part to institutional reorganisation procedures that have strengthened the margins for manoeuvring decentralised regulation levels (Veltz 1996). This is also true in Tuscany, where the governance model was, and still is, influenced by a strong involvement of political institutions in promoting local development, with local administrations orienting local development and strongly supporting firms (with real services, see Brusco 1989, 1992). This vision of the importance of a political intervention in the economy was certainly favoured by the “red subculture” that once dominated the region and continues to be strong, even if there have been some recent and important changes (Ramella 2005). However, it is not enough to look only at the dominating political subculture. Even in this case it is necessary to refer to the production structure that has set the region apart since the beginning of the 1970s. Tuscany at that time was already characterised by the predominance of small and very small firms that were not big enough to independently produce some strategic goods. For this reason there was more room for local governments and other institutional actors who could compensate for these shortages. The participants who played a more important role in producing these goods were local governments on one side and employer associations and trade unions on the other.

The logics of collective action were, however, different from other Italian regions such as Veneto, Piedmont and Lombardy. In fact, in Tuscany there was also a strong associative fabric with business organisations (especially inside the industrial districts) particularly active in producing collective goods. But even considering this resemblance, Tuscany holds some

unusual characteristics. First, with regard to the business organisations involved in these procedures. Precisely due to the importance of the small-scale industry in Tuscany, actions by artisan business associations have always been key in Tuscany, together with large firm representatives such as Confindustria. Second, during the past, the artisan business association primarily represented in Tuscany was CNA, a left-wing business organisation more open to economical politics that envision the active participation of local governments. This brought about a large participation by the local negotiation mechanism association that focuses on producing specific collective goods for businesses.

Therefore, in Tuscany, associations indeed contributed to providing services, but not entirely without local governments; in fact, local governments took on an important role in politics. A specific model based on local negotiation was developed with associations that contributed to the planning of economic programming, but not independently from political institutions. In short, the *governance* in Tuscany is founded not only on informal local community ties, but also on the action of local and regional government and on a relevant role played by actors of industrial relations (Trigilia 2002, 2005).

In conclusion, Tuscany is an interesting case study both for its economic structure and for the main features of its regulatory structure.

2. The Regional Development Strategy¹

2.1 Rationale/conceptual framework of the strategy: tradition and innovation in the model of regional political economy

As we mentioned above, the Tuscany Region has always been characterised by a development model centred on a strong role played by regional and local government (Trigilia 1997; Burroni 2001; Burroni and Trigilia 2001). This longstanding tradition of a regional political economy has four primary aspects (Table III.8).

First of all, the Tuscany model is based on social negotiation that has given life to highly comprehensive policy-making and that, up to the mid-nineties, prevalently involved employer organisations and trade unions, progressively including the participation of other actors and organisations that represent civil society.

The second point concerns the will of public institutions to contribute to the production of competitive territorial advantages, actively participating in creating business services, promoting research and development and ‘helping’ firms to penetrate external markets. Thus, there has been a strong political support to firms’ economic competitiveness via ‘real services’ (Brusco 1989, 1992).

The third point pertains to the fact that traditionally public institutions in the Tuscany region have tried to promote a development model capable of combining economic competitiveness with social cohesion.

The extremely important fourth aspect looks at the presence of a regional ‘policy community’ made up of policy makers; institutions and research centres (for example, IRPET – Tuscany Regional Institute for Economic Planning); well-known scholars, such as Giacomo Becattini, that come from all Tuscany Universities and have created a heterogeneous community – with some internal cleavages – that discusses the region’s economic characteristics and needs. Examples of the results from this ‘public discussion’ are given by many relevant academic publications on the topic of industrial districts and in more ‘operative’ publications such as the recent volume ‘Toscana 2020’.

These background aspects are seen again in more recent experiences with the region's political economy, showing an important historical continuity in this model of regional governance of economic development.

Nevertheless, besides this continuity we find important elements of change (Table III.10) that will be very useful to recall at the end of this research report.

Table III.10: The main features of the Tuscan model of political economy

Historical Features of the Tuscan model of regional development	New trends
Social trilateral negotiation	Attention given to the problem of policy-coordination
Proactive role of the regional government	Policy monitoring and control
Balance between economic competitiveness and social cohesion	More inclusive policy making
Presence of a wide policy-community	Strong relationship between environmental and development policy

Firstly, there is an emerging push towards coordinating various policies. As we will see, there is a series of instruments that favour the realisation of a policy-mix, setting up different policies that are coherent amongst themselves and capable of creating synergy. We will see that this coordination is horizontal – among policies – as well as vertical – among territorial levels. Many examples of horizontal coordination can be found in the following chapters, whereas an example of vertical coordination is shown in the relationship between Regional Development Plans (RDP) and Local Development Pacts.

A second innovation is shown by the amount of attention given to monitoring and control. For this reason we will see that Regional Integrated Projects define specific objectives and planning actions, including an evaluation of the expected effects and a definition of performance and economic-financial sustainability indicators. A strong political will is noted here to evaluate and control the actual results of the initial planning and this could reinforce regional development promoting a process of institutional learning (Sabel, 1994).

The third aspect is related to the set up of inclusive and participatory decision and policy-making. Besides negotiation, which is a traditional characteristic in the Tuscany model, a great deal of attention is dedicated to other forms of involvement in the various components of a regional society. This has an important effect on defining the priorities and objectives in the regional development model from the moment that highlighted aspects are widely included and themes are promoted that would otherwise be minimally represented.

The fourth aspect is the result of the pronounced relationship between the governance of the territory by the 'physical' point of view and the promotion of regional economic development. A tight relationship exists between the Regional Territorial Plan – devoted to govern the land use – and the Regional Development Plan, according to a model that is extremely innovative in Italy. This bond is the result of the willingness to promote a development model that is environmentally and socially sustainable.

Finally, a more general, transversal and extremely important innovation concerns the new role and institutional architecture of the Regional Development Plan (and, as we will see, of the Regional Economic Development Plan (REDP)), which is now the key policy tool used to set up and control regional development policies.

In other words, the regionalised capitalism in Tuscany has some elements of innovation that coexist with more traditional features. This seems to be quite typical of other European regional experiences (see Cooke and Morgan, 1998; Anyadike-Danes *et al.* 2006; Crouch *et al.*

2001, 2004). And this mix shows a sort of institutional adaptation to new forms of international competition, according to a model of change that is similar among firms, regions and nation states (Crouch and Streek, 1997; Berger, 2005). At the same, by looking more in detail at the policy tools we can find the rationale of the new regional development strategy and it is possible to underline the specificity of the Tuscan model of development in comparison with other Italian and European regions (see OECD, 2001, 2003, 2004).

As a matter of fact, looking at recent RDP and at REDP, one can find some important policy-innovations. They are not simply general and non-defined plans, but a precise definition of all interventions and policies considered relevant by the regional government. They are operative tools of the Regional Government's Political Program that give the project indications that should be inserted, foreseeing a financial backing in the new multi-year programming for each sector.

In other words, looking at the RDP we can see that the region's development strategy is defined through the identification of some important challenges that are considered priorities for Tuscany (see section 2.2). Such challenges are then rationalised into four strategic programmes that apply to the competitiveness of the regional integrated system and the territory; the citizen, work, cohesiveness, culture and quality of life; environmental sustainability development; and finally, to *governance*, knowledge, participation, and security, intended as methods by which to carry out the specified strategic choices. The purpose of this great aggregation is to point out the possibilities, opportunities and necessities of stronger integration among the participating sectors for succeeding in overcoming the critical thresholds of the action plan's efficiency and efficacy, bringing together not only financial, but also human and organisational resources. Integration can and must involve a combination of institutional actors, social powers, public and private bodies and operational autonomy according to a mutual participation principle for challenging a stronger, broader and more diffuse *governance* capability in regional development.

For this reason the Integrated Regional Projects define specific objectives and project actions and include an evaluation of expected results as well as a definition of *performance* and economic-financial sustainability indicators, whereas actuary instruments and related financial resources are found in sectorial planning.

Therefore, from the combination of choices made with the Strategic Programs and from their realisation in the Integrated Regional Projects derive sectorial addresses that the RDP entrusts in the multi-year sectorial programming. The RDP identifies the instruments for intervening and planning the regional budget resources, nationally negotiated programming interventions and new European programming resources.

The above-mentioned regional programming model has been devised, decentralised and negotiated by the government with trade unions, employer associations and other collective actors and stakeholders. For this reason, a strong link between the RDP and the policy-tools adopted at local (sub regional) level has been fostered to promote local development, such as the Pact for local Development (*PASL – Patti per lo Sviluppo Locale*). In this way the RDP becomes an instrument of vertical coordination, between regional and local needs, exigencies and policies.

2.2 Strategy Pillars and Objectives

The general strategy, briefly introduced in the previous chapter, was divided by the Tuscany Region into twelve challenges that represent the primary objectives of the region's development strategy. To focus on these challenges is of primary importance to better understand regional policies and their recent evolution: they represent the map that guide the political action. From this point of view, the identification of these main challenges has been a

very important issue in the regional political agenda. They are the main objectives of the action of regional government and for this reason it is important to briefly recall each of them (see RDP, 2007).

The rationale behind the identification of the below mentioned challenges can be found in three main points. First of all, as we have already said, there has been a great effort to identify the main strengths and weaknesses of the region. One example is given by the volume “Tuscan 2020”, coordinated by the Irpet, that identify the major trends that the region will face within the next years, from an economic, societal and demographic point of view. This analysis contributes to identifying priorities and goals, and to choosing specific paths of development. A second point is given by the longstanding impact of the regional political subculture. Even if the red subculture has recently experienced many relevant changes (see Ramella, 2005), the regional government continues to pursue a model of development based on inclusion and cohesion; this background strongly influences the choices made by regional institutions, for example in the labour market arena. Third, it should be noted, as we have already mentioned that social concertation with employer associations and trade unions is a well-established method in Tuscany: for this reason, some priorities are not identified by the regional government alone.

These challenges can be placed into three primary groups. First, the *socio-demographic group* that concerns measures for youth and women (see specifically the first challenge). Second we find the challenges regarding *economy and the labour market* (challenges 2, 3, 4, 5). Third there are the challenges tied to territorial and infrastructural management (6, 7, 8), governance and cohesive society development (9,10,11,12). These challenges have a general character because they represent the starting points of the regional strategy: with the RDP and the REDP, a set of specific measures will be identified to deal with these.

It is important to note that the RDP and the REDP are the tools of coordination that create synergies among different objectives. As we will see, the below mentioned challenges and the policy responses to them are in a different field of policy and this could result – in absence of strong tools of coordination – in a general lack of focus of the regional strategy. For this reason, the importance of RDP and REDP as instruments of coordination is particularly relevant for this report.

In order to clearly understand the regional strategy and the regional government's objectives it will be helpful to briefly go over the contents of these challenges (RDP, 2007).

Youth and women

1. Youth, women and regional society

The first challenge pertains to youth and women. The idea of regional strategy development for youth is not so much identifying political specifications, but making the youth theme ‘mainstream’ within the various policies. Obviously there is also the idea of reaching very specific objectives, such as developing a learning system that reduces the number of those who abandon their studies, offering services that guarantee the same opportunities to study from first grade on through university for all. Another important theme for this challenge is to avoid that the “brains” moulded in Tuscany's educational institutions are forced to look for opportunities outside the region. This means to create a climate of trust and mobility that unblocks social mechanisms of immobility that obstruct the perspectives of new generations. The same is true for women. Young women are more discriminated against in employment opportunities and, although they are equally qualified, paid less and at greater risk of losing their positions. Older women, who are often alone, have on average smaller pensions due to the discrimination experienced during their careers. However, facing the women's issue in the job

market by raising employment opportunities means also realising that the burden of taking care of the home and family weighs on women's shoulders.

Economy and the labour market

2. The job challenge: quality and job-security beyond instability

The second challenge pertains to job quality and is aimed at identifying regulations for the labour market that are capable of conciliating the demand for flexibility, necessary in a modern and competitive economy with social cohesion. From this point of view, one important goal of regional political economy is to help individuals grow, guaranteeing them adequate levels of job stability. Greater job quality also means facing the job instability issue. Increased social mobility can favour an individual's enrichment and professional growth only if it does not bring about job instability, exploitation, little safety on the job, or the difficulty of satisfying basic needs: having a home, a family, a professional future, positive outlook on the future, belief in one's work values. At the same time, job quality is linked to development policies because good job quality is also essential for attracting resources and promoting productive investments.

3. The regional integrated district

As mentioned earlier, Tuscany has always been characterised by an economy centred on the role played by industrial districts and clusters of firms in more traditional manufacturing sectors (as, for example, in the Prato or Santa Croce sull'Arno areas) as well as in more modern sectors (as in the ITC in the Pisa and so-called Arno Valley area); whereas some areas are characterised by specialised large industrial firms, such as on the coast. This challenge has been pointed out in the recent regional development strategy regarding the creation of synergy among the various areas and specialisations, promoting what has been defined as Integrated Regional District. This is intended as a system capable of linking its components, starting with current articulated structures for local business systems, production centres, and large and small businesses and developing the critical mass necessary for producing innovation to be diffused regionally. This idea does not mean to abandon a territorial development perspective, but to create a regional network that keeps sectors, players, businesses, territories, research centres and credit systems together.

4. The internationalisation challenge

While continuing to look at economic strategies in regional development, an important challenge is played by the theme of internationalisation or by the will to help businesses access new markets. A particularly important role will be played from the agency *Toscana Promozione* in rationalising the programming, planning and assisting firms through economic promotions, internationalisation and territorial marketing. In order to obtain this result the Tuscany Region, Chamber of Commerce, Provinces, Provincial Agency for Tourism and public and private actors cooperate to produce business services.

5. Innovation: research and higher education investments

The importance of the region is highlighted by its support of innovative activities and, particularly, in research. In this case, attention is aimed at creating a *Regional Space for Innovation and Research*, where production, environment, health and social aspects are integrated with programmes in education and actions in information and knowledge societies. The Regional Space for Innovation and Research, coherently with directives from the Lisbon and Barcelona Councils, is intended as a system of relationships among innovative players, connecting research centres and public and private actors and the Tuscan university network, to play an important role in creating and diffusing knowledge and innovation.

The territory

6. The territorial challenge – infrastructure and logistics

One of the primary characteristics of the Tuscany territory is its great heterogeneity that creates opportunities but also problems in managing the territory. From this point of view, a lot of attention is dedicated to promoting the *Diffused Tuscan City* in an effort to interconnect each collective transport service network and private transport for guaranteeing people and goods mobility. This challenge is extended to the regional territory, rural areas, the coast and the mountains, through better links to the directors of regional development, allowing them accessibility to points of strength in the territory. But Tuscany must also connect to Trans-European networks of transport, giving incentive to railway transportation, port and airport systems, and sea and navigable throughways. From this point of view the “logistical coastal platform” is one of the priorities to develop, promoting the integration of Tuscany with Trans-European transport networks. The system’s development involves strengthening some large infrastructures: the Firenze–Pisa–Livorno corridor; the Grosseto–Siena–Arezzo–Fano highway; Tuscan’s ports, starting with Livorno; integrating the northern Tyrrhenian ports and Tuscany’s airports, obtaining a real “integrated regional airport system”. This challenge is obviously linked to the territory’s promotional management and to the region’s economic promotion.

7. Environment, resources, waste and clean energy

An important tie with the region’s strategy development can also be found in the environmental and territorial sustainability challenge. The environmental resources should be conserved, improved and prudently managed within the territory. With this viewpoint, it is crucial to correctly manage urban and industrial waste. A lot of attention is given to preserving water resources, beginning with interventions for securing the Arno River. In this challenge, a specific role will be played by the recognition of rural and mountain areas and a central role played by the energy issue.

8. The service challenge: more efficiency and liberalisation

More than 70% of the region’s production development depends on the service industry; fundamental for competitiveness in production, the operation of the welfare system and every citizen’s standards and quality of living. These services significantly weigh on the quality and price of products which are destined for the market: they represent more than one-fifth of total exports (tourism and other) and are important components in families’ consumable materials and non-materials, the regional production system’s efficiency and the population’s well-being. The challenge is to optimise the Local Public Services system: aggregate and liberalise its activity, clearly understanding the difference between liberalisation and privatisation.

Governance and social cohesion

9. The social challenge: integrated and efficient *welfare*

Another challenge in the regional plan is to develop a model of *integrated, universal, public welfare* based on social cohesion. This challenge is thus related to the will of the regional government to sustain and promote the rich social fabric of volunteer and co-op organisations that integrate and join public services. The aging population, the growing number of immigrants and the increase in the cost of living, challenge the capability of maintaining and judging the region’s social situation and can provoke intergenerational tensions between the young and old, as well as interethnic tensions between residents and immigrants. Therefore, one of the main goals of the regional government should be to guarantee assistance to people with all types of disabilities, starting with the organisation of experiences activated by the project baptised “After

Us”, (aimed at guaranteeing a future to disabled people even after they have lost their families), and the elderly who are not self-sufficient.

10. The cultural challenge: quality, rights, development values

This challenge is related to the fact that rights go beyond social *welfare*: they include access to culture as a precondition to qualified development and a founding value in society. From this viewpoint, the regional government can have an important role. It is important to remember the cultural challenges aimed at putting everyone, first the youth, in the condition to access an offering of extensive culture: culture not only creates more open, tolerant and willing dialogue, but it also makes us more capable of thinking, planning and doing and it is a necessary precondition to promote regional development.

11. The resources challenge: going beyond the region’s budget limits

The resources challenge refers to the need, which is common in many other Italian regions, to find alternative funding sources given the situation of uncertainty with public finances; making it difficult for local governments to back the socio-territorial system development.

12. The *governance* challenge: efficiency and simplification

Governance also means making Tuscany’s system efficient, improving its public administration and the relationship with its people. In this sense, the last challenge is related to the reduction and simplification of public administration. The simplification challenge has to carry transparent procedures that are capable of giving certain answers in little time. This potentially means clearly specifying the roles of all the institutional players and work so that the final result produces a concrete perception by the users that in Tuscany, public administration works better than elsewhere, that the time for getting an answer is shorter and that the costs that weigh on its citizens, businesses and other interested people are the lowest possible.

As we can see, the main challenges identified with the RDP process refer to multiple dimensions. This is an interesting point because the regional development strategy has more than just an economic dimension. On the contrary, the social dimension plays a very important role. As we shall show, behind the regional strategy there is not simply the idea of summing different aims but the will to create positive relationships between different policies. The main aim is to combine social and economic topics with the idea that long term economic competitiveness can be achieved in a society in which there is a high degree of social capital (Bagnasco 2006; Cooke *et al.* 2005; Iyer *et al.* 2005). For this reason, it is of primary importance to focus on implementation and delivery arrangements of the regional strategy.

2.3 Implementation and delivery arrangements of the strategy

As we have mentioned in the previous chapter, the first step of the regional development strategy is devoted to identify a series of challenges and some of them have a strong impact on regional economic development processes. Now it is important to analyse the tools of implementation of the strategy. It is possible to distinguish between arrangements and institutions devoted to pursue the goals of the regional strategy.

2.3.1 In terms of the arrangements

Two main tools can be identified: the Regional Development Plan (RDP) and the Regional Economic Development Plan (REDP).

These two tools include all of the most important economic development measures and they can be defined as the two cognitive maps that guide the action of the regional government

with a medium and long term perspective. Thus, these two policy-tools play a very important twofold role: on the one hand they act to **simplify** the regional strategy and on the other they are particularly useful to **coordinate** and **promote economy of scale** among many different policy-interventions.

From this point of view, the RDP and the REDP have had a virtuous impact promoting:

- **A strong integration among different measures.** The regional government adopted these two policy-tools to sustain the integration among many different measures. This is particularly important because on the one hand it produces *scale effects* among diverse policies insisting on the same kind of problem and on the other the integration trigger, a sort of *policy-mix* able to deal with complex problems with a ‘multi-faceted’ approach.
- **The coordination among tools and measures.** In order to have integration among policy-measures it is particularly important to create some devices to coordinate the action of different institutions and actors. From this point of view, the two above-mentioned Plans are the main devices of coordination among actors and measures.
- **A precise specification of measures, objectives and goals in order to facilitate monitoring and outcomes evaluations.** As we shall see, the precise and detailed description of all the contents of specific measures and tools that is possible to find in the two plans and in their sub-projects aims at facilitating *in itinere* and ex post monitoring and evaluation. At the same time, this helps the identification of political and technical responsibilities of all the actors involved in the policy making and policy implementation. Finally, monitoring and control during the policy-implementation gives the possibility to adjust the policy and to identify flexible responses to changing problems. This is particularly important because it helps to set up flexible and incremental policy making, a good practice that we believe can be exported in other regional contexts.

In the two plans the economic arena plays a very important role, and in both of them it is possible to find some of the main pillars of the Tuscan regional development strategy. In particular, the REDP and the RDP devote a lot of attention to:

- a) **Sustaining processes of active and passive internationalisation** of economic activities in Tuscany, promoting export and inward FDI and at the same time reinforcing the touristic sector.
- b) **Reinforcing industrial districts and manufacturing SMEs** promoting territorial competitive advantages for important historical production in Tuscany, such as leather, textile and clothing, furnitures and the machine tools industry. From this point of view, the political economy of the regional government aims at creating business services for SMEs specialised in traditional productions.
- c) **Promoting more modern sectors** such as information and communication technology. In this case too, particular attention is devoted to reinforce clusters among SMEs innovative firms.
- d) **Incentives and services are addressed not only towards single firms** via individual incentives, but also to networks of firms with the idea of promoting co-operation among groups of firms. The idea behind this strategy is that a ‘networked’ model of capitalism is prevailing in this region.

- e) Even if the attention to single districts is important, the regional government promote the so-called '**regional integrated district**', a model of development where the regional dimension of services and incentives is important. In other words, to promote the competitiveness of the local level it is important to set up institutions and services at the regional level.
- f) The support for innovation and research and development activities via the promotion of **public-private research centres and laboratories** and with the reinforcement of the link between universities, public institutions and private firms.
- g) **The promotion of the 'Image of Tuscany'** in foreign countries to reinforce both traditional products (with the idea of 'made in Tuscany') and to promote different forms of tourism all around the region.

To show how this strategy is turned into practice we will first focus on the more general coordination and implementation tools, the Regional Development Plan (2.3.1) and then we shall analyse the main features of the Regional Economic Development Plan (2.3.2).

2.3.2 *Regarding the institutions:*

The regional strategy is mainly implemented by the regional government. The Regional Council has the legislative power and the Executive council represents the executive branch of regional government, putting into action legislative and administrative measures approved by the regional council. From the point of view of the regional strategy, a very important role is played by the 'Assessorati' (General Directorate). The action of each Assessorati has a twofold dimension: a political one, which identifies political strategies and priorities and a technical one, which implements programmes and projects. The Assessorati have a sectorial dimension and with regards to the economic dimension, the most important Assessorati are those on 'Culture, Tourism and Commerce', 'Territory and Infrastructures', 'Productive Activities', 'Training and labour market', 'University and Research'. We have already introduced the main implementation arrangements implemented by the regional government, such as the REDP and the RDP; naturally, the regional government also adopts specific policy tools such as laws, calls, etc.

It is also important to underline the role of other institutions that contribute to the making of the regional strategy. One example is given by Toscana Promozione (TP), a regional agency devoted to promote internationalisation. TP was founded in 2001 with an agreement between the Region, Unioncamere Toscana (the regional association of Chamber of Commerce), Istituto per il Commercio Estero (National Organisation for International Trade), Enit (National Organisation for Tourism). The main aims of the TP regional agency are to promote active internationalisation, sustaining Tuscan firms in international markets, to attract FDI and other investments in the region, and to promote experiences of international cooperation. Tourism, manufacturing and food production are the main sectors of intervention of the Agency. The Agency has sites in Frankfurt, New York, Shanghai, Moscow, San Paolo and Buenos Aires, and it is one of the main instruments of implementation of the Piano Promozionale (the regional plan for internationalisation) that promoted the 2008 investments for 12.5 million euro for 193 policy initiatives: in this case TP contributes organising workshops and exhibitions; sustaining projects of internationalisation of private firms with financial support and with technical consultancy; giving consultancy and information to investors from outside the region. Particular attention is devoted to aids, in terms of legal, fiscal, financial and organisation assistance, to Tuscan firms that are investing abroad. At the same time, thanks to the action of Sprint Toscana (the Regional Bureau for internationalisation), the Agency offers insurance services and other forms of professional consultancies to private firms involved in projects of internationalisation.

Sviluppo Italia – Toscana is another important development agency. It was the Tuscan unit of the national agency Sviluppo Italia but the Tuscan regional administration has recently become the only proprietor of the Agency. The Region is promoting a process of reorganisation so that Sviluppo Italia will continue to play a very important role in the field of entrepreneurship promotion, of micro firms' competitiveness, of franchising activities and of many activities precisely targeted to young people. Sviluppo Italia – Toscana coordinates the actions of some business incubators for young people and women, especially in the territory of Massa and Campiglia Marittima.

Another example of institutions that play an important role in the development of the region is Unioncamere Toscana. Unioncamere coordinates and supports the actions of the 10 provincial chambers of commerce and is one of the most important parts in the process of negotiation of development described in this report. Unioncamere and its Ufficio Studi is also part of the regional community that gives policy suggestions to the regional government. At the same time, the provincial system of chambers of commerce that are part of Unioncamere offers specific services to firms at a local level to promote entrepreneurship.

Finally, trade unions and employer associations play a relevant role in the projection and implementation of economic policies. On the one hand, they actively participate to the set up the regional strategy through the well-established mechanism of social concertation mentioned above. On the other hand, they directly contribute to the competitiveness of Tuscan firms and workers offering real services, especially in the field of training, internationalisation and consultancy.

2.3.4 The Regional Development Plan (RDP) as a coordination arrangement

The Regional Development Plan is the main tool that is faced with many of the challenges mentioned in the previous chapter. It is a sort of a policy plan that gathers together many different specific policies that address the general regional development strategy and the political programme.

The structure and the organisation of the plan are particularly important to understand how regional institutions are trying to reach the above-mentioned goals. There is a series of measures grouped in four axes – the so-called Strategic Programs (*Programmi strategici*).

As we can see in the following tables, these programmes cover four main policy arenas: regional economic development (Regional competitiveness); citizenship and quality of life (Citizenship, labour market, cohesion, culture and quality of life); sustainability (Environmental sustainability of regional development); territorial governance (Governance knowledge, participation and security).

These four strategic programmes set the main priorities for the medium and long term actions of regional government and institutions. From this point of view, even if programmes are multi-sectoral policy tools they play an important role in addressing sectoral policies, defining their logics and goals. This means that the strategic programmes are devoted to simplify and coordinate sectoral intervention and to produce positive sum game among different sectors.

The RDP also defines the precise amount of funds and economic resources devoted to single interventions for the entire period 2006-2010.

Each strategic programme gathers together and coordinates a small number of specific policies measures (integrated projects – *progetti integrati*): in other words, there is a multi-layered system of coordination with the RDP, that coordinates the actions of four integrated projects and 24 policy measures (see Table III.9).

Box III.4: Regional development strategy, its objectives and policy tools**Table III.11: Structure of the Regional Development Plan 2006-2010**

Strategic programme	Integrated projects
Competitiveness, Regional integrated system and territory	1.1 - Regional space for research and development 1.2 - Internationalisation, cooperation and territorial marketing 1.3 - Regional integrated district and the system of regional industrial policies 1.4 - Innovation and sustainability in the touristic sector 1.5 - Innovation and quality of rural, forestry and agriculture systems 1.6 - Local public services 1.7 - Territorial mobility 1.8 - Logistic and sea transport
Citizenship, employment social cohesion and quality of life	2.1 - Quality of long-life learning 2.2 - Innovation, health and safety 2.3 - Cohesion and integration of the social and health systems 2.4 - New infrastructures for regional health systems 2.5 - Care and assistance for disabled people 2.6 - Inclusion and citizenship rights for immigrants 2.7 - Social housing 2.8 - Culture and media systems
Environmental sustainability of regional development	3.1 - Policies for sustainability according to the Kyoto Treaty 3.2 - Sustainability and competitiveness of the energy system 3.3 - Governance of water resources 3.4 - Sustainable development of mountain system
Governance, participation and security	4.1 - Participation, governance, security issues 4.2 - Information society, e-government and citizenship rights 4.3 - Coordination of territorial policies in urban and metropolitan area 4.4 - Efficiency, reorganisation and simplification of public administration

In Table III.11 we see that even if we can find relevant diversities among different interventions, it is possible to identify the main pillars we introduced above, namely the fact that the region is pursuing a model that combines social cohesion (policy measures 2.3, 2.5, 2.6, 2.7, 4.1, 4.2) with economic competitiveness (measures 1.1, 1.2, 1.3, 1.4, 2.1, 2.2) in a general framework based on social and environmental sustainability.

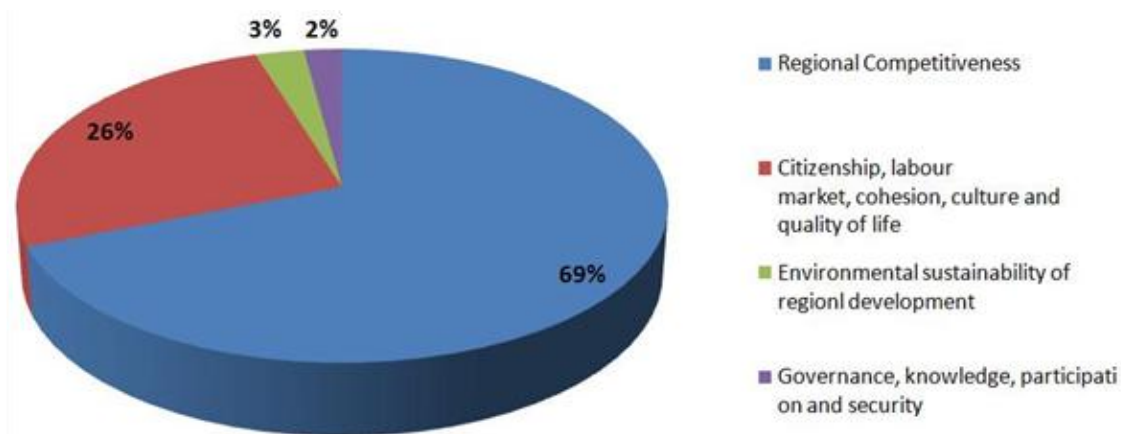
In this framework of action, the first issue - regional competitiveness - receive the highest amount of public funding with 2 571 million euros directly funded by the regional government and with a total funding of 7 000 million euros (which includes regional, national and European lines of funding) (see Table III.12 and Figure III.5). This means that around 70% of total regional funds included in the RDP are dedicated to the regional economic strategy. A second important bulk is given to the ensemble of measures devoted to the topic of Citizenship and cohesion, funded especially with EU initiatives, that covers 25% of total regional spending; then, measures on Sustainability (3% of regional spending) and Participation (2%).

Table III.12: Regional funds and total investments for the period 2006-2010 (millions of euros)

Strategic programmes	Regional funds	Total investments*
Regional Competitiveness	2 571	7 742
Citizenship, labour market, cohesion, culture and quality of life	977	6 111
Environmental sustainability of regional development	101	812
Governance, knowledge, participation and security	79	158

Note: * This also includes EU funds and other non-regional forms of funding

Figure III.5: Regional funds for integrated projects



The analysis of the first Strategic programme shows that resources are distributed not in a homogenous way and that *Mobility and infrastructure* attract 2 200 million euros, that is around 60% of regional funds devoted to this integrated project (IP). A large amount of funds are devoted to these measures for two reasons. On the one hand, this measure includes contracts and agreements with Trenitalia (National Rail System) for regional and local rail transport and this increases the amount of money dedicated to *Mobility*. On the other hand, the improvement of transport infrastructure is, in fact, one important topic of the regional strategy and this kind of investment absorbs a lot of funds.

As emerged in many interviews, another policy measure that plays a very important role in this IP is the *Regional integrated district* with 95 million euros from the Regional Government. We shall briefly see the main features of these two specific policy initiatives in section 2.4.

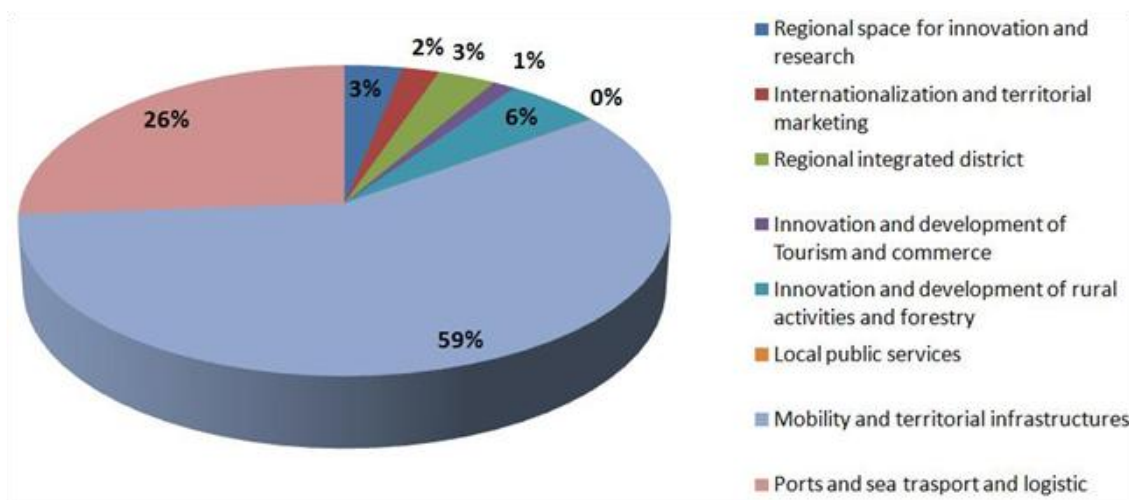
Finally, before analysing the Regional Economic Development Plan, it is important to underline that even if the first integrated project (competitiveness) deals with the regional development strategy, some measures devoted to competitiveness can also be found in the second strategic programme, especially in those initiatives concerning labour market regulation and labour policies (see Table III.13). Even if we do not focus on this topic in this report, it is

important to underline that a significant effort of the regional government is related to active and passive labour market policies (see Alacevich, 2007).

Table III.13: Regional funds and total investments in the Strategic programme one
(millions of euros)

	Regional funds	Total investments*
Regional space for innovation and research	126	250
Internationalisation and territorial marketing	68	156
Regional integrated district	95	249
Innovation and development of Tourism and commerce	59	95
Innovation and development of rural activities and forestry	0	415
Local public services	0	3
Mobility and territorial infrastructures	2 223	4 546
Ports and sea transport and logistics	0	2 028

Figure III.6: Regional funds and total investments in the strategic programme 1

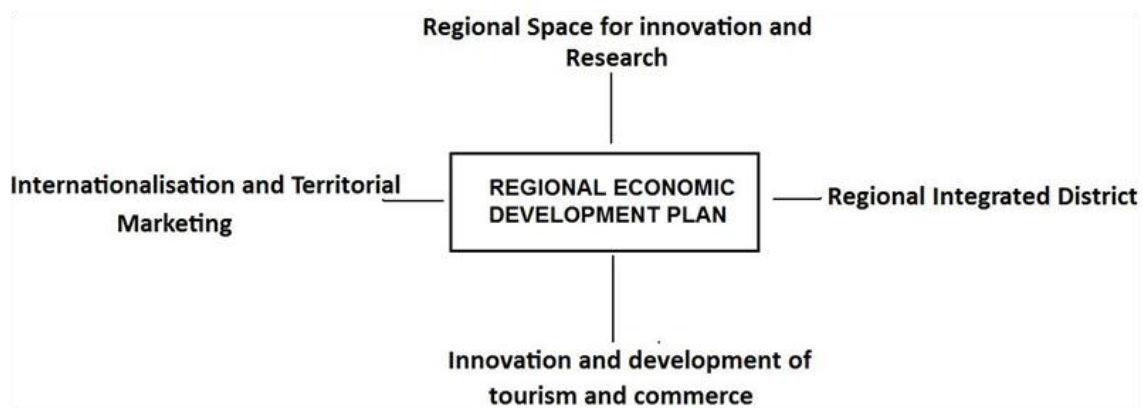


2.3.5 The Regional Economic Development Plan and the 'golden triangle' of regional economic development

The Regional Economic Development Plan (REDP) is the second implementation and coordination arrangement of the regional development strategy that we decided to focus on (Figure III.7). It promotes a model of economic competitiveness that is coherent with the main contents of the RDP. In particular, the REDP focuses on the first four policy measures of the first integrated project of the Regional Development Plan: the Regional space for innovation and research; Internationalisation and territorial marketing; Regional integrated district; Innovation and development of tourism and commerce. For each of these measures, the REDP defines general and specific aims.

The rationale that underpins the REDP is related to the idea that there is sort of 'Golden Triangle' that is behind regional competitiveness. This triangle is based on three points. The first one is the reorganisation of industrial districts and of interfirms' networks, and in particular on the project of a regional integrated district. The second one is the support of innovation in traditional and in more modern sectors. The third one is related to the growing support of territorial marketing activities to promote export, FDI and tourism.

Figure III.7: The Regional Economic Development Plan and its four axes



At the same time, it should be noted that there are three mainstream ideas that are the backbone of the REDP. The first is that this model of regional political economy is based on incentives addressed not only to single firms but also to networks and clusters. This is an innovative and very important element of strength of the regional development strategy of Tuscany. The second mainstream idea is related to the contents and structure of industrial policies: the aid for this model of development is not simply based on direct incentive to firms but also on the production of external economies and of territorial competitive advantages. In other words, there is a collective effort to produce an institutional environment able to foster economic competitiveness. The third point is that regional government makes a strong effort to balance economic competitiveness with social cohesion and environmental sustainability.

This is clear if we look at the four axes. The first one, for example, shows the importance dedicated to the promotion of innovation in traditional and more modern activities. The main idea is to support process and product innovation in traditional industrial districts - such as the textile district of Prato or leather production in Santa Croce sull'Arno characterised by incremental innovation - and at the same time to reinforce clusters of innovative firms via the promotion of radical innovation. For this reason, these measures include funding for technological transfer as well as the making of laboratories and other infrastructures specialised in research and development.

This measure of the plan aims at giving support to the regional space for research and innovation. The main idea is to promote industrial research and technological transfer via the reinforcement of regional knowledge-based networks. The multi-level governance of these networks reinforces their links with local production systems and with international chains of knowledge production. As for the specific aims and tools, this axis set up:

- a) Policy tools addressed at reinforcing research for industrial activities to promote process and product innovation.
- b) Valorisation of productive specialisation for every kind of networked organisation of production (districts and industrial *filiere*, subsupplying, strategic group, local systems specialised in ITC activities).
- c) Policy initiatives to support technological transfer and business services to match with the specific demands of firms and to create virtuous links between different productive sectors.
- d) Support for investment programmes of single firms for the improvement of their technology and the system of quality assurance.

- e) Favours and financing corporate social responsibility and promoting the ethics of social responsibility among entrepreneurs through, for instance, the funding needed to achieve international CSR standards.
- f) Set up tangible and intangible infrastructures, such as public-private research laboratories and centres.

Looking at specific policy measures it is possible to better explain this logic. For example, the first policy line – Reinforcement of industrial research and development: the Technological District – aims at sustaining innovation in specific activities such as design and manufacturing processing, nanotechnology, life sciences, chemical and pharmaceutical production, robotics, optical and electronical systems. For each of these specialisations a Committee of Experts (Tavoli Tecnici di Prospettiva) will identify priorities and interventions, in a general framework which sustains: a) a process and product innovation b) the increase of competitiveness of firms specialised in high value-added activities c) the set up of ‘mainstreaming’ technologies, able to foster competitiveness in traditional sectors but also to trigger a process of clustering among high-tech firms d) the making of environmentally sustainable and energy saving technologies e) the rise of the level of health and safety for workers. The aids are devoted to individual or groups of SMEs and large scale firms, with an external committee of highly-qualified referees that evaluates each project in terms of possible outcomes and viability.

All of the measures included in this first axis have three main points in common. These policies are not simply addressed to individual firms but also towards networks and small groups of SMEs. Behind this, there is the already mentioned idea that emerging forms of capitalism are based on networks and interfirm relationships; in other words, the relational dimension of modern capitalism is one of the main cognitive pillars of the regional strategy of Tuscan government. There is a strong focus on the production of the so-called external economies: real services and tangible and intangible infrastructures devoted to produce knowledge and innovation. From this point of view, the regional strategy aims at producing an institutional environment that favours the competitiveness of regional firms. These goods are devoted to small sized firms but also to medium and large scale firms that can play a very important role in triggering regional economic development (on the role of large firms see Hancké 2002; Kristensen and Zeitlin, 2004, Bellandi, 2003). The model of development is based on social responsibility of regional capitalism: there is a relevant focus – as we will see in the next chapter – towards the triggering of practices of social responsibility of firms (CSR). As a matter of fact, Tuscany is a region that has been considered as a ‘good practice’ for CSR policies.

The second axis deals with the topic of internationalisation and territorial marketing, sustaining firms competing in foreign markets and promoting the brand of Tuscany. Policy tools for this area are related to:

1. The direct promotion of regional products in foreign markets.
2. The attraction of Foreign Direct Investments that fit with the already existing specialisation of Tuscan local production systems.
3. The support of the regional systems touristic promotion and marketing.

The first point is related to the promotion of territorial marketing for Tuscan products in foreign markets. Tuscan manufacturing firms direct their products and goods towards markets in which there are a high and growing number of international competitors. For this reason, efforts and policies to reinforce the competitiveness of regional firms in these foreign markets are at the top of the political agenda. But at the same time, the promotion of the ‘image of Tuscany’ is of

primary importance for attracting foreign resources and investments and especially for reinforcing the touristic sector, trying to promote high-quality tourism.

One example of this axis is given by the measure ‘Economic promotion’ that recast all the activities of promotion of the region, rationalising services produced by regional authorities, reinforcing the role of the regional Agency Toscana Promozione, creating ‘economy of scale’ among different interventions, dedicating many efforts to promote small and micro artisanal firms in foreign markets, focusing a major attention on the promotion of the regional territorial brand. In this framework, Toscana Promozione prepares a report each year on the activities carried out and a programme of initiatives (*Programma annuale delle attività di promozione economica* and the *Quadro di riferimento operativo regionale*) which has the role of coordinating all the interventions of the region in the promotion. The interesting point here is the effort to create a sort of multidimensional regional territorial brand – aimed at supporting export but also attractiveness of FDI or the development of different kinds of tourism – that has a lot of ‘internal’ coherence: different measures follow a similar logic of brand and pursue similar goals.

Axis 3 deals with a topic we introduced in the first chapter, when we emphasised that industrial districts are the core of manufacturing competitiveness in the region. We also emphasised that there is a strong attention devoted to this kind of local system by the regional government. Measures of this axis aim at increasing efficiency of local production systems via support to the process of re-organisation and diversification of industrial sectors towards sectors characterised by higher levels of knowledge.

Here it emerges clearly that regional policies promote the restructuring and the reorganisation of manufacturing firms of industrial districts producing and offering well targeted services and infrastructures. In particular a lot of attention is dedicated to the so-called Regional Integrated District, a complex of coherent actions with a regional – and not local, this is particularly important - scale of action to create and reinforce an integrate system of relationships between different local production systems. From this point of view, the regional dimension of political economy gains a lot of importance in comparison with the past. The main idea is to create a ‘district effect’ at a regional level to produce at a larger scale the typical external economy and competitive advantages of the Marshallian industrial district: labour and production flexibility, firms’ efficiency, the diffusion of knowledge, the sharing of crucial information.

At the same time, a lot of attention is devoted to reduce the environmental impact of this kind of production, that is particularly relevant for leather and textile production, and to reduce gender and age disparities in local labour markets, reinforcing the environmental and social sustainability of traditional industrial districts.

As for specific policy-intervention, this axis fosters:

1. The promotion of processes of change of organisational models of firms favouring the creation of networks, mergers and the re-organisation of subsupplying relationships.
2. The reduction of environmental impact and saving energy through infrastructures and the financial support for firms adopting energy-saving practices.
3. The favouring of technological transfer among firms.
4. The reinforcement of physical infrastructures for economic development (logistics, industrial areas, ITC infrastructures, etc.).
5. The promotion of bank and credit systems.

Finally the fourth axis regards the support of the touristic sector with the set up of specific policies addressed to promote services for attracting tourism for urban and metropolitan areas such as Florence, Pisa, Lucca, Arezzo, Siena, and other urban contexts. This axis also includes measures devoted to other kinds of tourism, for mountain areas, costs, thermal local systems, and so on.

Here the main goals of specific policies are:

1. The improvement of public action and policies to match, with demands and needs of touristic firms.
2. The improvement of touristic services in urban and metropolitan areas.
3. The reinforcement of the system of promotion and communication and territorial marketing.
4. The support of innovation, qualification, training of firms and workers in the touristic sector.

Here examples of the strategy can be found in measures of territorial marketing, aimed at promoting different kinds of tourism: a particular effort is given to sustain tourism related to a) urban context with a longstanding cultural tradition b) to business travels related to exhibitions and congresses c) typical food, high quality rural products, slow food programmes d) thermal and wellness activities. Toscana Promozione and the provincial offices for tourism promote public and private local initiatives. Among the main priorities is communication and information on all the different kinds of tourism possibilities, and the devotion of a special effort in creating synergies amongst them. The Technical Committee for monitoring and coordination has the role of examining projects and proposals. Particular attention in the regional strategy is devoted towards the so-called *Prodotti Turistici Tematici* (Touristic Thematic Products), to trigger a sort of integrated tourism and to reinforce the regional *filiera*: specific actions for marketing and advertising in journals and magazines, TV spots, web-promotion, direct marketing with newsletters or webmagazines, together with carrying out research and studies, co-marketing activities with specific airports and flying companies, press tours with specialised journalists, set up of promo-education for firms and professionals in the touristic sector, making special exhibitions, set up of a wide and attractive agenda of events, organisation of competitions, implementation of the website (www.turismo.toscana.it).

2.4 Sample of main policy programmes and tools

In this chapter the attention is devoted to briefly introduce some policy tools that are good examples of the above mentioned aims and strategy. They are more specific to the coordination and implementation arrangements introduced in the previous chapters.

In particular, we will briefly show the main features of two policy tools in which the RDP and the REDP invest a considerable amount of resources and attention, such as the measures on transport infrastructure and network, which is a crucial point of the regional economic development strategy. The other very important issue is given by the Regional Integrated District that we have already introduced above.

Then we will focus on policies aimed at "Reinforcing of the process of integration and cooperation among firms", at "Promoting the internationalisation of manufacturing SME", at "Sustaining product and process innovation of Tuscan firms", and at promoting practices of Corporate Social Responsibility. Finally, we will focus more in detail on two policies that many interviewed identified as highly innovative, such as policy-initiative to sustain credit for private firms and initiatives to promote technological transfer.

2.4.1. Regional transport infrastructures

Regional transport infrastructures are of primary importance in the regional development strategy, and the regional government identified a set of public interventions for reinforcing local public transport and the physical infrastructures for road and rail mobility. The Regional Development Plan coordinate a series of interventions from the Regional Plan for Mobility and Logistic (Piano Regionale Mobilità e Logistica - 2004), the Framework Agreement on Infrastructure (Accordo di Programma Quadro sulle Infrastrutture - 2000), the Contract Program between Central State and the Region General (Accordo di Programma Stato/Regione 2002), Urban Plans for Mobility (Piani Urbani di Mobilità) and the Regional Operative Program (Programma Operativo Regionale FESR 2007-2013) and the RDP directly promotes specific policies related to physical infrastructures, services and technologies related to integrated regional transports

As for the physical infrastructures the policy effort is devoted to:

- Complete regional rail infrastructure for the National transport for ‘High-Speed trains’ within the metropolitan areas of Florence, and set up its effective connection with the network of regional and metropolitan transports.
- Reinforcement of infrastructures for road mobility, especially highways, with the finishing of the coastal highway (including the connection with the ports of Piombino and Livorno) and the creation of the third route in the highway from Barberino to Incisa.
- The creation of the regional database of relevant roads of communication and the restructuring of regional roads.

As for services:

- Support for the development of Urban Mobility Plans (Piani Urbani della Mobilità) aimed at favouring the improvement of transport and the environmental sustainability in cities.
- The creation of a regional centre for the monitoring of road transport safety and the set up of the Regional Agency for Road transport Safety (Consulta Regionale per la Sicurezza Stradale)
- Improvement of regional rail transport schedules and timetables.
- Development of information and communication for citizens and other kinds of clients, with the set up of a well-targeted website on regional mobility and transport

As for technologies related to integrated regional transports, the policies aims at promoting:

- The creation of a network of public/private actors and firms (and consortia) for the road transport system
- An experimental set up of a new system of payment for users of highways in Tuscany

2.4.2. The Regional Integrated District

The main purposes of interventions associated to the Regional Integrated District are related to the reinforcement of the process of reorganisation of industrial districts and of clusters of innovative firms. Policies of the Regional Integrated District are dealing with research and

development activities design, quality improvement and with marketing and commercialisation of products, especially in the Made in Italy sector (textile, clothing, leather, jewellery, etc.). Together with the direct help to single firms and networks, the regional strategy aims at creating an institutional environment favourable to economic development, reinforcing and promoting the improvement of the system of regional logistics, transport, and the banking system. At the same time, it should be noted that an important added value of the project of the Regional Integrated District is the idea of providing a relevant support to local production systems without a ‘localistic’ approach: public intervention will be devoted to reinforce the regional scale of public policies in term of territorial competitive advantages.

The specific policy tools set up to reach this goal are:

- The support of processes of organisational change aimed at favouring the creation of formalised networks of firms or mergers and acquisition for at least 40 projects per year. Promotion of the restructuring of subsupplying networks, even beyond the local and regional arena, to increase firms’ efficiency.
- Financing technological innovation, organisational innovation, health and safety practices, and the improvement of the quality of work; with direct incentives on the one hand and an increasing role played by banks on the other.
- The reinforcement and rationalisation of tangible and intangible infrastructures via the reinforcement of service centres for firms in the field of research and development activities and the set up of public-private research laboratories. The territorial scope of action of these infrastructures is regional and not local.
- The support of production diversification in traditional industrial districts, especially for those kinds of production and firms (such as artisanal firms) that are weakened by globalisation pressures.
- The creation of specific funds for promoting the start up of innovative firms and the creation of one public-private research laboratory per year, the set up of four networks of firms for technological transfer per year, the provision of public support for venture capital initiatives.

2.4.3. Measure to promote processes of integration among firms.

This policy tool aims at promoting the re-organisation of the productive filiera thanks to processes of merging, acquisition and integration among firms. These processes lead to the rise in efficiency of productive processes in networks of firms.

To reach this goal, this policy tool finances the acquisition of firms or productive units, mergers, the set up of consortia among firms and the creation of formalised groups of firms. To be financed these initiatives must demonstrate commitment to improving the organisation of the productive processes, increasing the efficiency of interfirm relationships (thanks, for example, to innovative logistics for production activities); to favour the exchange; and to increase the capability to compete in final markets.

The policy is targeted towards SMEs specialised in manufacturing activities, transports, advanced business services, and other public services. Firms can spend public funds to acquire tangible resources such as instruments and machinery, buildings, land and office premises. Public funds can also be adopted to acquire intangible goods such as patents, licenses, and specific know-how. The payment of consultancies is allowed, if it is devoted to offering aid for technological innovation (such as consultancy for the productive process), for organisational innovation (such as consulting for financial issues, health and safety, obtaining quality

standards, etc.), for commercial innovation (promotion of products in new markets, market research, search of new international partners, marketing, etc.). Finally, public funds can be obtained for the participation at national and international exposition and events. In the case of expenses related to consultancies and participation in events and expositions, firms can obtain up to 50% of costs. As for other kinds of intervention, the public contribution reaches 15% of total expenses for small firms and 7.5% for medium firms (the size of firms is defined by regional and national regulation).

2.4.4. Policy tool to promote processes of internationalisation

These incentives are devoted exclusively to single or groups of SMEs for projects of investments beyond the Eurozone.

The policy is targeted towards SMEs specialised in manufacturing activities, transports, advanced business services, and other public services.

Public funds can be adopted to:

- Participate in expositions, covering enrolment fees for the participation in the exposition, rent and set up of the stand, payment of translations, insurance and so on.
- Set up offices in foreign countries, covering the payment of furnitures, technical infrastructures, rental space, and salaries of office employees.
- Use consultancies for setting up a plan for commercialisation of products in the foreign market, for legal and fiscal consultancies related to the project, for the creation of commercial networks, for the creation of websites, and so on.

Incentives can cover up to 50% of total costs; projects should have a total cost in the range of 50 000 to 150 000 Euros.

2.4.5. Policy tool for the pre-competitive development of products

This is devoted towards projects that will last no more than 18 months, devoted to transforming the results of research activities into a plan, a productive process, a product or a design that can be sold in the final market. The intervention finances the set up of a 'non commercial prototype'. In some cases (such as in textile, leather, or jewellery sectors) activities for the creation of innovative products, including the phase of testing in specific laboratories, can also be funded. The total cost of the project should not exceed 750 000.

Public funds can be adopted to:

- Cover the cost of machinery and other instruments dedicated to the project.
- Pay the gross salary of researchers and technicians employed with both open and non-open ended contracts, for the effective period dedicated to the project, for a maximum of 210 000 Euros.
- Finance consultancies devoted to covering technical and scientifically relevant competencies.
- Cover other costs related to the project, such as the cost for gross materials and products, materials for testing, etc.

- Cover costs related to patents. In this case funds cover part of the cost to prepare and obtain the patent in Italy and in other countries.

It is important to briefly recall the important effort of the Regional government to promote Corporate Social Responsibility practices. The regional government launched a project called 'Fabbrica Ethica' in 2002 and since then the regional public policies directly offer incentives to firms that are introducing and pursuing the officially recognised and certified practice of CSR. The set up of the Regional Committee on CSR, in which all the major regional stakeholders participate, aims at monitoring and identifying good practices of Tuscan firms and promoting specific policy-actions devoted to the wide range of productive specialisation that characterises the Tuscan economy. An interesting feature of this tool is given by the Regional Ethic Committee for Corporate Social Responsibility Practices (Commissione Etica Regionale) in which trade unions, employer associations, NGOs, Universities and other institutions participate. Finally, of particular importance is the project 'Felafig' for firms and networks of firms in the sector of leather production. In 2006 an important Regional Law on CSR directly supported firms that are adopting real CSR practice with an impact on local and extra-local society.

2.4.6. Policies aimed at sustaining investments of private firms.

One of the main weaknesses of Tuscan firms is the poor capability of SMEs to raise funds to promote product and process innovation. The regional strategy faced this problem developing a series of innovative tools. First of all, the regional administration signed an agreement with regional banks for the financing of private firms (Protocollo d'intesa tra Regione Toscana e le Banche del territorio): the regional bank system agreed to create a special fund dedicated to finance firms covered by the agreement (for a total of EUR 1.9 billions). The regional government agreed to create special tools for firms that were financed in order to guarantee banks for the loan. The regional public guarantee covers from 60% to 80% of the loan and it is given to private firms according to special conditions (especially in terms of price). Loans guaranteed by regional funds have competitive interest rates (with a spread that varies from 0.60% up to 1.55%).

The strategy to promote fundraising for private investments is based on a series of specific instruments.

First of all, three initiatives funded by the regional government (Fondo Speciale rischi per la prestazione di garanzie e controgaranzie; Fondo di garanzie per gli investimenti; Fondo di garanzia docup 2000-2006) offer guarantees for internationalisation activities, such as the making of new firms abroad, the acquisition of part of foreign firms' capital, the participation in international calls and competitions, for the making of joint ventures, for marketing and promotion of Tuscan products; the participation in venture capital experiences; the set up of new firms; experiences of micro-credit for small entrepreneurs; investments in tangible goods such as physical infrastructures, machinery, etc.; the acquisition of intangible goods, such as licences, patents, know how, brand, software, non-patented technical knowledge. The maximum investment that can be guaranteed is 500 000 euros for a period of more than 60 months.

Secondly, the 'Early Stage' policy instrument is specialised in promoting new firms. In this case, the regional administration directly participates in the capital of firms for financing projects based on high technology up to a maximum of 500 000 euros. The funds are devoted to a) seed financing, to promote research activities, testing new products, the creation of prototypes, market research and the creation of a business plan; b) start up financing development activities for the conversion of the experimental prototypes into industrial products, activities of commercialisation.

Thirdly, the SMOAT fund (Sistema di microcredito orientate e assistito), devoted to promote local development by sustaining the start up of new firms with financial and non-financial incentives and promoting social inclusion and cohesion. In this case, beneficiaries can, on the one hand, obtain funds without the need to provide any guarantee, and on the other they can use a series of services to improve the competitiveness of new firms. These services can be grouped into three main strands. A) initial training, moral support, set up of the map of competences of the entrepreneurs, evaluation of business risk, identification of market opportunities, information on local networks of actors involved in the specialisation of the firm, consultancies on laws and norms on social security and on health and safety topics; B) Tutoring: support for marketing and commercialisation, for the distribution of the product; C) Technical assistance: technical aids to create plans for the realisation of the product, financial consultancies, assistance to create and participate in networks of firms, assistance on norms and laws that cover the productive processes of the firm.

This kind of tool has many relevant critical points for its implementation: it needs high technical assistance to function. The regional administration chose to have the support of Fidi Toscana, a public-private agency funded during the mid-seventies thanks to the action of the regional government and the banking system. Fidi Toscana aims at promoting the growth of SMEs favouring the access to financial resources and it actually runs many of the above-mentioned tools. The role of Fidi Toscana is of primary importance in their management.

With the above mentioned practices the regional government promotes and facilitates the possibility to find funds for investments for private firms and in part cover the risk of credit promoting a virtuous circle between firms and the credit system. This is particularly important given a) the importance of capital based investments for Tuscan firms and b) the prevalence of small scale firms without internal financial resources to promote massive investments. At the same time, offering guarantees is also a possibility to steer regional economic development, promoting some kind of investment over possible alternatives. Finally, the use of guarantees for loans provided by the banking system gives opportunities to promote scale effect in the use of public funds. It is also worth noting the importance of the Protocollo with the regional banking system that confirms the character of ‘negotiated development’ of the regional strategy.

This practice also favoured a further reorganisation and rationalisation of financial activities of the regional government in order to improve the efficiency and to better meet the Basel 2 lines of regulation. The rating of firms and private initiatives will be carried out by Fidi Toscana and not by the bank system. Moreover, the Regional Administration is gathering together all the above mentioned measures in two main lines of intervention. The first one is the making of a Guarantee Fund able to meet all the Basel 2 requirements to offer a financial guarantee for a) tangible investments in terms of machinery, plant, building, physical sites, etc. b) intangible investments (technology transfer, licenses, know how, participation to exposition, patents, etc., c) financing of mergers d) micro-credit. The second line is dedicated to the promotion of organisational change in bodies and institutions related to guaranteeing (*Interventi di sostegno alla patrimonializzazione e all'evoluzione organizzativa degli organismi di garanzia*). In this framework the regional administration is now implementing the new venture capital fund Toscana Innovazione that will be active in the next few months to invest directly in capital of firms and projects with a very high innovative profile.

2.4.7. The regional plan for innovative actions

A second tool of the previous cycle of regional planning is the Regional Plan for Innovative actions (PRAI IT), funded with European funds. This initiative was aimed at promoting networks between universities, private firms, research centres, services centres, etc. The initiative addressed four main goals: a) promoting technological transfer and innovation in the western part of the region b) sustaining innovation and technological transfer in leather, textile and clothing sectors, c) sustaining innovation and technological transfer in optometric

sector d) sustaining innovation and technological transfer in biotechnology. Thus, the programme had one territorial target - the first goal - and three sectorial lines of intervention.

The main rationale behind the programme is to stimulate processes of cross fertilisation of ideas and innovation among different actors and institutions. The main focus is devoted to creating interactions between systems of small and medium scale firms and regional and local institutions.

The first step of this strategy was a process of ‘territorial mobilisation’, with many meetings with local and regional actors such as employers’ organisations, research institutions and firms to widen the knowledge of the programme and its opportunities. The second step was the making of public calls that included answers to the needs that emerged in the first step. Each call included a rule for the reinforcement of networking activities: each project had to dedicate at least 15% of the financial resources to networking. Similar rules directly promoted processes of cross sectoral and inter-institutional cooperation and fertilisation. The programme started at the beginning of 2002 and ended two years later, for a total cost in terms of public funds of 6 million euro; the minimum public co-funding of private activities was around 28%. The managing of the programme has been carried out by a Committee of the Program (CP) with the Regional Ministry (Assessore) for Productive activities, the Director of the Directorate for Economic Development, the responsible for the area of research and innovation on behalf of the regional administration and with representatives of trade unions and employers’ associations. The Committee worked to the projecting, implementation and monitoring of the programme. A Committee for the implementation of the programme (CIP) was in charge of assisting, from the technical point of view, the action of the CP: the CIP had a monthly meeting throughout the entire programme to assess the state of advancement and to prepare technical assistance for the CP. Finally, a technical committee with independent experts was in charge of the selection of the projects.

The programme stimulated the application of 36 projects with the participation of 484 actors (firms and other kinds of organisations); a strict selection chose 14 of them for a total involvement of 227 actors. The average number of participants in the selected programme was higher (16 actors per project) than those of presented projects (13 actors per project). Groups of SMEs and Universities and research centres play a very important role in all of the projects. Evaluation procedures gave a lot of attention to the composition of the network behind each programme: in each case the nature of the network accounted for 1/5 up to 1/3 of the total score. The criteria for the selection of participants were: a) their excellence in the field of research, b) the local embeddedness in the territorial area of the project, c) total cost of the project, d) direct interest in the exploitation of the result of the project. The criteria for the selection of projects were: a) degree of innovation in the field of action, b) number of firms involved in the project, c) real impact in the capability to face the needs of the SMEs system (impact and possible beneficiaries), d) transferability of results in other territorial contexts, e) percentage of private cofunding of the project, f) the presence/absence of direct links with already existing initiatives of R&D in the western part of the region, g) possibility to create long-lasting forms of institutionalised cooperation among the actors involved in the project.

The large amount of attention given to monitoring of the programme, the accurate selection of projects, the rules for the public-private networking and for inter-institutional dissemination and fertilisation, the attention towards the composition of networks reinforcing the work of the programme, the push towards the territorial dimension of projects, the trigger of processes of cooperation among actors that usually do not cooperate, all helped to create a positive outcome for the programme. The first line of projects, promoting technological transfer and innovation in the western part of the region, activated a partnership of 89 actors, for a total of 21 research activities on new products and 21 prototypes, 12 common workshops and 7 websites. Four projects were approved for the second line - sustaining innovation and technological transfer in leather, textile and clothing sectors – for a total of 59 actors, carrying out 26 research projects,

8 prototypes, 7 workshops, and 5 websites; a total of 400 firms were involved, in some form, in these projects. The third line - sustaining innovation and technological transfer in optometric sector – activated networks for a total of 51 actors, with an outcome of 9 innovative products, 4 prototypes with 15 different processes of testing, 20 workshops, and 10 websites. Finally the fourth line of action - sustaining innovation and technological transfer in biotechnology – promoted networks for a total of 18 actors directly involved in 6 prototypes, 1 website, 7 publications, and 2 workshops.

The PRAI IT programme was monitored and evaluated by a research institute (IRIS) that gave an overall positive evaluation of the programme and of the projects approved. It is worth noting that the programme had a second cycle the PRAI VINCI (Virtual Innovation and Cooperative Integration) dedicated to promoting Virtual Enterprise/Virtual Organisation – the first step of cooperation among different firms with no previous cooperation experience. Thus the VE/VO is an instrument to promote the making and the innovative governance of new inter-firm networks in the major productive specialisation of Tuscany, in the field of innovation and technological transfer. The main aims of the Vinci program are still to promote inter-firms cooperation and technological transfer, two of the main weaknesses of the Tuscan model of development.

Summing up, many specific policy tools are addressed at promoting innovation, internationalisation and social and environmental sustainability in the economy of the regions offering valuable suggestions for the academic debate on industrial policies (Varaldo, 2005) and the debate on the economy of knowledge (Rullani 2004). These policies contribute to the set up of an institutional environment that is different from many other Italian regions, especially from the so-called Mezzogiorno (Viesti 2000a, 2000b).

3. Outcomes of the strategy

As we have underlined in the previous chapter, the strategy of regional development experienced recent and interesting changes. We decided to focus on the more recent features of the model of regional political economy. One of the elements of major interest is that this model is devoted to promoting regional development and not simply regional economic growth; in other words, there is a relevant focus on combining economic competitiveness with social cohesion and environmental sustainability. A second important point is that these policy efforts are devoted to promoting a model of durable development, identifying objectives and pathways of development for the medium and long run.

For these two reasons – the newness of the strategy analyzed and its long term perspective – it is difficult to have data on the outcomes and on the extent to which the policy-objectives have been achieved.

However, it is possible to analyse data on phenomena related to many of the goals of the regional development strategy of recent years, prior to the policy-tools above analysed. This analysis has a twofold advantage. On the one hand, it offers valuable information to evaluate, in the long run, the regional strategy of the past; on the other, it helps us to understand if the recent policy strategy - namely the last RDP and REDP - addressed valuable and effective targets.

Thus, the analysis of statistical data will offer indirect and useful information for the evaluation of the regional strategy. But, and this is very important to underline, this is only an indirect evaluation of the regional development strategy: on the one hand it does not deal with more recent processes and on the other there are many and very important variables other than the regional strategy that influence the processes analysed here.

At the same time, a more targeted policy evaluation based on the contents of press reviews and interviews will be carried out. We shall start with the analysis of data and then we will shift to press review and interviews.

As for the analysis of data, looking at the labour market impact of the overall regional development strategy it is important to note that the employment rate is still far from the Lisbon objectives (63.7%) but it is higher than the national average and it is similar to other central and northern regions. Looking at the trend of the period 2000-2005, we can see that the employment rate rose 3.5 points, less than the rest of Italy (4.9) and less than the rest of central and northern regions (5.4). Similar features can be observed with regard to the active participation in the labour market: the participation rate is higher than the national average (67.3 vs 62.4) and at the same level of central and northern regions (67.3). In term of growth, the participation rate recently grew in Tuscany more than in the rest of Italy (3.3 vs 2.2) but less than in other central and northern regions (4.2).

It is also interesting to look at the dynamics of the unemployment rate. The unemployment rate is not particularly high in Tuscany (5.3%), even if it is higher than in the rest of central and northern regions (5.4%). Again, the Italian unemployment rate is higher than in Tuscany (7.7%) but the decrease in unemployment has been lower in Tuscany than in the rest of Italy (-3.3% in Tuscany vs. -18.8% in centre-north and -23.9% in Italy). Conversely, the youth unemployment rate grew at a very high speed in the period 2000-2005 while in the rest of Italy it was declining: +31.1 in Tuscany, -3.1 in the Centre-North and -11.3 in Italy as a whole.

Looking at data on the labour market per sector of economic activity, the crisis of manufacturing activities in the period 1999-2005 clearly appears. Manufacturing employment decreased 13.8% while at the national level the decrease was 4.1%. There are sectors that experienced a positive performance such as construction, commerce and business services but the rise is lower than the national average. On the contrary, hotel and restaurant and transport have performed better than the national average, confirming the strength of the touristic sector in Tuscany. The total growth of employment in private activities (that also includes other sectors not included in table, such as energy) experienced a growth of 2.6% versus 12.7% at the national level.

As for innovation, looking at the number of patents we can see that firms in Tuscany have not been able to produce a high number of patents. The density of patents per inhabitants is lower than the national average and even lower than central and northern regions. However, this level is growing in Tuscany faster than in the rest of Italy.

This feature is also related to two main features of innovative sectors of the region. On the one hand, manufacturing firms of industrial districts are specialised in the so-called *Made in Italy* (textile, clothing, furniture, leather, jewellery) that is mainly characterised by incremental innovation. In these sectors the role of patents is not so important, even for high-quality products. On the other hand, ICT activities in Tuscany are characterised by what has been defined as *artigianato tecnologico* (crafted high-technology): a system in which high tech firms adapt to the needs of niche markets, producing very specific services for projects of fairly limited scope. Their products are subject to continuous adjustments and improvements and are directed at very specific market segments. Though start-up costs are relatively low, the informal and direct relationships between firms and end-users assume greater importance and are instrumental in product design. The specific features of this kind of ITC production favours incremental change over radical innovation, and new developments are more likely to be seen in the products themselves, rather than in production technologies and programming. In this type of organisational model, the producer-client relationship is of utmost importance in every phase of production, from conceptualisation to commercialisation.

Thus, patents are not so relevant in high tech production. At the same time, even looking at the number of employed in high tech services per inhabitants, Tuscany has a lower density than the rest of central and northern regions (3.0‰ vs 3.5‰), but the performance in terms of employment growth is better in Tuscany than in the rest of Italy.

Tourism is the specialisation that performs better than in the rest of Italy. The capability to attract tourism is much higher than in the rest of Italy (10.5 vs 6.1) and higher than the Centre North (7.5).

Finally, as for manufacturing activities, it is interesting to look at productivity. Confirming the presence of specialisation in the Made in Italy sector and the prevailing small scale firms, productivity in Tuscany is lower than other central and northern regions, and it is also lower than the overall national average. Productivity is also declining more rapidly than in the rest of Italy. A similar feature emerged looking at productivity in small scale firms, where Tuscany had a lower productivity than the rest of Italy; at the same time, it is interesting to note that while productivity in SMEs is rising in the central north (+6.7%) and in Italy as a whole (+6.6%), it is declining in Tuscany (-2.5%).

The above mentioned data are confirmed by more recent data on the structure of the regional economy in 2007 (Tables III.14, III.15 & III.16). They confirm the emergence of a model of ‘slow economic growth’ as has been defined by many recent analyses (see, for example, Irpet 2008). Naturally, as we have already underlined, the regional development strategy is not responsible for this slow growth: it is influenced by many other variables that cannot be analysed in this report. But at the same time, the regional development strategy and the policy tools for its implementation have to deal with some processes related to the slow growth phenomenon.

Table III.14: Labour market dynamics in Tuscany

	Employed in R&D per 1000 inhabitants (2004)	Growth of employment in the period 1999-2004	Employment rate (2005)	Growth of employment rate in the period 2000-2005	Unemployment rate (2005)	Growth of unemployment rate in the period 2000-2005
Tuscany	3.0	18.7	63.7	3.5	5.3	-3.3
Central and Northern Regions	3.5	9.1	64.0	5.4	4.8	-18.8
Italy	2.8	12.6	57.5	4.9	7.7	-23.9

Source: Processed data from National Statistical Institute Database

Table III.15: Labour market, patents and added value in Tuscany

	Youth unemployment rate (2005)	Growth of youth unemployment rate in the period 2000-2005	Number of patents per million of inhabitants (2002)	Growth of number of patents per million of inhabitants 1997-2002	Added value per employees in SMEs (2004)	Growth of added value per employed in SMEs 1999-2004
Tuscany	16.7	31.1	77.9	63.1	27.6	-2.5
Central and Northern Regions	15.3	-3.1	122.8	36.7	33.8	6.7
Italy	24.0	-11.3	83.1	37.8	31.5	6.6

Source: Processed data from National Statistical Institute Database

Table III.16: Added value per sector and type of firm

	Added value per employee in SMEs (2004)	Growth of added value per employed in SMEs 1999-2004	Added value per employee in manufacturing activities (2004)	Growth of added value per employed in manufacturing activities 1999-2004
Tuscany	27.6	-2.5	39.7	-6.8
Central and Northern Regions	33.8	6.7	46.3	-2.0
Italy	31.5	6.6	44.2	-2.9

Source: Processed data from National Statistical Institute Database

Table III.17: Rise and decline of employment in different sectors, period 1999-2005

	Manufacturing Activities	Construction	Commerce	Hotel and Restaurant	Transport and Communication	Services to firms	Total private sector*
Tuscany	-13.8	25.2	8.9	44.0	36.1	30.3	2.6
Italy	-4.1	29.0	10.1	36.8	7.1	47.8	12.7

Note: * total private sector includes the entire private sector.

Table III.18: Change in comparison to the previous year of the added value per type of activity in Tuscany

	Rural Activities	Industry	Services	Total
2006	-0.2	5.5	3.2	3.6
2007	4.2	4.3	3.3	3.8

Source: Processed data from "La situazione Economica della Toscana" Irpet, 2007

Table III.19: GDP in Tuscany (millions of euro)

	2005	2006	2007	% of increase 06/05	% of increase 07/06
GDP	95 683	99 714	103 318	1.8	1.4

Source: Processed data from "La situazione Economica della Toscana" Irpet, 2007

Table III.20: Change in employment in the period 2007/2006 (percentage of growth)

	Rural Activities	Industrial Activities	Services	Total
Tuscany	-16.3	6.1	-1.3	0.3
Italy	-5.9	1.1	1.4	1.0

Source: Processed data from "La situazione Economica della Toscana" Irpet, 2007

Critical points and important challenges also emerged by interviews and press review. A first important point underlined by many, is that some of the weaknesses are not peculiarities of the Tuscan model of political economy, but they are caused by specific national features that affect all Italian regions. Even if many recent national reforms tried to deal with the topic of competitiveness there is still a lack of institutional competitive advantages that hinders the performance of the national economy, that favours peculiar processes of firms restructuring and that constitutes a constraint for the competitiveness of Italian regions (Barca, 2006; Berta, 2004; Coltorti 2006). These variables cannot be steered by the regional government.

However, it should be noted that the economy of Tuscany follows a particular kind of economic cycle: it grows less than other regions in periods of generalised growth and it declines more than other regions during periods of restructuring. This seems to be due to specific features of the institutional architecture of the region.

According to some, the weakness of the regional economy is related to the organisational features of the manufacturing sector. Regional policies made some effort to stimulate restructuring but regional policies could have a larger room to manoeuvre to promote further reorganisation of firms and networks: on the one hand the high proportion of micro-firms seems to hinder the technological upgrading in traditional and more modern sectors, and on the other, the industrial economy of the region has low relative weight of firms in high tech and innovative sectors.

Medium firms are performing quite well but they continue to be not particularly widespread in the region, where small scale family owned firms still prevail (Pescarolo 2007). As has already been underlined by the literature, the role of medium scale firms could trigger innovation and regional economic development (Hanckè, 2004; Lombardi *et al.* 2004; Mediobanca Unioncamere 2006). For this reason, many underline the importance of increasing the specific policy-support to this kind of firm.

There is also a relevant stream of debate on the regional development strategy that criticises the effort of regional government to support manufacturing and that suggests radically shifting efforts and resources to support more innovative and high added value service activities. In this case, it should be noted that the recent strategy of the region – to support high added value activities without abandoning other manufacturing sectors – seems to be more appropriate. Industrial districts specialised in textile, leather, furniture, etc. are still one of the major strengths of the region and represent a relevant part of the regional economy.

Another critical point often mentioned is related to the fact that R&D investments of industrial firms are still marginal and that the link between institutional sources of knowledge – such as Universities and research centres – and firms is weak and not developed enough. This link is even more important in Tuscany, given the high prevalence of small scale firms. The regional administration devotes a lot of effort to sustain virtuous links between public institutions and firms but according to many actors more could be done.

Many also underlined the inadequacy of infrastructures, especially those related to transport. In comparison with other Italian regions, infrastructure in Tuscany seems to be less developed. This is particularly true for some backward areas of the region, in which infrastructure could trigger economic development but also for the most dynamic areas, such as industrial districts and urban and metropolitan areas. It should also be noted that road transport continues to be very relevant the region in comparison with other forms of communication, especially for the transport of goods and products; for this reason, infrastructure related to road transport seems to be one of the most important priorities.

A further effort is required for the simplification and rationalisation of administrative procedures, especially for those related to economic competitiveness. This further simplification could also play a very important role in promoting FDI of large multinational firms. This point is also related to the reinforcement of the role that the regional government could play to promote the active and passive internationalisation of the economy of the region.

Another important challenge is related to the process of liberalisation and reorganisation of local public services, aimed at increasing their performance.

A critical point that is indirectly related to economic competitiveness is the demographic challenge related to the ageing of regional populations. This has many relevant influences on the

regional competitiveness and it is also related to policies for immigrants. Finally, the high cost of living and the very strong wage moderation could affect not only the quality of life but also the possibility to reproduce, in the long run, a competitive regional model.

As for the strengths, the choice of the regional strategy to carry out instruments of coordination such as the RDP and REDP fits well with the idea of creating positive relationships among different policy arenas. Also, the long term logic of these plans, with a multi-year organisation of activities, could help to promote regional social and economic development. However, it is important that these multi-annual plans do not become a sort of iron cage: the medium and long period policy adjustments could be required and for this reason it is important that the approach based on policy coordination maintains a certain degree of flexibility.

At the same time, the idea of producing external economies and competition goods is particularly important for this region. The involvement of the regional government and administration does not aim at directly steering the private sectors but at offering services and goods to trigger economic competitiveness. From this point of view, it is not a new form of *regional statalism* but a model of proactive intervention in the economy.

Another important element of interest is the method of social negotiation and participatory governance by which decisions have been made. The inclusion of collective actors, private and public, can be an element that improves the quality of development plans and that can reinforce inter-institutional social capital (Triglia, 2005; Burroni, 2001; Pichierri 2002; Freschi, 2004; Considine and Giguère, 2008). However, it should also be taken into account that in some cases there can be the risk of a sort of pluralistic lock-in, when the participation of too many actors hinders the effectiveness of the policy process.

A more specific positive asset is related to the attention devoted to sustaining networks and not simply single firms. Selective and well addressed incentives directed to groups of firms can be a decisive element of competitiveness for the economy of the region, based on the role of SMEs both in industrial and service activities.

The balance between sectors is also another element of interest. The idea “not only manufacturing, but not without manufacturing” mentioned by the regional *Assessore* for industrial policy is particularly relevant, because it shows the will to promote competitiveness, not only in the traditionally competitive sectors of the region but also to open to new and high added value sectors. This path could help to reinforce traditional strengths of the regions such as the industrial districts (Dei Ottati 2004) and the development of ‘new’ sectors.

The detailed analysis of the regional opportunities and constraints carried out by the regional policy community mentioned above is another important asset. From this point of view, the work of research institutes like IRPET, strongly focused on the regional and local dimensions, offers a very useful and well developed set of information to the regional government to organise and set up well targeted policy tools in many different policy arenas.

As we have already mentioned, the action of regional government to promote innovation and active and passive internationalisation have many elements of interest, even if according to many they should be strongly reinforced.

Positive outcomes can also be found in the effort of the regional government to sustain practices of corporate social responsibility: many underlined the importance of the policy efforts of the region in this field and this is also confirmed by the fact that around one third of the entire number of Italian firms adopting CSR practices are located in Tuscany. The policy-program Fabbrica Ethica was awarded in 2007 by the European Commission with the “European Enterprise Awards”, as a good practice of policy for SMEs, and the project Felafip, devoted to promote CSR practices in leather production has been defined as a good practice by the ILO.

Summing up, strengths and weaknesses characterise the regional development strategy of Tuscany. In recent years the economy of the region was faced with relevant difficulties and the next few years will be characterised by a phenomenon of ‘slow growth’. Naturally, this is also related to many exogenous causes, for example: difficulties in foreign markets for goods, as leather and textile had a negative impact on the economy of the region. For this reason it is difficult to assess if the regional strategy is responsible for the recent difficulties, even because the evaluation of the regional strategy is often very positive. One example is given by the evaluation of the DocUP, - Documento Unitario di Programmazione – for the period 2000-2006 that has been recently positively evaluated by a Committee with employer representatives, local policy makers, representatives of the European Commission and of the Italian Ministry for Economic Development; the programme financed public and private investments for a total of 9 763 projects with the involvement of more than 8 000 private firms of which 6 091 have already been completed. The programme promoted the making of 1 200 physical infrastructures such as sites for renewable energy, new industrial areas, areas and plants for recycling, transport infrastructures, and policy interventions devoted to social care and to the recovery of cultural sites, etc. More than 1 500 firms introduced products of process innovation, 72 networks for the technological transfer have been realised together with 58 relevant research projects that involved research centres and universities of the region. This is only an example to show that without this strong intervention of the regional administration the difficulties of the region would probably have been more serious.

4. Potential for the transfer of the strategy

4.1 Transferability of the whole strategy

In the previous chapters we have underlined that Tuscany has a particular kind of regionalised capitalism, with many peculiarities and distinctive features. Nevertheless, there are some interesting elements of the regional political economy that could also be transferred in other regional contexts.

In particular, we would like to stress seven main transferable features of the general development strategy of Tuscany.

First of all, we suggest that the approach of regional institutions to support regional development could be transferred to other contexts. The Tuscany case study shows that regional political institutions and government are important players in the production of territorial competitive advantages. This means that the idea, often emphasised by the literature, of the emergence of a model of local political economy, labelled as ‘*governance without government*’, where there is a clear retrenchment of the role played by public institutions, is not true in the case of Tuscany, where the action of governmental institutions is of main importance to promote firms competitiveness. The will of Tuscany regional government to set up an effective system of tangible and intangible infrastructures and the aim to support the production of innovative and well-targeted business services is a good example of a proactive approach in terms of economic development. But at the same time, in this model it is particularly important to set up practices that favour the inclusion of individual and collective private stakeholders to the processes of economic policy-making: this is important not only to increase the consensus on the regional development strategy but also to improve policy effectiveness (see Considine and Giguère, 2008; OECD 2001, 2003, 2004). Naturally, a large participation in the process of policy making could also hinder the efficiency of the decision making.

For this reason, the Tuscany Region has recently approved a regional law aiming to promote new forms and channels of citizen participation in public decision-making processes. The idea behind the regional law was not to try to impose new formal participative procedures, but to encourage social and institutional local actors to pursue and implement new forms and practices of civic engagement and participation. One of the most important features is that,

according to the law, the requirements that a participative project must have, in order to be admitted to regional support both in financial and organisational terms, are those typically prescribed by the normative principles of deliberative and negotiated democracy. From this point of view the Tuscan law may provide a particularly innovative solution to the controversial linkage between public deliberation, collective negotiation and institutional decision-making processes (see Florida, 2008).

Secondly, a good practice that could be transferred to other contexts is related to the attention devoted to the identification of challenges and goals. In the globalised economy, regions have to deal with problems and opportunities that differ from one place to the other. This means that the main challenges for Tuscany are not necessarily common to other advanced regions and the same is true for opportunities and strengths. For this reason, an effective regional strategy should start from the precise identification of constraints and opportunities of the region. Financial and cognitive resources of all regional stakeholders should be activated for an appropriate period of time in order to prepare a precise map of what should be done and how and who should to do it. If this map does not fit exactly with regional exigencies it is unlikely that the following regional development strategy will be appropriate.

Third, the importance of policy instruments to solve the problem of policy coordination (such as RDP and REDP) is another practice that can be transferred to other regional contexts. On the one hand these tools are ‘general’ and gather together, coordinate and give coherence to many sectorial policies. On the other, these plans are not simply ‘declaration of will’: they include the details of specific policies, define timetables, identify resources and responsibilities and so on. In this way it seems possible to avoid falling in the trap, that we could define as “coordinating without effectiveness”, given by those regional plans that simply put together many general aims and goals without identifying policy-tools to reach them.

Fourth, the topic of monitoring and control: even if it should also be reinforced in Tuscany, the idea of setting up a precise and efficient system of monitoring and control is particularly important for many reasons. It is an incentive for actors and public stakeholders to project, set up and implement effective policies. But it is also an instrument to evaluate the outcomes of policies and eventually, to correct them. From this point of view, it is a necessary pre-requisite to the making of a “flexible political economy to support regional development”.

Fifth, the effort to combine economic competitiveness with social cohesion is particularly important, as is the model of socio-environmental sustainability. The effort to set up coherent and combined policies to increase the quality of life and to create territorial competitive advantages could favour the reproduction of those intangible elements on which regional longterm competitiveness is founded. This is also true for many other European regions.

Sixth, the support devoted not only to single firms but clusters and networks. In many European regions, public funds and business services are targeted to single firms. But the emerging model of advanced capitalism is based on networks, in both traditional and innovative sectors. Thus, in order to promote economic competitiveness it is important to also create specific policies addressed at reinforcing the effectiveness of inter-firm relationships. This is particularly true for those contexts where there are many SMEs: promoting networks and reinforcing groups of firms can promote experiments of cooperation able to reinforce the entire regional economy. This is also related to the idea of regional integrated district. Creating links and promoting cooperation among firms located in different areas of the region and setting up effective services for their production could be a viable path to reinforce the role of the regional level of economic governance. This is particularly true for those European regions characterised by relevant internal diversities and disparities. Naturally, this does not mean to overlook specific territorial specialisations – as in the case of Tuscan industrial districts – but to reinforce and create a larger territorial economy of scale in which regional institutions could play a very

important role. From this point of view, the coordination among territorial levels is particularly relevant.

Finally, the idea of promoting “scale effects in policy making” is an element that could be successfully transferred in other regional contexts. On the one hand, this intends to consider the positive – and negative - interaction between different policies and to try to reinforce virtuous interaction. On the other hand, this means focusing on the appropriate territorial scale for public policies: in some cases it could be local but in other, such as in the case of the regional integrated district, it could be regional.

4.2 Transferability of specific successful policies

As for the transferability of specific policies, four cases mentioned in this report could also be experimented in other contexts.

The first is related to the effort to promote active and passive internationalisation. In this case it is particularly important to underline that the regional strategy avoids promotion of internationalisation simply via cost advantages, thanks to the set up of advanced and effective real services. These services are heterogeneous: in the case of manufacturing firms they are devoted to help firms to compete in foreign final markets; in the case of tourism they are devoted to firms - to improve the quality of their activities - and to consumers, etc. At the same time, the attention on the ‘image of Tuscany’, a territorial brand that reinforces the intangible contents of goods and services, can produce positive outcomes for manufacturing production and for tourism, and it is also possible to be applied in other territorial and institutional contexts. It is also interesting to note that in many cases devoted to manufacturing firms there are specific measures and rules devoted to promoting active internationalisation, such as joint ventures or licensing – see below; at the same time, we have emphasised as many and well-targeted services are set up to sustain Tuscan firms in foreign markets. In other words, this is a multidimensional strategy for internationalisation, with the support of industrial internationalisation that is not only devoted to attract FDI but also to promote various forms of active internationalisation. At the same time, the effort to promote tourism is particularly important in the field of internationalisation. The idea to promote a sort of territorial brand able to combine various dimensions that characterises the image of Tuscany sounds effective: it is not only to recall the quality of life of the region, the quality of food and regional products and so on but to keep all these elements together. For this reason, there is an approach to ‘thematic offer’ and the integrated combination among different types of tourism. A specialised agency at the regional level – such as Toscana Promozione – can help in this task, promoting integration between different sub-sectors – such as thermal and art tourism – but also promoting a coordinated action of different regional local systems and territories.

A second example is given by the effort of the regional government to promote venture capital and other forms of financing of private investments. The promotion of a major involvement of the regional banking system in the support given to SMEs with the above mentioned agreement (Protocollo d’intesa tra Regione Toscana e le Banche del territorio) and the rationalised system of guarantee for loans is a good practice that could be exported in other territorial contexts with virtuous effects. The above mentioned experiments in finance and credit can trigger regional development, promoting the financing of a) reorganisation of firms b) the making of innovative ideas c) the set up of new firms d) the establishment and reinforcement of international alliances e) process of mergers f) and the rise of stable and long term networks or groups of firms with a size that is able to compete in global markets. At the same time, an exportable practice is also the already mentioned strategy to promote micro-credit (SMOAT): even if in this case the impact on the regional economy of the financed projects is marginal, this is an important practice from the point of view of social inclusion. This practice is also interesting because it combines the credit activities with a large set of services to aid the project

of entrepreneurship; this combination could also be fruitfully adopted more generally for every action to support credit to firms.

Another interesting measure is related to the effort of the regional administration to promote technological transfer using financial aids and loans together with real services. These kinds of policies are widespread all around Europe, but there are some elements of interest in the path followed by the Tuscan region. First of all, the above mentioned policies are not ‘simply public money’: there is also a notable aid to firms in terms of real services (tangible and intangible). Secondly, a strict selection of the quality of projects and of the features of the networks behind the projects has been particularly important and is a distinctive feature in comparison with many other territorial policies of other Italian regions and national ministries. Reinforcing the link between internationalisation and technological innovation is another interesting point that can be transferred. But the two most important points that make this strand of policies attractive for other contexts are a) their capability to promote inter-institutional fertilisation thanks to the active and effective involvement of all the regional stakeholders such as research centres, universities, employer associations, trade unions, NGOs and other relevant institutions. This sort of heterogeneous contamination between different sources of knowledge has been identified by some researchers as able to promote radical innovation in knowledge (Hollingsworth, 2005). b) the capability of this experiment to create stable networks of SMEs that previously did not experience any form of cooperation and the making of virtuous links between large firms and SMEs for stable projects of collaboration; this can also help to entrench in the regional system new FDI, connecting them better with endogenous resources. From this point of view, the experiences of promoting technological transfer with policies similar to the Regional Plan for Innovative actions described above, that have had a good outcome in Tuscany– and the more recent experiment to promote new projects based on virtual enterprises and organisations could be fruitfully transferred to other contexts.

Finally, the initiatives related to Corporate Social Responsibility can be exported and developed in other regions, especially in some specific sectors such as leather production. As we have already mentioned, the case of Fabbrica Ethica and the project Felafip have been identified as good practices for sustainable local development. Among the possible initiatives in this field are support to credit activities, loans, diffusion of best practices and, more generally, the application of CSR practices to the entire supply chain. As for the case of Wales, the CSR practices mentioned in this report could be easily transferred and this could help promote a ‘strong and sustainable economic growth and a better quality of life’, one of the main aims mentioned in the Welsh development strategy. Effective and well targeted measures on credit, loans and micro-credit could reinforce the targets on entrepreneurship stressed in the Entrepreneurship Action Plan and promote new job opportunities, encouraging people to contribute to the development of a regional society. The above mentioned measures on technological transfer and cross-fertilisation are coherent with the contents of the Innovation Action Plan. At the same time, the above mentioned integrated and multidimensional strategies for the promotion of different kinds of tourism could promote the rise of a sector that could have a growing importance in the next few years in Wales and that could contribute to a notable rise in employment.

5. Conclusive remarks

Since the beginning of the 1990s, advanced economies have had to face a remarkable reorganisation to deal with the new challenges brought about by globalisation. Comparative studies have focused on different reactions at the national and regional level (Amable 2003, Hall and Soskice, 2001; Hancké *et al.* 2007, Hollingsworth *et al.* 1997). These theoretical and empirical contributions emphasised the existence of multiple pathways of development.

Globalisation pressures promoted a territorial regime competition among regions and local systems: regional competitive advantages related to specific institutional architectures are now

more important than in the past and for this reason there is more room for regional government and institutions to manoeuvre in order to promote economic development and growth. This is also the case in Tuscany, where policy efforts to create external economies and collective resources play a crucial role in the regional political agenda. As we have underlined, the proactive role of regional government has a longstanding tradition in this region: the red political subculture, the prevalence of small scale firms, the importance of productive specialisation based on export and other factors favoured the emergence of this kind of regional strategy.

This model is still steering the action of regional policy making, even if its institutional background experienced recent and relevant changes. However, it is important to note that some recent changes also occurred in the way in which collective resources are produced and distributed. In this report we have focused the attention on the important role played by two instruments of policy-coordination - the Regional development Plan and the Regional Economic Development Plan - and on some specific policies. These tools have some element of interest that could be transferred to other regional contexts.

It is possible to briefly summarise these features in these conclusive remarks distinguishing between the structure and the contents of the policy tools. As for the structure, it is worth noting that policies have been organised to deal, on the one hand, with problems of coordination and policy coherence and on the other, to monitor the impact and the outcomes of policies. This institutional architecture is also characterised by a method of inclusive policy making that favoured the participation of many regional and local stakeholders in the definition of contests and priorities of development policies. Finally, it is important to note that this institutional architecture is characterised by a multi-year perspective and programming. From this point of view, the structure and organisation of policies is a key issue of the regional development strategy.

As for the contents, we have emphasised that policies dedicate a relevant amount of attention to the making of external economies and to the set up of territorial competitive advantages with a regional scale. The above mentioned institutional architecture of regional policies is aimed at producing tangible and intangible resources to trigger economic competitiveness of firms. Internationalisation, innovation and the support of new and traditional sectors are among the main priorities of this strategy. It is also important to underline the effort to sustain the competitiveness of single firms but also of networks and groups of firms. Thus, looking at contents of policies a proactive role of regional institutions clearly emerges. This strategy has had good results: in comparison with other Italian regions, this regional development strategy has been able to promote a model of development with high level of wealth, low internal disparities, a high quality of life and social cohesion (Istat 2008). In other words there has been a combination of social and economic competitiveness (see Streeck, 1992).

But where there are lights there are also shadows. Globalisation exacerbated the competition coming from the new developing countries in the productive specialisations typical of the Tuscan economy. At the same time, problems caused by the national policy partially hindered the regional competitiveness. Finally, notwithstanding the efforts of regional institutions, the region is experiencing a phase of 'slow growth', and there are risks that can hinder this model of regional development. For these reasons many actors underline that more should be done in some key policy-arenas, such as infrastructures or the promotion of high added value activities.

This view is also shared by many political actors that are now trying to reinforce and to improve the regional strategy. In the next few years it will be possible to understand if regional stakeholders will be able to reduce the risks for the regional economy and if the trend of slow growth will be reversed without compromising social cohesion.

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Note

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BASQUE COUNTRY, SPAIN

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1. Brief overview of the regional economic context

a) Key regional statistics

The Basque Country is located in the northern part of Spain by the Bay of Biscay (Figure III.8). The region is made up of three administrative provinces Araba, Bizkaia and Gipuzkoa and it covers a total area of 7 234 km². In 2006, the Basque population was 2.1 million, 4.8% of the Spanish population. The average population density of the region is 294 inhabitants per square kilometre, about three times more than in Spain. The population is concentrated around the capital cities of the provinces in Vitoria-Gasteiz, Bilbao and San-Sebastian-Donostia. The Bilbao metropolitan area alone, gathers 42% of the Basque population. The region has two official languages: Spanish and Basque.

Figure III.8: Basque Country region, geographical location



Source: Basque Government

The Basque economy represented 6.2% of the Spanish gross domestic product (GDP) in 2005, with a GDP per capita 27% higher than in Spain. Basque Country region has achieved a historically low unemployment rate of 7.0% in 2006. Employment is concentrated on service sector (62%) followed by industry (25%), construction (10%) and agriculture and fisheries (3%). Table III.21 shows this data in comparison to Spain.

Table III.21: Key figures of the Basque Country region compared to Spain in 2006 (GDP figures for 2005)

	Basque Country region	Spain
Area	7 234 km ²	505 987 km ²
Population	2. 124 235	44.474 631
Population density	294 inhab./km ²	88 inhab./km ²
GDP (m€)	56 063	908 450
GDP per capita (€)	26 592	20 933
GDP per capita % of EU-15 average	116.1	91.4
Unemployment	7.0%	8.6%
Employment per sectors	Services 60%, Industry 30%, Construction 8%, Agriculture 1%	Services 58%, Industry 26%, Construction 11%, Agriculture 4%

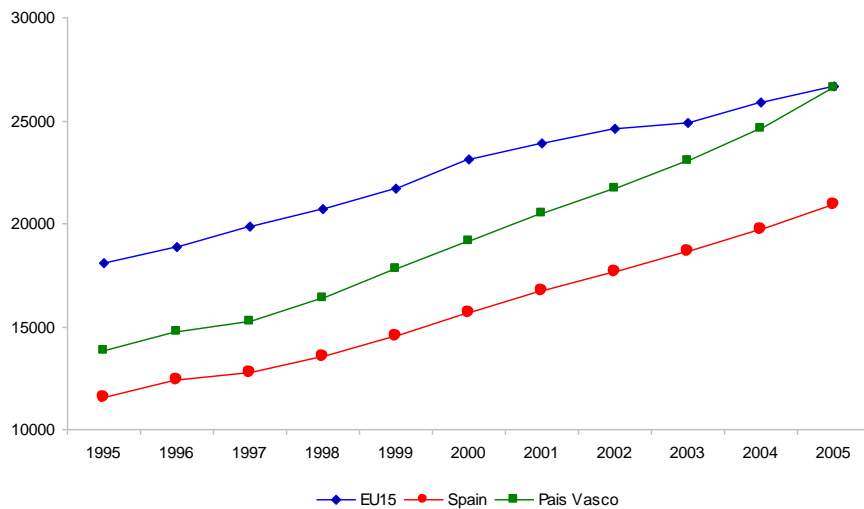
Source: Eurostat, 2008

The Basque Country region is characterised by its privileged location, being considered as the *door to the Iberian Peninsula*. The powerful sea transport and communication infrastructure make the region a strategic area for external commerce. Bilbao Port is connected to more than 500 ports. It is considered to be one of the most important Spanish ports and is amongst the 15 most important European ports due to the volume of freight goods it transports. Its draught (nearly 35 metres) makes this port one of the few ports in the world that can receive ships with more than 500 000 tons of capacity. The region also has an extensive network of highways and roads, higher infrastructure level than the Spanish average, but is still below most developed European regions. Basque roads allow a connexion point between the North-South axis (from Stockholm to Lisbon) and the East-West axis (from Galicia to Catalonia and Milan). Existent highways connect the region with the main cities in Spain and Europe.

b) Recent Economic Development History

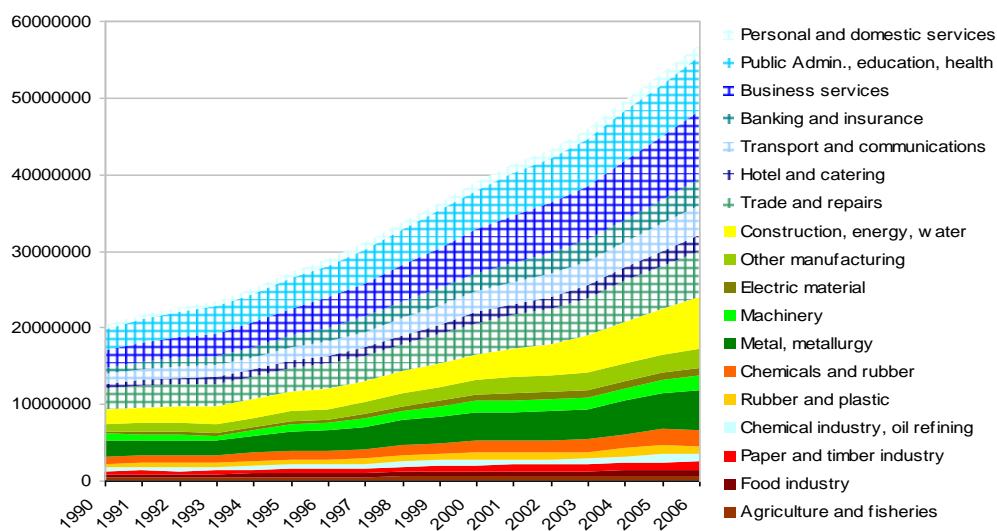
The Basque Country region is one of the most important industrial areas in Spain. SMEs are a predominant part of the regional industrial fabric and the regional economy has been largely based on traditional industries. During the mid-seventies, global market slow down very strongly affected the Basque economy, resulting in decreasing GDP and serious unemployment. From these initially adverse conditions, the region has followed a continuous growth path during the past three decades. This is a result of the degree of autonomy and competencies transferred from the Spanish administration which have permitted the definition of their own Regional Development Strategy since the early eighties. The strategy and economic development have been basically grounded on four priorities: technology and innovation, cooperation, quality, and internationalisation and consisted of different multi-annual plans focusing on industrial, science, technology and innovation policies. These policies were focused during the 80's on restructuring the territory to overcome the crisis, during the 90's on structure and diversification of the region and from 2000 onwards innovation and knowledge to reach the excellence.

Over a ten year period (1995-2005) the Basque Country GDP per capita has almost doubled its value from €13 800 to €26 600 and, as shown in the Figure III.9, the GDP growth has been faster than in Spain or in EU-15 countries.

Figure III.9: GDP per capita (in euros) 1995-2005 in EU-15, Spain and Basque Country region

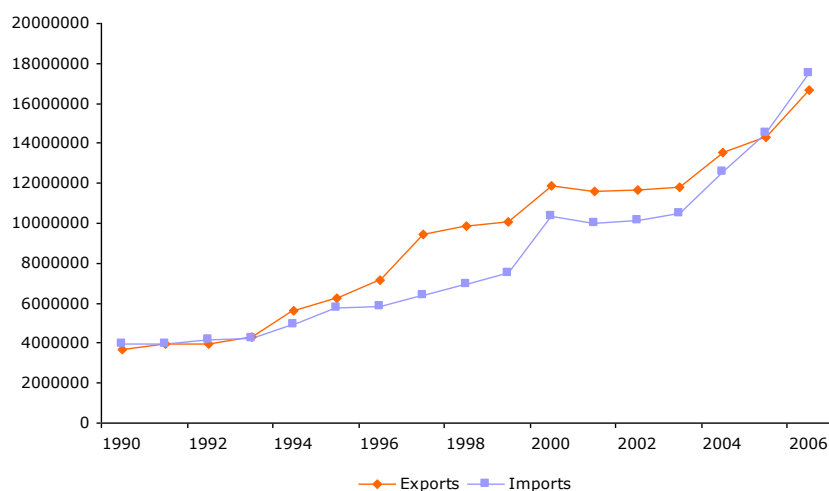
Source: Eustat, 2008

Although the service sector has grown rapidly during the last fifteen years the Basque economy remains a substantially large industrial sector, with metal and machinery industries being the most important ones. Their share of GDP has remained unchanged during the period 1990-2006. The fastest growing service sector has been business services as shown in Figure III.10.

Figure III.10: Sectoral GDP(current prices) 1990-2006

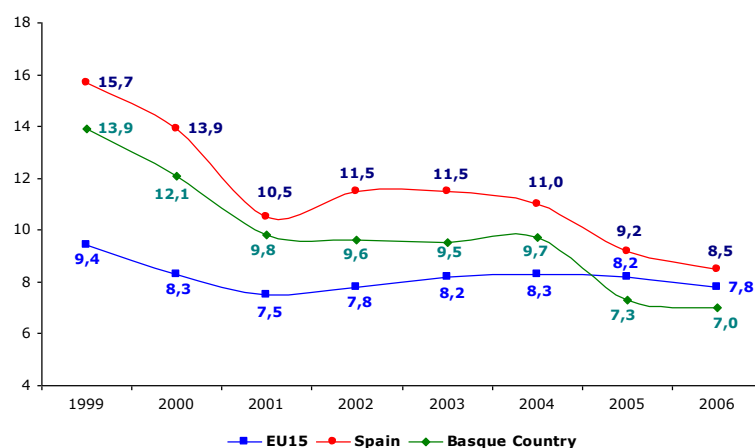
Source: Eustat, 2008

The GDP growth can be attributed to increased foreign trade as foreign trade grew more than 400% during the period of 1990-2006. The Basque economy has always been characterised by its open attitude and its exporting business. Europe has traditionally been the main client and supplier of the Basque economy; with France (17%) and Germany (15%) in first positions¹ (Figure III.11).

Figure III.11: Exports and imports (in 1000 €) in Basque Country region 1990-2006

Source: Eustat, 2008

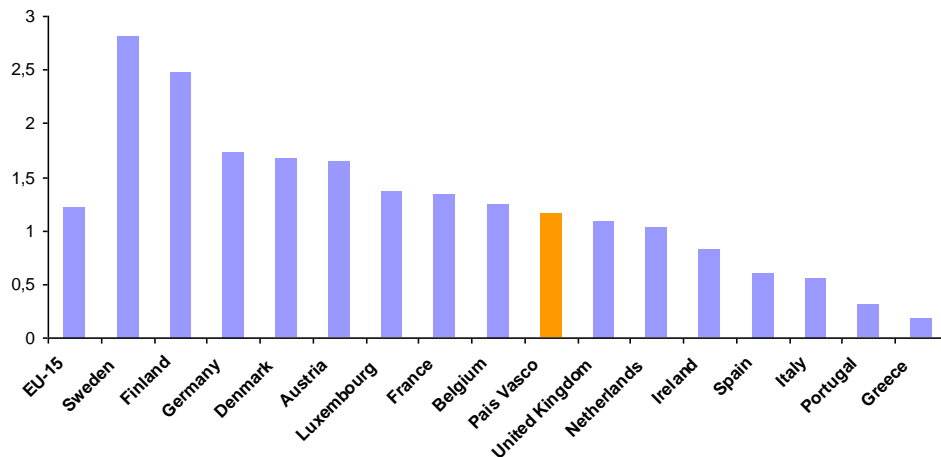
Economic growth of the region has also led to an unemployment rate below the European average (Figure III.12). The Basque Country unemployment rate decreased from 13.9% in 1999 to 7.0% in 2006, the average unemployment rate in EU-15 countries in 2006 was 7.8% and 8.5% in Spain. Basque Country region unemployment rate remained at the same level during the period 2001-2004 while unemployment increased in EU-15 countries and in Spain.

Figure III.12: Unemployment rate in EU-15 countries, Spain and Basque Country region 1999-2006

Source: Eurostat, 2008

Research and development has been a priority for the Basque Country during the last three decades. From initially non-existent investment level, the R&D expenditure has reached European average. A major effort has been conducted regarding business R&D. The Basque Country region is close to the EU average in business R&D expenditures (BERD). From 1997, the BERD as a percentage of the GDP has grown from 0.88% to 1.15% in 2005. This data is slightly above the EU-15 countries average and sets the region in the middle of EU-15 countries as shown in Figure III.13.

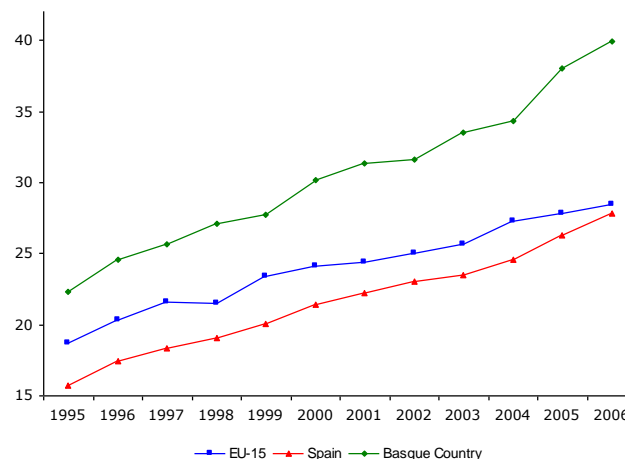
Figure III.13: Business enterprise R&D expenditure in EU-15 countries and in Basque Country region 2005



Source: Eurostat, 2008.

The development achieved by the Basque economy can also be attributed to the high qualification level of its employees and the labour market dynamism. As human resources are considered a key element for the Basque regional development, education and training are a priority objective. As a result of investments on higher education, the Basque Country region's human resources are relatively highly educated. In fact, the share of the active population with university or high education degree was almost 40% in 2006. This figure is considerably higher than in EU-15 countries or in Spain, as can be seen from the following Figure III.14.

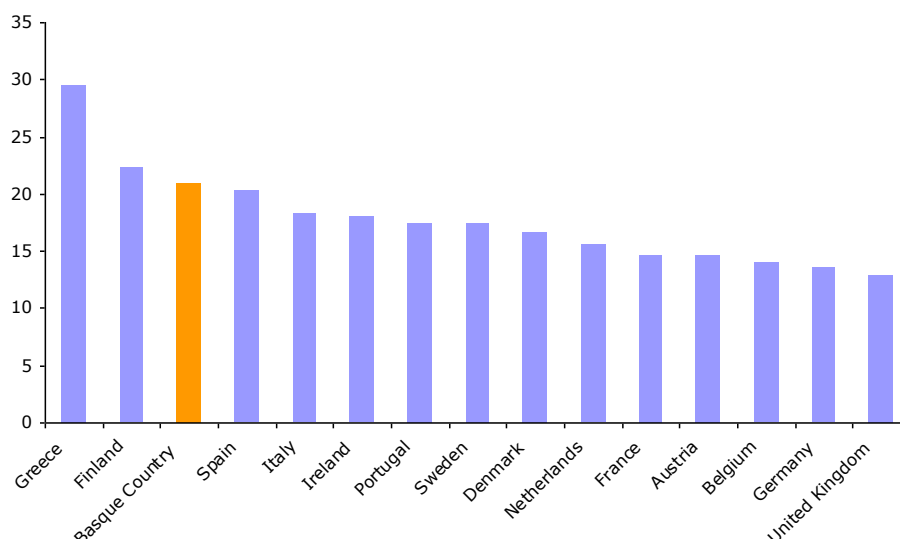
Figure III.14: Human resources in science and technology (HRST), percentage of active population in EU-15, Spain and Basque Country region 1995-2006.



Source: Eurostat, 2008.

This support for education has led to relatively high percentage of higher education and university students. When compared to EU-15 countries the Basque Country region has the third highest share of higher education and university students as shown in Figure III.15.

Figure III.15: Higher education and university students (ISCED levels 5-6) as % of all pupils and students, EU-15 countries and Basque Country region in 2005 (data for Luxembourg is missing)



Source: Eurostat, 2008

2. The regional development strategy

a) Rationale/conceptual framework of the strategy

The Basque Country region started to broaden and develop the base for self-government, taking advantage of its own government and autonomous parliament, since the arrival of democracy in Spain in the late seventies. The approval of the *Concierto Económico* (Economic Agreement) transferred a number of competencies from the Spanish administration such as the power to regulate taxes and the necessary autonomy to manage and collect them². Within this framework, the Basque Government started to plan and take action on a long term strategy on the basis of the regional capacities and capabilities. The Basque Government has promoted science, technology and innovation as drivers of the Regional Development Strategy. This strategy and the main policy steps taken during the last 28 years are summarised in three stages: 1st stage (1980-1996), 2nd stage (1997-2005) and 3rd stage (2006-2015).

The main policy efforts were concentrated on the creation of the scientific and technological infrastructure during the first stage from 1980 to 1996. The region was one of the main industrial areas of Spain, specialised on traditional sectors that were strongly affected by the international economic crisis during the late seventies. Consequently, the Basque economy entered into a deep recession characterised by a high unemployment rate and socio-economic instability. The newly formed Basque government began the reconstruction of the region with a multidimensional strategy, not only aimed to recover industry but also to support infrastructural, social and cultural development. A supply oriented policy was applied in order to build the science and technology infrastructure that would allow a competitive technology supply for companies, permitting them to increase their competitiveness. This period marked the foundation of the Basque science and technology system. The first actions to put the Basque Country region in better productivity trajectory were the establishment of government supported science network called EITE (1986) that set up the basis for existing technology and science centres of the region. The technological centres³ focused their activity on generic research and projects applied to industry. Public support was also dedicated to the creation, enlargement and maintenance of research and development units in the companies, as well as to more specific actions devoted to quality improvement and R&D. These specific measures, more focused on

the development of the research infrastructure, were accompanied by targeted governmental actions to push technological and industrial development and improve regional competitiveness. Among these, the first *Technology Plan*⁴ set out the main technology priorities to improve business competitiveness. Given the importance of the metal transformation sector in the Basque production fabric, the technological areas of interest were new material technologies, production technologies and information technologies. Later, the general framework for the industrial policy⁵ was established, with the understanding that technology policy was an important supporting element of the industrial policy, which resulted in an *Industry and Technology Plan*⁶. The plan took over, making a step forward towards innovation system approach and shifting from direct linear R&D funding towards clusters and promotion of networks. In response to the increasing relevance of clusters for competitiveness, the Basque Country region was, in the early 90s, one of the pioneers in the establishment of a cluster based policy⁷. Business Clusters were created following the recommendations gathered in the study made by Monitor Company and Michael Porter. They were selected according to their future growth potential and their strategic importance, having a key role when defining the priority technology areas of the new plan.

A combined supply and demand policy was the main focus of the second stage (1997-2005). This period was marked by the consolidation of the Basque system for science and technology, whilst incorporating into the agenda the need to systematically promote technological demand by companies and the production sectors. The previous network EITE evolved into a new network SARETEK – the Basque Science, Technology and Innovation Network - integrating all agents of the innovation system. To support this new political orientation a new plan was launched promoting science and technology. The *Science and Technology Plan*⁸ represents an inflection point by seeking a greater integration of the entire science-technology-company system, given that on the one hand it integrated policies for the general promotion of knowledge and support for basic scientific research carried out mainly by the university, and on the other hand, actions fostering the development and innovation in the technological centres in co-operation with companies. The plan was followed by the new *Science, Technology and Innovation Plan*⁹ which was the instrument used by the Basque Country region to position the capacities of its entire innovation system within an international context, in such a way as to provide leverage for economic growth and diversification in future knowledge-intensive sectors, whilst providing a valid response to the scientific and technological demands of a dynamic, complex and global society at all times. Committed to knowledge and its materialisation in innovation, as the unique solution for sustainable development, this plan intended the creation of a new tool the Cooperative Research Centres and the Basic and Excellence Research Centres. Another immediate result was the launch of two strategic tools to develop industrial sectors based on new technologies such as nanotechnologies (nanoBASQUE 2015) and biotechnologies (bioBASQUE 2010).

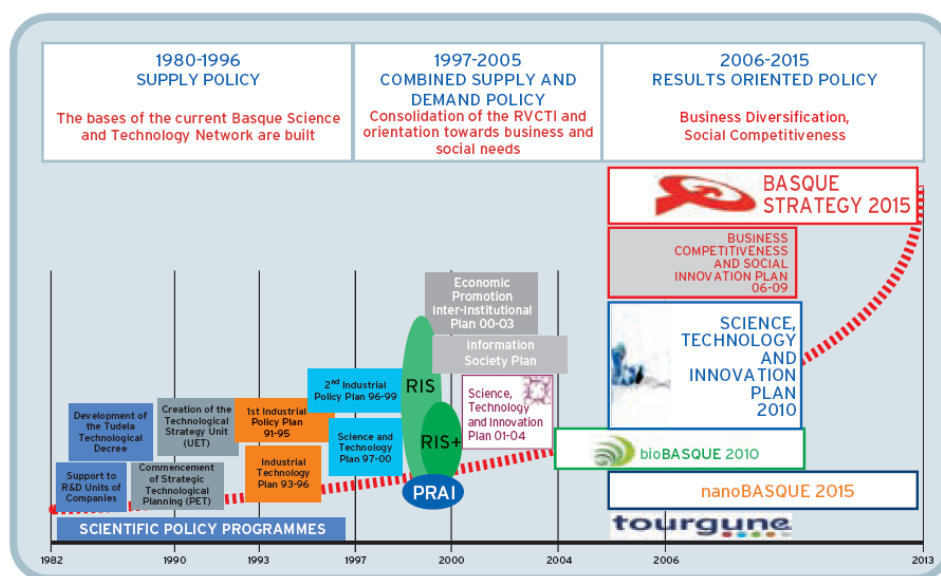
The regional strategy during this period was combined with EU co-funded initiatives (RIS, RIS+). The RIS for Basque Country region¹⁰, was a valuable analytical exercise that finally led to the identification of a series of measures to update and redirect the activities of the *Science and Technology Plan*, and at the same time, to analyse and define the initial basis on which the innovation policy of the Basque Country region was to be constructed during the 21st century. The RIS+ initiative defined and launched the strategic research for the region in the mid and long term and incorporated the region into the Information Society. The RIS and RIS+ exercises have influenced the Basque planning processes, being an instrument for the strategic regional analysis.

From 2006 up to 2015, the Basque Government has planned a strategy oriented to results. The region had already achieved R&D capacity, global knowledge as well as excellence in some traditional fields and now bets for new sectors. The challenge of this third stage is to spread innovation culture among the Basque society and take advantage of the opportunities given by globalisation. A reinforcement of the whole regional innovation system is conducted,

connected, balanced and open to globalisation. Strategic tools launched to support this strategy are two interrelated plans, the *Business Competitiveness and Social Innovation Plan 2006-2009* and the *Science, Technology and Innovation Plan 2010*.

Figure III.16 summarises the Regional Development Strategy and policy steps regarding science, technology and innovation policy since the early eighties up to 2015. During the last 28 years, the Basque Country region has done a continuous effort to develop a strong and connected regional innovation system and to create agile tools and the environment to improve scientific and technological development.

Figure III.16: The development trajectory of policies in Basque Country region



Source: Basque Government

The Basque Country region has developed a particular strategy, permitting a radical transformation of the regional economy, consisting of different regional and EU co-funded initiatives and plans. The approach to the strategy has always been selected on the basis of the regional needs and traditions as well as according to the evolution of the scientific, technological and innovation policy. Industry is the cornerstone of the strategy as industrial specialisation has traditionally been one of the strengths of the regional economy. In this sense, since the early eighties Basque policy makers have supported an active industrial policy around which other policies have been aligned. The strategy and policies have tried to address diverse problems during the three different stages identified in the Basque strategy. During the first stage, the main problem was the socio-economic crisis affecting the region as well as the lack of a science and innovation system. Policies were focused on restructuring the territory and specific programmes were launched to create adequate R&D infrastructure as well as to set the basis of the Basque science and technology system. The lack of integration among science-technology and enterprise was one of the main problems faced during the second stage, together with the willingness to position the region internationally as a reference in science, technology and innovation. Consolidating the Basque science and technology system was one of the first policy steps of the period together with the launch of specific measures to promote sectoral diversification towards knowledge intensive sectors such as biotechnologies, nanotechnologies, etc. Since 2006, policies have been focused on results, entrepreneurial diversification and social competitiveness; the main problems faced are linked to the new competitiveness scenario, mainly as a result of globalisation.

Over the last three decades the Basque strategy has been oriented to the creation of value on the basis of innovation and on the capacity to anticipate future needs to reach higher level of competitiveness. The Basque Country region has successfully implemented a Regional Development Strategy permitting completion of an expansive cycle, the “*First Great Transformation of the Basque Economy*”, permitting the positioning of the region in a favourable situation of development and social wellbeing. Since 2000, the region faces a new competitive framework, the “*Second Great Transformation*”¹¹. A new Regional Development Strategy has been defined, with Innovation being at the heart of the strategy. If during the *First Transformation* the focus was technological development aimed at cost and productive efficiency, in the *Second Transformation* Innovation becomes key to reaching competitiveness and the reinforcement of the scientific system to create and exploit knowledge. The Basque innovation system is the engine for this *Second Transformation*. Policy planning from the regional government has proven to be an important tool for it. Plans have always been oriented to the future, answering to the new trends of governance. The Basque Country stands out internationally on the level of fiscal and budgetary competencies, organised internally in a plural way with different intermediary institutions with power. Basque Government has been a pioneer in several politics and interventions, especially due to the high level of public-private collaboration in many of these initiatives as well as for the leadership role in the region. A participatory methodology has been used for the definition of the strategy, involving various agents in the definition and implementation of innovation policies.

b) Strategy pillars and objectives

At the beginning of this century, Basque economy had reached the European average in terms of economic productivity, but at the same time, the competitive advantage derived from lower cost level was beginning to weaken. A new strategy was urgently needed to further support the structural change and economic growth of the Basque Country region. The inspiration of the new Regional Development Strategy comes from the major guidelines set out by the European Commission¹², where knowledge and innovation are seen as the main drivers of competitiveness in a modern society. The strategy is based on five pillars, each of them presenting a different but inter-related aspect of the strategy framed on the so-called “*The Second Great Transformation*” and aimed to involve the whole Basque Country region in the work of building a knowledge-based society.

A) Cultural change:

Innovation strategies and necessary policies for their promotion are generally directed to actors involved in innovation system, like companies, research centres or universities. However, the first pillar of Basque innovation strategy takes a step further and highlights the importance of innovation as a social dimension. Innovation and knowledge are seen as drivers of productivity growth and quality of life for the entire society and accordingly, there is a need for special effort to make the whole society aware of this. The Basque commitment to science, technology and innovation is to be a matter of the whole society in order to get all the actors involved to further strengthen the innovation system.

B) Science policy:

Science policy is recognised to be one of the most important drivers of knowledge society. The R&D expenditure driven technology system has been the key feature of past socio-economic development of Basque Country region and should also present the vector for the future development of knowledge society. Whereas Basque strategy has previously been based on technology development and incremental innovation; in this new strategy, the focus is shifted towards science and radical innovation in order to follow the objectives set for European Research Area. According to the strategy, the science policy is based on three key actors:

universities, Cooperative Research Centres (CIC), and Basic and Excellence Research Centres (BERC).

Basque science and technology policy has relied heavily on technological centres that were initially created during 1980's. In the 1990's, the Basque Country region was already equipped with a powerful network of technological centres whose role was to improve technological capacity of companies, which in turn, allowed the companies to improve their productivity. According to the new strategy, however, the universities are now in the position to lead the changes that must take place in Basque innovation system to develop the scientific potential. To enable the Basque Country region's science system to carry out the task of generating and evaluating scientific knowledge, two basic lines of action have been defined: *Excellence in research and in evaluation of research* and *Development of research career*.

The *excellence in research* requires sufficient resources in terms of infrastructure and especially human resources to facilitate the development of research activities in CICs, BERCs as well as in universities. Research excellence will be promoted by providing support for prestigious research groups to continue their research with sufficient guarantees in human and economic resources and at the same time to minimise the obstacles which prevent them to achieve their goals. The strategy also sets an objective to achieve a critical mass of researchers as it is considered to be a promising seed towards research excellence. Again, the objective is to ensure the financial backup for development paths for the researchers. Regarding the evaluation of research, the research excellence is not determined as knowledge creation as such, but it should be coupled with a set of actions that facilitate the knowledge transfer to society. This could be achieved either through qualified publications, new patents or even through new business initiatives, still a weakness of the system.

Development of research careers aims to set up a system that supports researchers in establishing a career. It focuses on supporting both the training stage of researchers and the stage when researchers build up their career. The aim is to integrate researchers into the Basque innovation system. There is a need to support researchers during the period after achieving a doctorate with the aim to guarantee a contractual relationship for the researcher with the host research centre. To achieve this, the objective is to sharpen the structure of post-doctorate phase that would also include a specialisation period outside the Basque system as well as incorporating researchers educated elsewhere into the system. This is also part of the objective to strengthen the researcher base by attracting the top researchers educated elsewhere to work in the Basque Country region. A stronger research base with merited researchers coming also from outside will create more competitive atmosphere which is considered to be important when enhancing excellence. Also, an international researcher base would represent a channel to increase cooperation with foreign research affiliates.

C) Competitiveness – supporting the present:

The new strategy demonstrates that innovation is ever more crucial to increase the competitiveness of the Basque Country region. It underlines a wider concept of innovation and more open approach to increase value creation through innovation intensity. The value creation is considered to be the base and the main driver of competitiveness. For this reason Basque government continues to support the existing industrial base of the region to discover new drivers and sources of competitiveness. The increase in the innovative intensity (technological and non-technological) of sectors' clusters and business groups will create possibilities for raising the added value of production in the Basque Country region. The new strategy seeks to raise the innovative level of the Basque industry and services by setting out three lines of action:

- Direct the innovation system to business demand. This involves identifying needs and opportunities in the diverse sectors and clusters, which will be the basic input for the supply design by innovation agents.

- Extend the base of innovative companies. This involves developing specific actions for companies with low innovative capacity. Geographic and organisational cooperation and proximity are elements to be considered.
- Systematic Innovation. The objective is for companies to acquire the capacities that enable them to incorporate innovation in their business culture, management strategy and system, beyond R&D projects.

Throughout the new strategy, it is made clear that the main aim of the Basque innovation system is to support businesses and direct the actions accordingly to their needs. Science and technology supply is targeted to provide solutions for demand of the companies in their innovation endeavours. Thus the competitiveness of the current industry base is seen as the key element of the whole strategy.

D) Diversification towards emerging sectors – building the future:

The fourth pillar of Basque strategy is based on seeking new opportunities. The aim is to look for competitive advantage from new areas of activity by supporting emerging sectors that are already born with a strong R&D and innovation culture and commitment. A key aspect which is closely linked to diversification towards future sectors is the basic research determined to meet the needs of business sector or Basque society in general. Unlike the strategic area, aimed at improving competitiveness and which may be considered as “demand pull” driven, as the development efforts are aimed to match the needs of companies, the objective of this pillar is to give “science or technology push”. This policy is targeted to support the following sectors of the future: Biosciences, Nanosciences, Alternative energy, and Electronics for intelligent transport.

From knowledge creation perspective this objective to diversify to new sectors underlines the importance of science and its increasingly direct links with the business sector. These bids, intended to support emerging sectors, involve actors of the whole value chain from research to new products, new services and even new companies that exploit the generated knowledge. Although the idea is to give science push, it will not be done in isolation of the business sector. In fact, the Cooperative Research Centres (CIC) consists of cooperative research groups that are set up to carry out research with close connection to universities and other agents of scientific knowledge supply without forgetting the companies. Two essential values that guide the work of CICs are firstly, the utilisation of physical and virtual research capacities of cooperation and secondly, acting as a component closer to the market which is presented by active participation of companies in CICs. With the close connection of the business sector to CICs, the purely linear conception of innovation can be avoided.

E) Entrepreneurship with global presence:

The last strategic pillar aims to support creation of new companies and to foster the growth path of existing companies with a target of global market access. Although Basque Country region has high levels of entrepreneurial activity, the problem seems to be that they lack growth capacity and are not especially oriented towards innovation. The objective is to give a strong boost on creation of new companies with scientific and technological base. The aim is not only to increase the number of start-up companies but also to have them competing in global markets from the beginning. These companies are aimed to become the driving forces of new sectors and knowledge-intensive activities. According to the strategy, these companies should be highly market oriented despite their science and technology base, as it is ultimately the market that determines the success of the product.

The core of the *Second Transformation* is to build the Basque Country into a truly knowledge based region where innovation is the key driver of productivity growth and will

ultimately lead to welfare and better quality of life for the citizens. The transformation is grounded on the five pillars described in the previous section but in order to better monitor the success of the strategy the Basque Country region has set three concrete and measurable objectives:

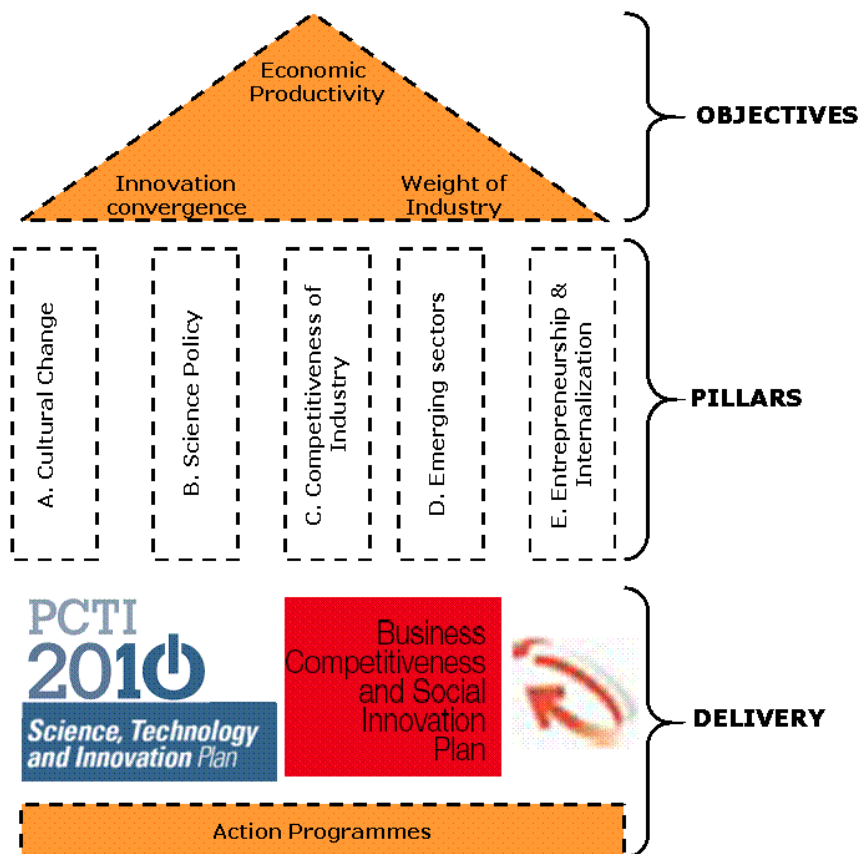
- **An increase in the overall economic productivity to over 25% of the EU-25 figure.** Competitiveness means productivity which in turn means welfare. For this reason it is essential that the trend of losing ground to the group of leading European countries is reversed.
- **Technological convergence with the EU-15 measured through R&D effort and the Summary Innovation Index.** Although Basque GDP is high in relation to innovation activity, it must be said that operating efficiency and cost advantages are transitory and that only through the evident improvement of innovation can the future sustainability of the growth model be guaranteed.
- **Maintenance of the weight of industry in actual GDP** (without price effects) and also the number of jobs it creates. More than ever before commitment to industry is one of the hallmarks of the competitiveness policy. The concept of the post-industrial society has been revealed as a myth that threatens to undermine a policy that while needing to improve productivity in all sectors, can best achieve the overall objective by driving industry forward.

c) Implementation and delivery arrangements of the strategy

The objectives of the strategy that are based on five pillars, are implemented through two interrelated plans: “Business Competitiveness and Social Innovation Plan 2006-2009” and “Science, Technology and Innovation Plan 2010”. The Business Competitiveness and Social Innovation Plan 2006-2009¹³ establishes a framework of reference for a new competitiveness model for the Second Economic Transformation, which is the core of the economic and social cohesion strategy of Basque Country region. A more open concept of Innovation is at the core of the new competitiveness model, considering organisational, market and technological innovation. It is thus, oriented to results in order to increase the productivity of science, technology and innovation. Together with this, a new Science, Technology and Innovation Plan¹⁴ was launched in 2007 framing the strategy for action regarding science, technology and innovation up to 2010 on the basis of the previous strategies. The development of more and more knowledge intensive sectors with great potential for the future requires a solid scientific and technological base, able to answer the research and development needs. This aspect suggests the requirement of being able to predict, with enough time, the scientific and technological requirements that must support the new knowledge intensive sectors. Taking into account the difficulty of supporting the creation of scientific and technological abilities, at least efforts for directing these abilities towards the most attractive and interesting sectors and potential applications need to be made.

The strategy illustrates the efforts to support the optimisation of Basque scientific and technological capacities and reinforce the whole regional innovation system, consolidating it as a European reference point for excellence in the field of research. Both plans are key tools to achieve the objectives of the *Second Transformation* through a number of action programmes intended to achieve the goals set. Figure III.17 collects the objectives, pillars and delivery arrangements of the strategy.

Figure III.17: Objectives, pillars and delivery arrangement of strategy



A. Cultural change

The cultural change is planned to take place by means of integrated science and society communication, with the ultimate objective of changing the scale of values which enables the implementation of the tangible and intangible innovation culture in society as a necessary step for the transition to the knowledge society. Therefore, specific actions are being undertaken to raise awareness of science, technology and innovation in terms which can be understood by all the citizens. 2008 has been declared as the “innovation year” and the relevance of innovation is heavily promoted through the media with the aim to make citizens more familiar with the innovation values¹⁵.



B. Scientific policy action programmes

The action programmes in the field of science policy have four different focus areas. The first set of actions brings together programmes supporting the development of all phases of research careers.

- *Graduate placement programmes* that are aimed at supporting university students in their final year projects.
- *Training grants for researchers* that are directed to pre-doctorate phase of researcher careers. The training grants are targeted to individual students for their research in Spain and abroad or to research projects.

- Post-doctoral grants for doctorates in their specialisation phase to participate in research projects from a foreign university.
- *Mobility programmes*, which are aimed to increase mobility of researchers. The targeted beneficiaries are researchers based in the Basque Country region who want to take part in projects abroad and foreign researchers who are willing to have visiting-scholar positions in the region.
- *Attraction and recovery of researchers*, which is aimed at attracting qualified researchers to come or return to Basque Country region.
- *Basque Award for Research* which seeks for recognition of research excellence.
- *Qualified research assistants*, with the aim of supporting research excellence with sufficient capacity of research assistants associated with infrastructure, equipment and research services.

The second action line is focusing on creation of Basic and Excellence Research Centres (BERC). This initiative shows the Basque Government's dedication to raising the quality of basic research. The idea of BERCs is similar to cooperative research centres – the aim is to set up new research groups and attract top foreign researchers to join them. The creation and launch of these centres is a sequential process beginning with an identification phase where the suitable research projects are selected with the help of an international advisory group. The selection will be based on research excellence – the programme is looking for established reference researchers in their respective areas of knowledge with an ability to lead an international research team. This phase will be followed by a preparation phase where detailed plans for the centres are defined and evaluated. The last phase is to launch the best initiatives with funding partly depending on research excellence in terms of publications and other scientific outputs.

The third line of action is dedicated to give resources and support for existing well-established research groups. The programme aims to facilitate and promote research activities and increase the quality of research carried out by research groups in universities of Basque Country region. This action plan is implemented through award subsidies, competitive calls and on contract basis.

The last action line of the science policy is to give support for infrastructure and facilities of Cooperative Research Centres (CIC).

C. Action programmes to increase the competitiveness of today's business base

The main goal of these programmes is to increase the innovativeness of existing Basque companies. The base of these programmes is the identification of the demand for innovation in order to guide the supply agents to respond appropriately to needs. To implement this task, INNOVA programme has been established. This initiative includes two types of instruments; "INNOVA-cooperation" to promote cooperative innovation and "INNOVA-company" to encourage companies to start systematic innovation activities.

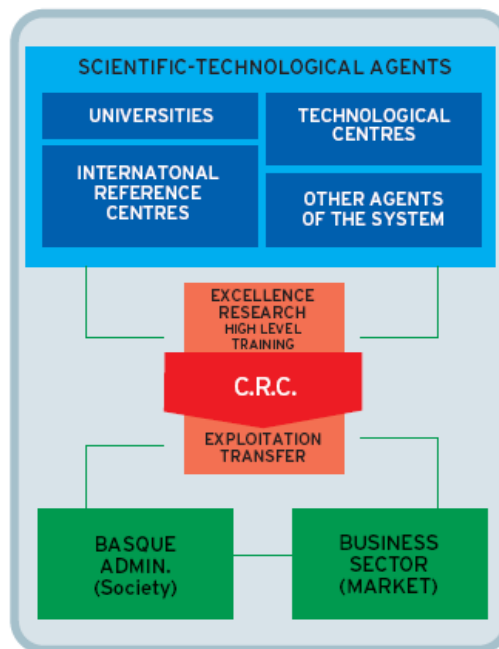
INNOVA-Cooperation initiative has a four step action plan that starts with the establishing of sectoral observatories run by sectoral associations. Their role is to identify the needs of companies related to innovation activities. The second step is to draft sectoral innovation agendas that comprise the needs identified. The agendas give an overview of sectoral needs that in next step can be matched with possible sources of knowledge already available in the innovation system. The Basque Innovation Agency will act as a mediator that matches the demand with already available agencies. The last step is to organise so-called transfer programmes to ensure successful cooperation among these actors.

INNOVA-company initiative has the goal of promoting innovation for the companies. Three elements have been defined for achieving this goal (further explained under section 2d).

D. Diversification towards emerging sectors – building the future

New emerging areas of activity are strongly based on science and basic research, but at the same time focused on the needs of the future market. To meet these needs, the Basque Country region diversification strategy is implemented through Cooperative Research Centres (CIC). The basic idea behind these centres is cooperative projects with various agents from science and business sectors with support of Basque administration (see the Figure III.18).

Figure III.18: The structure of cooperative research centres



Source: PCTI, 2007

The regional strategy has defined the focus areas to diversify as: biosciences, nanosciences, alternative energy, and electronics for intelligent transport. The common action principles for diversification are listed to guide the actions of selected future sectors:

- Drafting and definition of integral business development strategies for each of the sectors identified.
- Creation of Cooperative Research Centres (CIC) to support diversification with a strong scientific component.
- Support for the creation of new companies with a vocation for rapid growth and internationalisation.
- Training of researchers and technologists capable of developing their professional activity in the field of research in companies as well as with scientific technological supply agents.

E. Entrepreneurship with global presence

This area of activity is focused on supporting the creation of innovation oriented companies. It is based on two programmes: NETS and CONNECT GUNEA. NETS Programme is aimed at supporting the creation of science and technology based companies, focusing on the transformation of knowledge to business initiatives. The requirement of this programme is that the new business initiatives involve, from the beginning, high-level scientific or technological knowledge. CONNECT GUNEA is a specific initiative targeted at existing companies with innovative attitude, growth potential and willingness to become international. The programme has four sequential phases starting with searching for potential companies that fulfil the criteria of innovativeness, growth potential and international orientation. In the second phase, the participants are evaluated in technical and economical terms to ensure the potentiality of the initiative. In the third phase the selected new initiatives of companies are given support and mentoring through a network that ties the firms closely to science and technology systems, providing them the excess capabilities needed during the initial years of innovation activities and internalisation process. In the last stage, the programme aims to search for private seed capital funders of the most promising initiatives and later, organise a second round of funding from public and private sources to ensure the continuity of the initiatives.

Main actors delivering the R&D strategy

The actors of Basque and innovation system are presented in the Figure III.12 In the centre, there are the companies who are the main drivers of productivity growth. The actors interacting with the company base and with each other are:

- Universities, whose role is to provide educated labour force as well as conduct top-level research,
- Technological Corporations,
- Cooperative research centres, and
- Innovation Support System, which includes all the organisations involved in implementing and delivering the strategy.

Universities – the core of the knowledge triangle

Universities bring together research, innovation and education, and thus their role in the Basque innovation system is very central and their full commitment is needed to go through the shift towards a knowledge intensive society. Universities had merely the role of educator during the first transformation, but now when Basque Country region is facing the challenge of a second transformation, the role of universities is substantially larger. The Basque Country region has four universities. The largest is the public university of Basque Country region founded in 1980 with almost 50 000 students accompanied with 4 300 personnel, and three private Universities: Deusto, Mondragon, and Tecnun (University of Navarra) with 11 000, 3 800 and 1 400 students, respectively. Three centres of the National Distance University are also located in the region.

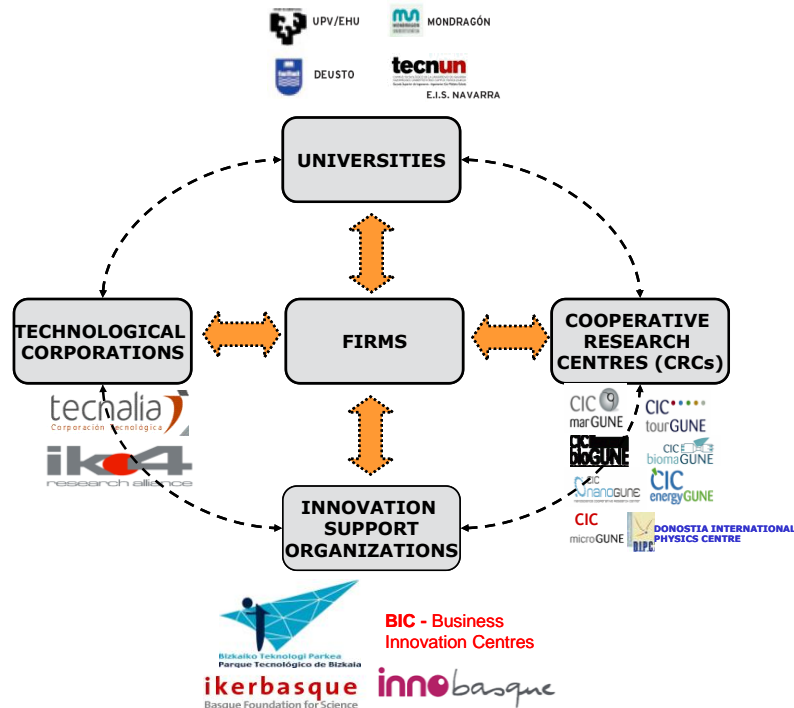
The challenge for the universities in terms of education is the full adaptation to the European Higher Education Area and accordingly the aim for the research is to form an active part of the European Research Area. The universities, both public and private, are faced with the challenge of positioning science, scientific knowledge generation and its evaluation in the centre of development towards knowledge society. As it is recognised that research creates more qualified jobs and increases productivity and growth in the long run, the contribution of

universities is considered to be essential to the socio-economic development of the Basque Country region.

Cooperative Research Centres – success stories of Basque strategy

Cooperative Research Centres (CICs) are a new tool planned by the Basque Science, Technology and Innovation Plan 2001-04, which aim to develop some of the strategic scientific and technological fields defined by the R&D and innovation policy. The aim is to optimise the scientific and technological capacities, generating economies of scale and assuring enough critical mass to increase the research capacity of the Basque Science, Technology and Innovation Network. The first Cooperative Research Centre was launched in the early 2000s, and by now they have already become a reference of the Basque innovation system. The CICs are aimed to be flexible institutions with a balance between scientific excellence and commercial success of the results. The purpose of the CICs is to do basic research in fields determined to be strategic for Basque Country region. Each research project builds up a temporary alliance between various actors, such as technological centres, universities or companies (Figure III.19). This flexible and dynamic way of organising research projects with networks is keen to attract world class researchers. Currently, seven CICs are in operation. CIC bioGUNE, devoted to Biosciences, was the first one in starting its trajectory as an essential step in fulfilling the bioBASK 2010 strategy. It was followed by CIC biomaGUNE devoted to biomaterials; CIC microGUNE which brings together specialists in micro-and nanotechnologies; CIC marGUNE which aims to increase the competitiveness of firms through the research and development in competitive manufacturing processes; CIC nanoGUNE focused on nanobio, nanostructures, nanomaterials, nanoelectronics and nanosystems; CIC tourgune conceived as a strategic tool for R+D+I in tourism; and CIC energigUNE devoted to Renewable Energies. In section 2d one of the CICs, CIC bioGUNE, is described in more detail.

Figure III.19: The actors delivering the Basque strategy



Technological corporations

Technological R&D centres are aimed at knowledge generation and transfer to support the companies as well as the administration in their R&D needs. They were created in the eighties in response to the willingness to create a technology transfer infrastructure and on the basis of

existing private centres. Most of the centres covered by the law decree 92/1982 which led to the “Technological centres under tutelage”, were small trial laboratories at that time. The development of these technological centres, the core of the regional R&D policy, is the result of the relations between the Industry Department of the Basque Government and those centres. The Basque Government played a relevant role in building the R&D infrastructure and funded 50% of their expenditure at that time. Based on this public support, the activity of the technological centres experienced a rapid expansion. The evolution of this relationship has been based on the progressive decrease in public funding, the introduction of control mechanisms, promotion of coordination with other agents, the transformation of the centres into foundations (most of them) and higher specialisation. Currently, these technological centres develop diverse technologies to address several sectors, establishing close relationships with companies. These private non-profit organisations respond to companies' needs, which make them regionally rooted in a strong way. They operate under a mixed funding model, combining the public support with contract research and services to companies.

With the aim of integrating the scientific and technological capacities of the largest and most competitive technological centres in the region, two technological corporations have been created grouping different technological centres: TECNALIA Corporation and IK4. TECNALIA Corporation gathers 7 technological centres, 1310 researchers and €93.18 million turnover and IK4 Research Alliance gathers 10 technological centres, 1292 researchers and €80.5 million turnover.

Innovation support system

- The Network of Technology Parks: The Basque Country region has consolidated R&D infrastructure and hosts the largest technology district in Spain consisting of four *Technological Parks* (Bizkaia Technological Park, Alava Technological Park, San Sebastian Technological Park and Polo Innovación Garaia). The first Technology Park, Bizkaia Technological Plan, was created in 1985 answering to the needs of regional diversification and technological development, as during the eighties there was an excessive emphasis on traditional industries. The parks offer advanced quality services such as basic infrastructures, technological assistance, value added services in telecommunications, incubators as well as others. The network promotes cooperation between universities, research centres and advanced technological enterprises to contribute to developing innovative activities. This experience has also served as an international reference in the area of technology and innovation.
- *The Basque Innovation Agency-INNOBASQUE* was introduced in the new Science, Technology and Innovation Plan 2010. It is a new body whose role is to manage, implement, monitor and evaluate the innovation policies in Basque Country region. In practise this agency promotes and facilitates collaboration among the various agents involved in innovation system and with international partners. It also develops mechanisms for monitoring and evaluating the impact of the policies. The agency integrates the Basque Science, Technology and Innovation Network (SARETEK).
- *The Basque Foundation for Science and University Research IKERBASQUE* has the objective of supporting research and science. The specific action guidelines for IKERBASQUE are related to encouragement to disseminate scientific knowledge, to strengthening of Basque Country region researcher base and the groups they work in and to supporting collaborative research.

Financial support to innovation

According to the Basque Country regional strategy the risk capital environment should be improved in the region by promoting the participation of the private sector and increasing the

attention paid to the initial stages of company creation. In this sense, the impulse to create companies, the promotion of entrepreneurship and encounters for investors and entrepreneurs in order to favour the creation of spin-offs and to enable new financial support for their initial stages are some of the activities planned by the Business Competitiveness and Social Innovation Plan 2006-2009. Gestión del Capital Riesgo del País Vasco (SGECR), and the recently created Basque Network of Business Angels (Euskadi-Business Angels) are the main actors which are working in this direction. Since 1985, SGECR is supporting the creation and consolidation of Business projects located in the Basque Country region, through participation in their capital. This society coordinates Risk Capital funds¹⁶ which cover different stages of the company creation and development process and promotes investment in high technology and innovative companies. The Basque Network of Business Angels is one of the tools which help the investors' to better chose the innovation and growth projects.

Currently, the Business and Innovation Centres¹⁷ are playing a relevant role to support the entrepreneurs and special attention is being placed on innovative projects.

d)- Sample of main policy programmes and tools

In this section two programmes are described to illustrate how the strategy is delivered: Euskadi+Innova and ETORTEK. Euskadi+Innova emerged from the idea that innovation is ever more crucial to increase regional competitiveness, offering a complete scheme to accompany the Basque companies in the innovation process. ETORTEK supports the diversification of the regional economic base through research in strategic areas. Biosciences, nanosciences, alternative energy and electronics for intelligent transport are the areas selected by the ongoing strategy for the diversification of the economic base. The regional compromise to support biosciences will be presented in detail, being the first strategic area for which specific research and business development measures were designed and articulated by a specific strategy called BIOBASK 2010. This strategy was launched in 2003 and some of the planned objectives have already been accomplished. The creation of the Cooperative Research Centre – bioGUNE was one of the first actions undertaken in the implementation of the above mentioned strategy.

EUSKADI+INNOVA programme – innovation agendas

EUSKADI+INNOVA is one of the programmes planned by the Business Competitiveness and Social Innovation Plan 2006-2009 to contribute to the regional economic competitiveness by supporting more traditional sectors. The goal is to make the Basque Country region a reference point in the framework of the global innovation system, with the aim of increasing the competitiveness of organisations and the quality of life of all citizens. Addressed to the society as a whole, and especially to Basque firms, it provides different initiatives and programmes oriented towards the achievement of innovative organisations, through the implementation of management models that favour creativity, the building of capacities to innovate and the achievement of excellence in management. EUSKADI+INNOVA promotes adequate values to help companies understand the systematic innovation as a key element for the future of companies, fosters the development of adequate professional profiles to better answer to the requirements of the changing environment, motivates the use of ICTs as a tool to improve the competitiveness, and encourages companies to incorporate the social and environmental dimensions in their relation with the interest groups. The overall aim is to support the innovation capacity of the Basque company base on the way towards a knowledge intensive productive structure. For that purpose, EUSKADI+INNOVA provides the Basque companies with a set of instruments and tools to support them in every step of the innovation process: Get informed, Plan the innovation strategy, Get trained, Implement projects and Review the innovation strategy (Figure III.20).

Figure III.20: EUSKADI + INNOVA tools

1. GET INFORMED	Innovation Forum		Encounters intended for the management of Basque SMEs, at which the need to incorporate the challenge of innovation is induced.
	Innovanet network		The network of non-profit agents, who work on promoting innovation in the business field in Euskadi and that enables effective coordination of inter-institutional action in the STI environments
2. PLAN THE INNOVATION STRATEGY	Berrikuntza Agendak: definition		Support for the reflection process that enables Basque SMEs to define the Innovation Agenda.
3. GET TRAINED	Berrikuntza Agendak: skills training for innovation		Support for implementation of projects oriented towards achieving innovation of an incremental nature.
	Directiv@21: management skills		Skills training for management personnel in Basque SMEs according to the requirements of the new competitive framework
	ICTs	ENPRESA DIGITALA	Development of the thematic area of ICTs inside the Innovanet Network
		IT TXARTELA	System to accredit basic knowledge in ICTs
4. IMPLEMENT PROJECTS	Berrikuntza Agendak: definition of innovation projects		Support for the identification of the technical-skills fields, critical factors, financing opportunities and the network of collaborators for innovation projects that the company wants to implement
	Open innovation	Aldatu	Support to launch excellent innovation projects in the fields of reconsidering the company strategy, market and organisational innovation and development of innovation capability.
		Gaitek	Support to carry out projects that include technological research, development and innovation activities to develop new products.
		Innotek	Supports the carrying out of technological development and innovation projects oriented towards the substantial improvement of already existing products and/or new processes, both in production and in management.
	ICTs	Hobeki Digitala	Supports plans to implement ICTs in SMEs as a necessary tool in the organisational transformation process towards a systematic innovation culture.
		KZ Mikroenpresak	Supports initiatives to implement ICTs in companies with less than 6 employees.
		KZ Lankidetzak	Promotes ICT implementation plans in associations and driving companies.
		KZ Wifi	Provides internet access and WIFI mobility in public places used by persons in transit with laptops and PDAs
5. REVIEW THE INNOVATION STRATEGY	Berrikuntza Agendak: review		Support for updating the Innovation Agenda based on the most notable changes that take place in the SME or the environment.

Source: EUSKADI + INNOVA

Get informed

The Innovation Forum and the Innovanet network are tools put in place to inform and increase awareness of the Basque companies to the relevance of innovation and promote the systematic innovation values among the companies. The need for incorporating the innovation challenge is addressed in the Innovation Forum, in which the managers of Basque SMEs participate. Experience and good practices are shared, and the Innovation Agenda is presented as a tool to support the path towards systematic innovation. This Forum is organised by the Innovanet network, a network of agents that serve as a link between the companies and the Euskadi+Innova. All of the organisations working to promote the innovation in companies are

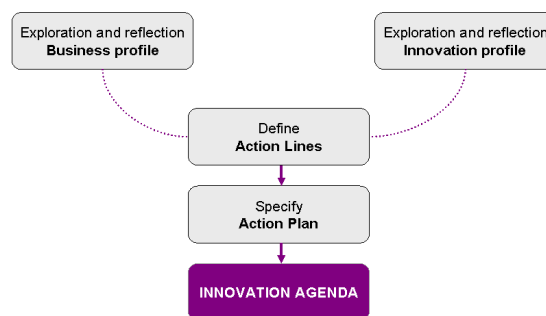
part of the network. It permits effective inter-institutional coordination in Science, Technology and Innovation activity, enabling greater impact on SMEs.

A methodology has been designed to help the SMEs innovate; it is called Innovation Agendas (Berrikuntza Agendak). Companies employing at least 6 employees and being located in the Basque Country region are the beneficiaries of the Innovation Agendas, which follows a three step-process: analysis of the starting point and the definition of an action plan/innovation agenda; the development and execution of the activities through capacitating and innovation projects; the analysis of the new situation for the revision of the innovation agenda and the redefinition of objectives and tasks. Adequate methods and tools are provided to the SMEs to support them in all the steps, in addition to an expert consultant to accompany and advise them.

Plan the innovation strategy

The Innovation Agenda is defined as a result of the reflection process including a set of projects and actions that answer to the challenges of the companies, and their accomplishment facilitates the development of the capacities to innovate and progress towards systematic innovation. The reflection process follows four stages (Figure III.21).

Figure III.21: Innovation agenda reflection process



Source: EUSKADI + INNOVA

The company commits to undertake this reflection process with the active participation of the board of directors or with a reliable team in the case of very small companies. The consultant facilitates the reflection process using the tools and guides provided by the Innovation Agendas programme. The company can also require the participation of the INNOVA agent that presented the initiative to the company in the awareness stage.

Get trained

Training is also offered by the EUSKADI+INNOVA programme in order for the companies to get the right skills to undertake the innovation projects. Training is highly important in the capacitating projects (see the following paragraph), for being the cultivation of an adequate organisational culture for the systematisation of innovation, one of their main objectives. A specific training scheme is provided for the managers, as well as training on ICTs.

Implement projects

The companies that undertook the above mentioned reflection process and have an Innovation Agenda validated¹⁸, are invited to request support to the EUSKADI + INNOVA Programme for the development of some of the initiatives identified by the Action Plan of the Innovation Agenda. Two types of initiatives are supported:

- **Implementation of Capacitating Projects:** The companies have a consultant at its disposal for the implementation of the capacitating projects set out by the Action Plan of its Innovation Agenda. The overall aim of these projects is that all the people in the organisation, by participating in these projects, develop new and adequate work routines to cultivate an adequate organisational culture which permits the company make significant progress towards the systematisation of innovation.
- **Definition of Innovation Projects:** This type of projects can be defined as a temporal combination of human, technical and financial resources aimed at achieving significant changes in any kind of business innovation (product/service, process, market, organisation), in addition to the business model, the innovative capacity and the organisational culture. The support to this service facilitates the company elaborate preliminary projects of innovation including, in addition to technical and competences areas, the identification of possible financial assistance for the development of the project. It permits the companies get more knowledge about the innovation support plans and programmes and increase the number of collaborators and innovation support centres. This type of projects incorporates significant innovativeness in any of the previously mentioned innovation areas, ensures effective application in the medium term, involves an ambitious challenge and adds value to the customers or the company itself. The definition of innovation projects involves undertaking three different steps: elaboration of the innovation project report with the help of the consultant; identification of support and funding programmes; identification of the network of collaborators.

Review the innovation strategy

The innovation agenda should be dynamic, which means that it is modified when required by the circumstances that are being faced by the company. One year after the validation of the Innovation Agenda, the company can request its revision, always after justifying the execution of at least one of the actions envisaged by the agenda. A consultant will support the company undertake a new reflection process, and the projects will be updated according to the new needs of the company. A new version of the Innovation Agenda will be developed.

As a result of this programme, 939 companies have submitted an application to elaborate their own innovation agenda. Industry is the sector leading the number of applications with 463, which represent 49.47% of the total applications, followed by the services sector with 403 (43.06% of the total applications). 63 applications were prepared by construction sector companies and 7 by agriculture. Due to the low rejection rate, more than 900 companies are embarked in drafting and implementing their innovation agendas and more than 33 000 employees are familiar with the innovation concepts and processes suggested by Euskadi + innova.

ETORTEK and ETORGAI programmes to support diversification

ETORTEK, and the recently created ETORGAI, are aimed at supporting the diversification of the economic base by encouraging research and creation of new companies and employment in strategic areas. The ETORTEK Programme was born under the Science, Technology and Innovation Plan 2001-2004 and launched in 2002. ETORTEK programme is increasing the regional science and technology capacities in the set of priority strategic areas established by the science, technology and innovation plan to diversify the economic base: Competitiveness, Environment and Energy, Information Society, Quality of Life and Life Resources¹⁹. The objective was to position the Basque organisations as international reference in these specific areas through multiple year work plans conducted by *Mixed Research groups* who receive funding depending on the outputs achieved in terms of scientific-technological orientation,

cooperation and integration of the stakeholders, prestige at European/world level, transfer and commercialisation of results, contribution to the creation of new firms, etc.

ETORGAI programme has been recently launched to support the business application of this knowledge on a collaborative basis through consortia, and thus accelerate and complete the diversification process by creating new products, companies and employment.

In the first two calls for proposals (2002-2003) fourteen strategic research projects were approved under ETORTEK with a total subsidy of €35.3m. The Life Resource area was the one receiving the highest public support in the first two calls for proposals, with more than €15m. In particular, the bio pharmacology, proteomics and genomics with the bio GUNE project (the Cooperative Research Centre in biosciences) as the main part of the delivery of the BIOBASK 2010 strategy, received almost €14m. The BIOBASK 2010 strategy and the Cooperative Research Centre in Biosciences (CIC bioGUNE) are explained below.

BIOBASK 2010 strategy

Launched in 2003, this is the result of the conviction that the promotion of biosciences is interesting for the region. The opportunity to renovate the industrial base and increase the business opportunities that biosciences bring to the region was the main driving reason for this choice, but the international interest in biosciences also influenced this decision. It was assumed that the biosciences development in the Basque Country region will not happen spontaneously and be promoted by the market. On the contrary, as in other places in Europe, a boost is needed, especially in the early stage of the development of this strategic area. Under these premises, a specific strategy tailored to the regional features was considered necessary. The strategy has to be adapted to the specific business, fiscal and entrepreneurship features. The small size of the region in terms of population requires a good use of the available resources. Moreover, the region is lagging behind other European countries and regions in terms of the development degree of the biosciences, which demands accelerating its way in order to get certain visibility at worldwide level. Likewise the creation of new companies, especially in the two years prior to the launch of the strategy, evidences an increasing interest in biosciences in the private sector. There is also scientific and technological activity in the university, technological centres, as well as an increasing critical mass of companies and investors searching for projects, which provide an interesting initial basis.

The regional biosciences strategy was expected to be a tool capable of guiding the mobilisation of financial and human resources in order to position the Basque Country region as an international reference in the medium term, bringing the maximum economic and social benefits and visibility.

The BIOBASK 2010 strategy sets as vision for 2010, the existence of a business activity which is recognised by the biosciences in international scale and its translation into the development of the biotechnology clusters, employment and wealth generation.

A set of specific objectives translate this vision into a mission:

- Set the basis for the development of a dynamic biotechnology sector
- Facilitate the implementation of the technologies both for the regional competitiveness and the social benefit
- Create adequate conditions for the promotion of collaboration and transfer
- Create a new strong business and market area around the biosciences.

In terms of quantitative objectives, 40 new companies were planned to be created by 2010, as well as the generation of 3 000 new employments around these companies (in companies themselves, and also in the academic and sanitary disciplines). It is expected that the biosciences will contribute to the regional GDP in 1-1.5% by 2010. Table III.22 illustrates the three strategic axes set out by the strategy, as well as the programmes to deploy them.

Table III.22: Strategic axes BIOBASK 2010 strategy

Strategic axis	Programme
Knowledge generation	Cooperative Research Centre - BIOGUNE Incorporation of researchers to the Basque network of science, technology and innovation Alliances
Business development	Creation of an incubator Use of biotechnology applications in traditional sectors Promotion of R&D&I activities in companies Promotion of risk capital
Making the sector more dynamic	Coordination Agency - cluster

Source: BIOBASK 2010 Strategy

BIOBASK 2010 intends to generate and develop greater levels of knowledge in order to facilitate the business development in a further stage. BIOBASK 2010 bets on the reinforcement of the research capacity and increasing the critical mass, the attraction and retention of talent, training, scientific and technological alliances and cooperative research centres are some of the activities planned for that.

The Cooperative Research Centre in Biosciences (CIC bioGUNE)

Starting activity at the end of 2003 with the recruitment of the management staff, was first opened in January 2005 as a centre of excellence for biomedical research. The CIC biogune addresses the following needs:

- Reduce the scientific-technological gaps in key areas (training of new researchers, etc.)
- Increase the scientific-technological base, in order to achieve greater critical mass and excellence (international projection)
- Development of adequate support infrastructure for knowledge generation
- Improve the coordination among the Basque network of science, technology and innovation and with other international actors.

CIC bioGUNE intends to be an excellence research centre in biosciences. As set out by its strategic plan, health is the focus for the centre's research. Diseases with high social impact as a consequence of the lack of adequate diagnosis are analysed in the centre. The centre works functional genomics, proteomics, metabolomics, cellular biology and mother cells, structural biology and bioinformatics.

The setting up of such a competitive centre required an investment of €55 million. To date, CIC bioGUNE has received grants from the Basque Government (ETORTEK programme) and from the Bizkaia Provincial Government, as well as the Spanish Government. Researchers from the centre have completed projects amounting to over 3 million. Research projects in collaboration with hospitals, universities and research centres are being developed, and the first

results from research carried out in CIC bioGUNE have already been published in prestigious scientific journals (around 70 publications) and several patents have been developed (3 transferred). CIC bioGUNE has around 119 qualified professionals (around 100 researchers). However, the nature of CIC bioGUNE is best revealed by the close collaboration it has forged between the academic and business sectors, which has led to the creation of a group of companies with excellent prospects in the areas of Liver diseases, Oncology, Neurosciences and Bioinformatics. CIC bioGUNE also believes in the importance of intensifying the debate between researchers, politicians and industry in all aspects of science and technology. To contribute to this debate, and in collaboration with the other CICs, the journal CIC Network has been started, the objective of which is to review fundamental aspects of science and technology and to write about the most important research that is being carried out in the Basque Country region. Scientific research seminars, courses and meetings have been organised, as well as information conferences aimed at the general population. CIC bioGUNE's main objective is to continue working at this level to become a centre of excellence in the Biomedical field.

The Centre for Cooperative Research in Biomaterials-CIC biomaGUNE, officially opened in December 2006, complements the biosciences activity in the Basque Country region. This centre started its activity in April 2005 with the recruitment of the Management staff and starting of laboratories building works. Up to date, the setting up of such a competitive center has required a total investment of EUR 26 million, mainly provided by The Basque Government (ETORTEK programme), the Spanish Government and the County Council of Gipuzkoa. Since then, 60 positions have been filled by international researchers and qualified professionals. Along 2007 and 2008, the second phase will be focused on building works for Molecular Imaging Unit which is expected to be running in 2009.

3. Outcomes of the strategy

a) Extent to which objectives have been achieved

Basque Country region strategic objectives, based on five pillars, were summed up to three concrete and measurable objectives presented under chapter 2b namely 1) increase in productivity, 2) technological convergence and 3) weight of manufacturing industry. In the following the progress towards these three objectives is described.

Objective 1: An increase in the overall economic productivity to over 25% of the EU-25 figure

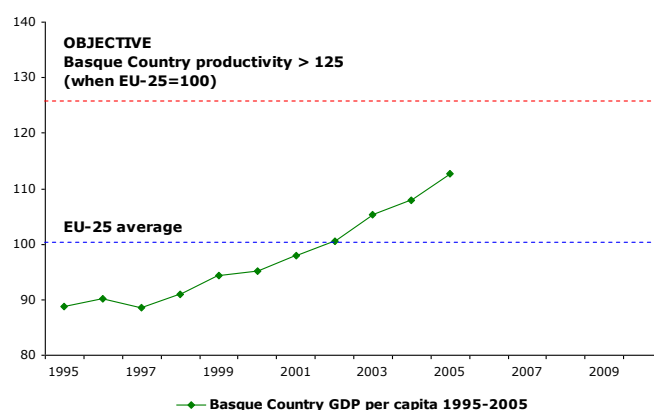
Competitiveness means productivity which in turn implies welfare. For this reason, it is essential that the trend of losing ground to the group of leading European countries is reversed. The first objective set by the new strategy was to increase the economic productivity to level over 25% of the EU-25. Figure III.22 shows the development of gross domestic product (GDP) per capita in Basque Country region (EU=100). In terms of purchasing power parity (PPP) corrected GDP, Basque Country region is above the goal of over 25% of European average. Same holds true when productivity is measured with labour productivity.

Objective 2: Technological convergence with the EU-15 measured through R&D effort and the European Innovation Scoreboard

Although Basque GDP is high in relation to innovation activity, it must be said that operating efficiency and cost advantages are transitory and that only through the evident improvement of innovation can the future sustainability of the growth model be guaranteed. This second objective of technological convergence with EU-15 countries was set to improve the innovativeness of Basque Country region. Firstly, it is aimed to increase the R&D investment to the European Union average. Figure III.23 shows the development of the share R&D expenditure of gross domestic product (GDP). Initially, Basque Country region was far behind the European average but through high increase in R&D expenditure in late 1990's the

European average is an achievable goal. Currently the region invests in R&D almost 1.5% of GDP which is above Spanish average 1.2%.

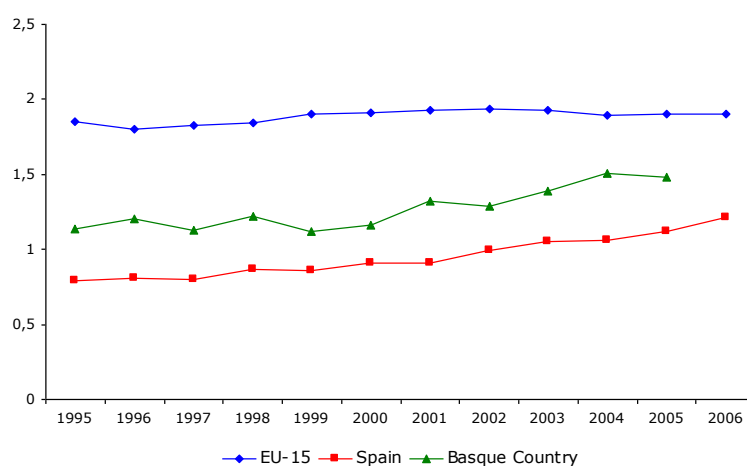
Figure III.22: Economic productivity targets (measured with GDP per capita)



Source: Eurostat and Eustat, 2008.

Research and development has been a priority for the Basque Country region during these three decades. From initially non-existent investment level, the R&D expenditure increased to 1.1% of GDP in 1995 and to 1.5% in 2005, representing a higher growth rate than in EU-15 countries and in Spain. This growth is mainly driven by the private sector, including technological centres, followed by universities and public administration.

Figure III.23: R&D expenditure per GDP 1995-2006 in EU-15, Spain and Basque Country region (data for Basque Country region not available for 2006)



Source: Eurostat, 2008.

In addition to R&D intensity the second objective included also convergence with European Innovation Scoreboard index. The index is composed of various indicators measuring different aspects of innovation such as education level, public and private R&D spending and innovation performance.

Table III.23: European Innovation Scoreboard 2007

	EU27	Basque Country region	Spain
European Innovation Scoreboard 2007 (SII)	0.45	0.37	0.31
Relative to EU EU27	100	80	69
S&E graduates	12.9	26.6	11.8
Population with tertiary education	23.0	41.8	29.9
Broadband penetration rate	14.8	14.7	13.2
Participation in life-long learning	9.6	12.4	10.4
Youth education attainment level	77.8	79.2	61.6
Public R&D expenditures	0.65	0.29	0.51
Business R&D expenditures	1.17	1.14	0.61
Share of med-high/high-tech R&D	85.2	73.0	77.0
Enterprises receiving public funding	9.0	13.6	9.0
SMEs innovating in-house	21.6	26.8	18.4
Innovative SMEs co-operating with others	9.1	6.1	5.7
Innovation expenditures	2.15	1.62	0.94
Early-stage venture capital	0.053	0.017	0.027
Spending on ICT	6.4	5.1	5.5
Innovation SMEs with organisational innovation	34.0	22.6	27.6
Employment in high-tech services	3.26	3.23	2.68
Exports of high technology products	16.7	3.7	4.7
Sales new-to-market products	7.3	1.6	3.8
Sales of products new for the company but not for the market	6.2	2.5	10.0
Med-hi/high-tech manufacturing employment	6.63	10.21	4.53
New EPO patents	128.0	50.5	30.6
New USPTO patents	52.2	12.5	6.5
New Triad patents	20.8	2.2	2.7
New community trademarks	108.2	176.1	143.0
New community designs	109.4	103.0	103.7

Source: Eustat, 2008.

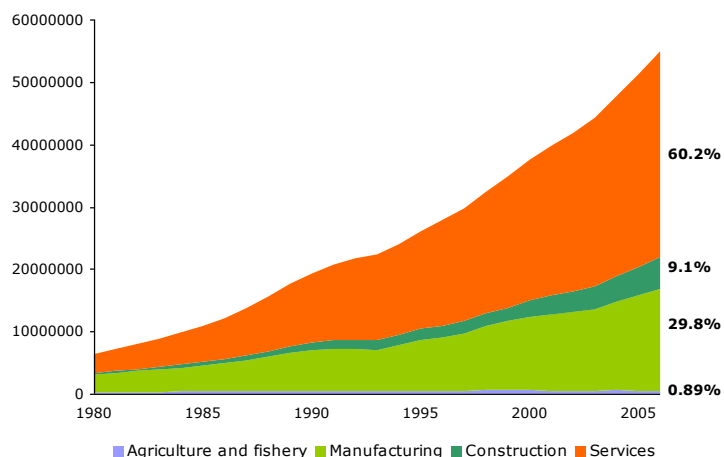
The European Innovation Scoreboard shows that Basque Country region has overall index value of 0.37 in 2007 whereas the European (EU-27) average is 0.45. Below the overall index are the different measures of which the index is composed. When evaluating the progress of the region in terms of catching up the European average, it can be noted that Basque Country region is already above EU-27 as regards different measures of education (S&E graduates, population with tertiary education, lifelong learning and youth education attainment level). The region has reached the European average also when measured with indicators such as broadband penetration, employment in high-tech services and business enterprises receiving public funding. Also the business enterprise R&D expenditure is already close to the level of EU-27. Basque Country region is well below European average when measured with innovation output indicators such as sales of new to market products, exporting high technology products and in patenting. As a conclusion of this objective of technological convergence it can be said that Basque Country region is doing relatively well when innovation input measures are considered. The innovation output measures show why the region is still behind the European average. There is still a huge gap to European average levels in for example patenting or new product sales. Perhaps the investments on R&D and innovation are not yet fully transferred to outcome and in future we can witness the investments paying off.

Objective 3: Maintenance of the weight of industry in actual GDP

More than ever before commitment to industry is one of the hallmarks of the competitiveness policy. The concept of the post-industrial society has been revealed to be a

myth regarding productivity improvements in all sectors can best be achieved by driving industry forward. The third objective of Basque strategy was to maintain the share of manufacturing industry in order to ensure productivity growth. From Figure III.24 we can see that the share of manufacturing industry of total GDP in Basque Country region was 29.8% in 2006. After 2003 the production of manufacturing industry seems to be back on growth path, although not growing as fast as service sector production.

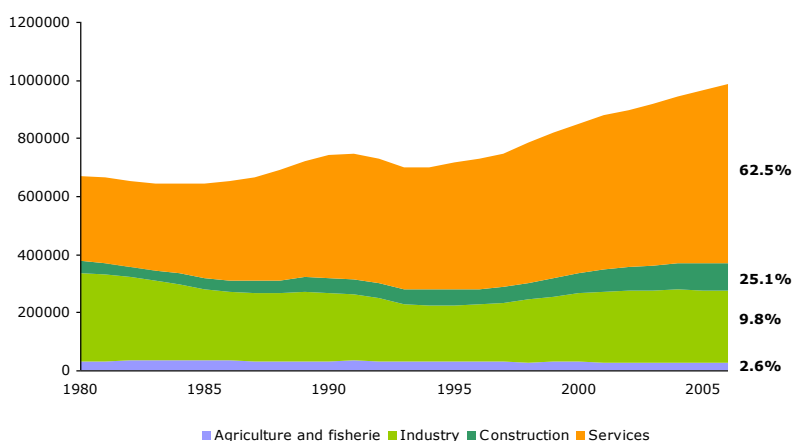
Figure III.24: GDP (current prices) per sector 1980-2006



Source: Eustat, 2008.

Figure III.25 shows the development of Basque industry sectoral employment. The manufacturing sector employment was slightly decreasing during 1980-1994. From mid 1990's the manufacturing employment has been slowly increasing being 248 198 persons in year 2006. The objective is to keep on with this growth path.

Figure III.25: Employment per sector 1980-2006



Source: Eustat, 2008

b) Strengths and weaknesses of the strategy

During these three decades the Basque Country region has consolidated a Regional Development Strategy resulting in continuous economic growth since 1985. Several factors have contributed to the success of this strategy among which the following strengths are to be highlighted:

- **Geographical location:** The Basque Country region is characterised by its privileged location, being considered as the door to the Iberian Peninsula. Its position regarding the transport axis and the strategic powerful sea transport structure, composed by its ports and communication infrastructure, make the region a strategic area for external commerce. The region has also a high economic dynamism favoured by the regional economic features, small and open giving big leeway.
- **Employment:** The Basque Country region has achieved a historically low unemployment rate of 7.0% in 2006 which is below the European and Spanish average. From a very high unemployment as a consequence of the crisis during the early eighties (above the 25% in parts of the region) the unemployment rate decreased from 13.9% in 1999 to 7.0% in 2006 meanwhile the average unemployment rate in 2006 is 7.8% in EU-15 countries and 8.5% in Spain. Employment is concentrated on service sector (62%) followed by industry (25%), construction (10%) and agriculture and fisheries (3%).
- **Education and qualification:** Human resources are considered to be a key element for the Basque Regional development and as a consequence, education and training are the priority objectives. This strategy has achieved a high level of qualification of the population. Basque Country region performs very well in tertiary education, above Spanish and European rates. The Basque Country regional strategy has always supported science and technology, resulting in a high number of graduates in science and technology, above the Spanish and European average. This has been accompanied by a relevant educational offer in technical and technological fields. The Basque Country region is also quite well positioned regarding lifelong learning, above than the Spanish and EU average. The region has also a high level of researchers, especially due to the activity of the technology centres. The two technological platforms employ about 2600 researchers. Thus, the Basque Country region is above the European average in R&D human resources per inhabitant.
- **Entrepreneurial structure:** The Basque Country region has a predominance of SMEs. These enterprises are characterised by the level of internationalisation, specially focused to EU countries, management capacity with a quality culture, and the cooperation and association to diverse groups or entrepreneurial organisations, specially clusters. A major effort has been also conducted regarding business R&D. The Basque Country region is close to the EU average in business R&D expenditures (BERD). The fastest growing service sector has been business services there is an increasing development of advanced services enterprises.
- **Business specialisation:** The Basque Country region is one of the most important industrial areas in Spain and presents a high sectoral specialisation in traditional sectors, which have been very important for the economic growth. Although the service sector has grown rapidly during the last fifteen years, the Basque economy is still remaining substantially large industrial sector. The most important industrial sectors are metal and machinery industries and their share of GDP has remained unchanged during the period of 1990-2006. Industrial evolution has been recently oriented to sectoral diversification through high added value sectors such as biotechnologies, nanotechnologies.
- **R&D investment and innovation system:** The Basque Country region has developed a Regional Development Strategy with a strong support to science and technology. The first steps of the strategy were devoted to create the R&D infrastructure and followed with targeted measures to create and structure the regional innovation system. In this sense, the region has a well developed network of technology parks – being the largest technology district of Spain (the three technological parks are

housing 328 companies). These parks house the largest number of private technological centres in Spain. There is also a strong network of technology centres integrated in two platforms: TECNALIA and IK4. These technological corporations integrate the scientific and technological capacities of the largest and most competitive technology agents. Clusters have also an important role in the Basque economy. The Basque Country region was a pioneer region in launching the clusters during the 90.

The region has supported the creation of new strategic agents such as Cooperative Research Centres and Excellence Research Centres, The Basque Council for Science, Technology and Innovation, Ikerbasque and Innobasque - the Basque Innovation agency to strengthen the Basque regional innovation system.

The Basque Country region has an active science, technology and innovation network involving offer, demand and intermediate organisations. This makes a very dynamic and structured model coordinated in a network with physical proximity. The Basque government has shown willingness and commitment to match the technology supply and demand sides, which can be considered as one of the main strengths in the designing phase of the measure.

Research and development has been a priority for the Basque Country region during these three decades. From initially non-existent investment level, the R&D expenditure increased, representing a higher growth rate than in EU-15 countries and in Spain. This growth is mainly driven by the private sector, including technology centres, followed by universities and public administration.

- **Governance:** The Basque Country region has shown a strong political commitment to develop an efficient knowledge system that connects industry, education, research institutions and government. The Basque Country region stands out internationally by the level of fiscal and budgetary competencies. Public administration has had the competencies and resources to develop an innovative strategy consisting of a high number of programmes and public policies to support innovation and improvement of business management. There is a regional framework for competitiveness and innovation and a very clear science and technology strategy with planning oriented with clear objectives to the future. The strategy shows a well structured R&D and innovation programmes with a long trajectory in which there has been an important and persistent expenditure in R&D policies with a high political and social consensus. There is also a plural administration permitting the promotion of public-private cooperation. These science and technology networks have been developed mainly in the last 20 years thanks to the strong efforts of the Basque public administration. Basque institutions have been pioneers and innovative in many programmes and actions.

The strategy answers to the new trends of governance with quite a good implication of regional innovation system stakeholders in the reflection about the regional innovation policies.

Together with these strengths, the implementation of the Regional strategy has also shown the following weaknesses:

- **Geographical location:** although the strategic location and the extensive net of highways and roads have a higher infrastructure level than Spanish average, the region is still below most European developed regions in terms of economic performance.
- **Education and qualification:** The Basque Country region shows a higher level of education, especially in R&D. In particular, the level of population with tertiary education and S&T graduates stands out from the Spanish and European averages. Nevertheless, there is a low level of population with a PhD. There is a network of four

universities in the region (one public and three private), even though any of them is world-class. University has traditionally been more focused on education rather than research. An effort is being done in order to develop the scientific potential and permit the universities to take a position to lead the changes that must take place in the Basque innovation system.

- **Entrepreneurial structure:** the Basque industrial fabric is dominated by SMEs, thus there is a scarce presence of big leading businesses although their share is increasing. There is also a low promotion and development of entrepreneurship and funding sources such as private venture capital societies, etc. Risk capital and business angels are in a very low stage of development. To face this weakness, new initiatives have been launched such as Gestión del Capital Riesgo del País Vasco (SGECR), and the recently created Basque Network of Business Angels (Euskadi-Business Angels). The risk capital environment should be improved in the region by promoting the participation of the private sector and increasing the attention paid to the initial stages of company creation. These activities were planned by the Business Competitiveness and Social Innovation Plan 2006-2009.
- **Business specialisation:** Basque Country region has focused its strategy on industry. As Basque economic structure comes from a traditional industry scheme with low innovation activities this might cause a sectoral imbalance. With this, a technological imbalance can also be found as private R&D funding is not enough to develop innovative activities (traditional sectors and small enterprises). R&D is limited to a small number of enterprises, innovation is mainly focused in processes and it is conditioned by the industrial predominance.

In addition to focusing on those research areas aimed at supporting the sectors where the regional economic activity presents quite a long trajectory and thus contributes greatly to the regional incomes and GDP, the technology transfer measures also support the diversification of the regional economic activity to other more technology-intensive sectors such as biosciences, nanomaterials, etc. for the future competitiveness of the business sector. These key strategic areas are also aimed at better satisfying social needs in order to improve the quality of life of the inhabitants.

- **R&D investment and innovation system:** The Basque government has made a very strong effort to build and consolidate the Basque regional innovation system. The system did not exist in the eighties. Some of the key elements were the creation of the technology centres. The network of technology centres is very well developed but there are no public research centres in the region yet, and the research conducted by these centres is more devoted to adapt than to generate technology.

Universities, as part of the system, are not well connected with the rest of the agents of the innovation system. The science-industry relationship is not embedded in the system and is not systematic enough. There is a weak participation of financial bodies in the innovation support. Low percentage of enterprises with R&D activities and with R&D expenditure. This excludes technological centres.

Although the region highlights the important effort of R&D, the R&D expenditure is not yet having enough impact regarding the level of patents, which is still very low or the development of new products. The innovation system is not yet very productive.

- **Governance:** The Basque regional government has made an effort to design a Regional Development Strategy adapted to the regional needs. But still, some of the regional features may not have been duly addressed when designing the measures of the strategy. This is the case of the culture clash between university and firms or the

low technology absorption capacity of SMEs. That is why university-industry cooperation, as such, is considered as an opportunity to design new measures, together with the greater protagonism of high-knowledge intensive sectors that are acquired in the region and might need new support measures. This is linked with the generalised need for greater monitoring tools to better adapt the measure to real needs. These new measures should be able to take advantage of the variable “territory” (element that consolidates stable complementary relations that can contribute to a greater number of agents in the innovation field) and “value-chain relations” (university to technology centres to society). In general, strengthening connectivity and interrelation of agents to articulate strong services and support networks. In this sense, mobility could be enhanced.

4. Potential for the transfer of the strategy

a) Transferability of the whole strategy

The Basque Country regional economic development during last 28 years has been attributed to many institutional factors coming together at the same time. The economic agreement with the Spanish Government allowing Basque Country region to govern many of its policies autonomously and especially the autonomous fiscal policy has had a great impact on the economic growth. This contextual factor, that is rather regional specific, is making the overall transferability of regional strategy rather difficult as regions are not normally having such a large autonomous right to govern their policies. However, despite this autonomous position of the Basque Country region, the main values and guidelines of the Basque strategy are universal and transferable.

The Welsh and Basque Country regions are to some extent very similar: relatively small regions; Basque Country region having a population of 2.1 million and Wales about 3 million, initially in the 1980's both regions were characterised by very high unemployment and they were based on traditional industries. Now both of the regions have undergone rather dramatic transformation towards knowledge intensive societies with fast growing service sectors. In this sense, the regions may have some analogies in their development efforts and perhaps the strategies of Basque Country region and Wales could benefit from an exchange of experiences.

The Basque Country Regional Development Strategy has been a long-term effort joining together various agents and including several phases and plans for implementing it. The current new strategy that guides Basque Country region through *Second Great Transformation* and towards knowledge society is based on five strong pillars 1) cultural change, 2) science policy, 3) competitiveness of industry, 4) emerging sectors and 5) innovative entrepreneurship with global presence. These pillars illustrate how the efforts of all the actors, including citizens, are required to successfully achieve the goals set in the strategy. The measurable objectives were to maintain the share of industry, to improve productivity and convergence with EU innovation related indicators. All of this is done to achieve a knowledge based society with an overall high quality of life.

The increased quality of life is ultimately the goal of the Wales strategy as well. The Welsh strategy “Wales: A Vibrant Economy” sets the two main priorities when pursuing the goal: *increasing employment* and *raising the quality of jobs*. The key actions to achieve these priorities are defined as 1) support for job creation, 2) investments to regenerate communities, 3) help for business to grow, and 4) ensuring that all economic programmes and policies support sustainable development. Although the goals of the Wales and Basque Country regional development strategies are analogous, their approaches differ. In the strategy of Basque Country region, innovation is set in the centre and is identified to be the main driver of economic growth. Although innovation is recognised as a driver of business growth in Wales' strategy as well, the

role of it is perhaps not as central. Maybe the most important message that could be transferred from Basque Country region strategy to Wales is the importance of innovation.

The pillars of Basque strategy could be perfectly applied in the context of Wales as a means to achieve the goals of increasing employment and raising the quality of jobs. Starting with the first pillar of cultural change, with the aim of making innovation a matter of whole society, the Wales economy may benefit from publicity campaigns such as “2008, The Year of Innovation” in the Basque Country region. It may encourage the inactive workforce to take part in building a knowledge society. The second pillar, supporting the present industry base to become more innovative is already underlined in Welsh strategy. Actions such as Knowledge Bank for Business and the role of technological centres are recognised to be important in the strategy of Wales as well. To deliver this support for companies the Basque Country regional strategy designed the EUSKADI+INNOVA initiative. Perhaps these kinds of programmes, directed to detect the actual need of companies, may work in Wales as well. Also the cooperative research centre experience, especially the CIC MarGune that was established to serve and support manufacturing companies in their innovative activities, may be a good practise to transfer. In general, the CICs have a very important role in Basque strategy and they are especially important in endeavours to diversify to new emerging sectors like bio- or nanoscience. These centres have become the flagship of Basque innovation strategy and their success is already measurable in terms of being able to attract a large number of foreign top researchers, in terms of patents, scientific publications and spin-off companies. The CICs will show their full potential in the following years, but in general these kind of flexible structures, joining different types of actors together, are workable concepts for any regional strategy. Especially for Wales who is seeking to strengthen the ten selected industries that are recognised to be important for future economic growth. Perhaps a cooperative structure similar to CIC could serve for these industries as well.

Science policy is considered to be important for both Basque and Welsh strategies and both regions share the same concern of connecting universities better into innovation system. In the Basque Country region, the main related actions to connect universities to other actors are again research centres, CICs and BERCs. These centres facilitate the communication between industry and science. Knowledge transfer between these actors is essentially important when looking for market oriented innovation.

The Welsh strategy identifies entrepreneurship and trade as being important elements of supporting the business growth. These two, combined with innovativeness, form the last pillar of the Basque strategy. The difference between the two strategies is that the Basque strategy is more concerned about innovative and international orientation of the new companies while Welsh strategy seeks to promote entrepreneurship in general. However, the Basque programme CONNECT could serve as a tool to provide support for new entrepreneurs while at same time providing the benefits of networking.

The pillars of Basque strategy, as such, involve familiar concepts like innovation, competitiveness, science, entrepreneurship or internalisation. All of these concepts are very common to any strategy. Perhaps, a more distinguishing factor is how these concepts have been implemented to actually contribute to economic growth and ultimately quality of life in Basque Country. During the Basque development trajectory, which has been characterised by the *continuity of policies* ensured by the permanence of the leading political party, several activities or experiences illustrate that:

1. The participatory methodology used for the definition of innovation strategies illustrates that involving various agents in the definition and implementation of innovation policies has been a priority for the Basque Government during its innovation support trajectory. The commitment of various agents, both in the innovation policy definition

and implementation processes, is the only way to make them feel the strategy is “theirs” and join efforts in the same direction to contribute to successful innovation processes.

2. The Basque innovation policies have relied on a clear understanding of the existing knowledge assets and on being able to apply and develop them further in value creating assets. Specifically, the efforts oriented to diversifying and renewing the industrial base, increasing regional competences in specific scientific and technological strategic fields are also based on regional specific competences and interests. Nowadays, following the success of other regions in performing innovation linked to specific cutting-edge sectors such as biotechnology and nanotechnology, an increasing number of regions are basing their innovation strategies and the restructuring of their industrial base on those sectors that are supposed to offer great opportunities and benefits in the future. Due to market reasons, those regions that are capable of developing the most appropriate capacities and competences in these technologies more rapidly - based on existing capacities and circumstances - are more likely to succeed.
3. Interaction among key players is a clear energiser of innovation processes. The innovation system concept describes how innovation depends on the creation and exchange of knowledge. The previous emphasis on inputs and outputs has been replaced by a heightened interest in the processes and outcomes. While many of the tools from the 1st generation of innovation policy, focusing on creating linkages in the ‘innovation chain’, are still valid, they need to be complemented by overarching, systemic approaches aimed at creating those feedback loops that facilitate the multi-directional flow of tacit knowledge. The creation of SARETEK, a cooperative network combining the actors of the Basque innovation system, recently integrated in Innobasque; the creation of clusters; the Cooperative Research Centres; and the participatory methodology used for the definition of innovation strategies, illustrate the efforts made to promote interaction and mutual learning processes that could lead to knowledge multiplication.

b) Transferability of specific successful policies

The Basque Country region industrial, as well as science, technology and innovation policies are based on long-term strong commitment to develop existing industrial base while at the same time betting on emerging new sectors. The Basque Country region has benefited from the creation of structures which allows efficient knowledge transfer between the various agents of particular sectors or industries. The creation of Cooperative Research Centres (CIC) has especially supported the commitment to making the existing industrial base more innovative but also reinforced the diversification efforts to new emerging sectors. A very important element of the CIC’s is the involvement of different stakeholders from the very beginning of the planning process. Although the initiative and support for developing these centres came from the government, business enterprises, universities and research centres and were, from the beginning, the integral part of the system. The main aim of the CIC’s is to combine excellence in research and commercial exploitation of the results in order to strengthen the competitiveness of existing sectors towards products with greater added value and diversification towards new knowledge-intensive industries. The Basque Innovation System currently has seven Cooperative Research Centres.

Welsh strategy has also identified sectors that are considered to be important for future economic growth and the strategy is referring to already existing Sector Forums and Sector Skills Council and the importance of involving the private sector in strategy planning. In the Innovative Action Plan, the Welsh strategy launches a new concept called Knowledge Bank for Business (KB4B) to assist the high growth companies. KB4B is offering different types of services for companies and also acts as a mediator between the higher education sector and businesses to utilise and develop the existing knowledge base of Wales. Perhaps some synergies

could be found between these efforts and the Basque Country's strategy to launch Cooperative Research Centres. Particularly, BioBask2010-strategy described before may be of interest to Wales, as one of the identified sectors of the Welsh strategy is pharmaceuticals and bio-chemicals.

The biosciences were identified as new strategic area of focus in the Science, Technology and Innovation Plan 2001-2004. After that, two CIC's (bioGune and biomaGUNE) were established. The actions carried out to date have acted as a catalyst, increasing the scientific-technological critical mass, coordination between agents and essentially, creating around thirty new companies.

5. Conclusions

The Basque Country region is characterised by its privileged location; a powerful sea transport infrastructure and communication infrastructure, being a connection point between the main European communication axes. As a consequence, the regional economy has been always characterised by its open attitude and its exporting business. The Basque Country region is one of the most important industrial areas in Spain, and the traditional industry key for the economic growth.

The Basque Country region has faced tremendous economic growth over the past three decades. A large part of this development is due a particularly long-term strategy that has guided the transformation from traditional industry based economy towards knowledge intensive society. The strategy has been grounded on four strategic priorities: technology and innovation, cooperation, quality and internationalisation which have been targeted in all the strategies. As a result of this, the Basque Country region has reached the European average in terms of GDP per capita and grown faster than in Spain or in other European countries. Although the service sector has grown rapidly during the last fifteen years, the Basque economy is still made up of a substantially large industrial sector, with metal and machinery industries being the most important ones. Economic growth of the region has also led to an unemployment rate below the European average; from 13.9% in 1999 the rate has decreased to 7.0% in 2006 and remained at the same level during the period 2001-2004 while unemployment increased in EU-15 and in Spain. The development achieved by the Basque economy can also be attributed to the high qualification level of its employees and the labour market dynamism. In fact, the share of the active population with university or higher education degrees was almost 40% in 2006. This figure is considerably higher than in EU-15 countries or in Spain. Research and development has been a priority for the Basque Country region during the last three decades. From initially non-existent investment levels, the R&D expenditure has reached European average. In addition to this, the European Innovation Scoreboard measures show how the Basque Country region has approached the European average and, to some extent, already exceeded it. This would not have been possible without systematic regional development efforts.

The systematic development of regional development policies started when Basque Country region was granted an autonomous position in 1979. The Basque Government started to plan and take action on a long term regional development strategy on the basis of regional capacities and capabilities. The strategy and main policy steps taken during the last 28 years comprise three main stages: 1st stage (1980-1996), 2nd stage (1997-2005) and 3rd stage (2006-2015) during which a continuous effort has been made to develop and connect a regional innovation system and to create the tools and environment to improve scientific and technological development.

During the first stage, the regional strategy tried to deal with local severe economic and social conditions. The traditional industrial sectors were in a phase of downturn and unemployment was consequently high. The Basque regional development strategy initially

started as a supply policy with direct aid to breathe life into the regressed industrial sector. The basis of current technological centres was laid during these years, with a view to providing industrial sector research and development services that could help declining companies get back on track for improved productivity. This was also the beginning of cooperation in the axis of university-technological centres-private sector.

The Spanish membership in the European Union in 1986 was seen as an opportunity for the Basque region, and strategies were adopted accordingly. This was the beginning of export efforts on a larger scale. In the beginning of 1990's, the economic growth was again showing marks of slow down and at this time the Basque Country region strategies started to focus on cluster policies with the aim of recognising the most important existing industrial base, but also to foresee the emerging possibilities of the future. With little steps, the Basque Country strategy had shifted from purely governmental lead supply policy towards policy more oriented to industry's needs. In the mid 1990's the technology policies were transferred to take into account the interactions of different actors – policies supporting cluster creation as an example. This was the base of what we call today a regional innovation system.

The challenges of a new knowledge based era, in which the Basque Country region is now headed, is to consolidate the innovation system and to make the Basque Country region a knowledge intensive society. Knowledge and innovation are aimed to be the basis of the whole society where a special role is played by the linkages between various actors. Besides laying down “a culture of innovation” in society, the emphasis of the new strategy is on the importance of scientific knowledge, created not only by research centres but also by universities, which are aimed to be linked with stronger ties to the innovation system. The long-term strategy of supporting the existing industry base and at same time being open and ready to invest in new emerging sectors is still on the agenda. The five pillars of cultural change, science policy, present industry base, emerging new sectors and global entrepreneurship are very valid for the whole society and for science and business enterprises particularly in their endeavours to improved competitiveness and productivity, which are ultimately leading to better quality of life. ETORTEK and Euskadi+Innova are two examples of how the strategy is delivered upon the above mentioned pillars. The former has the strengths of the emerging new sectors by pushing the knowledge creation and its commercial use, while the latter is supporting the present industry base through the innovation agendas, but also contributing to the cultural change.

The objectives set in the new strategy are very ambitious. But when considering the development path that Basque Country region has been following, the objectives are not impossible to achieve. The long-term development strategy of the Basque Region is to offer an excellent base for future challenges of the region. These challenges may include the involvement of the university sector in innovation systems, or encouraging people to become innovative and internationally oriented entrepreneurs. Another big challenge for the Basque Country region is to turn all the investments and efforts of technology and innovation into commercial success. The European Innovation Scoreboard measures are clearly indicating that investments in education and other innovation infrastructures are already at the level of the European average. Now it is the time for those investments to carry out improvements in output indicators as well.

The Basque Country region has developed a particular strategy permitting a radical transformation of the regional economy. The approach to the strategy has always been selected on the basis of the regional needs and traditions, as well as according to the evolution of the scientific, technological and innovation policy. Through these three decades, the Basque strategy has been oriented towards value creation, on the basis of innovation and on the capacity to anticipate future needs to reach higher level of competitiveness. The Basque Government has been a pioneer in several politics and interventions, especially due to the high level of public-private involvement in many of these initiatives, as well as for the leadership role in the region.

The Basque region has successfully completed an expansive cycle, known as the “*First Great Transformation of the Basque Economy*” and nowadays faces the “*Second Great Transformation*” where Innovation is at the heart of the strategy.

The growth path that Basque Country region has followed is a result of many factors coming together at the same time without under-estimating the importance of systematic and long-term strategies. Because strategy is always tied up, to some extent, to context and time, transferring it may turn out to be impossible. But perhaps successful policies and good practices from other strategies may inspire development of some applications or novelties that are better tailored to the region in question. However, strategy exercise has a lot to do with learning – from one’s own past experiences and from the experiences of others.

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Notes

1. Data from Eustat, 2007.
2. The Concierto Económico dates back to the second half of the 19th century. It was ratified in 1978 through the recognition, in the First additional Disposition of the Spanish Constitution, of the special political and historical status embodied in the Fueros- the system of Basque laws and historic rights. The Statute of Basque Autonomy endows the Basque Country with its own Autonomous Treasury to exercise and develop its competencies. Under the terms of the Agreement, reached every five years, each of the three Historic Territories has powers regarding fiscal legislation, and the capacity to handle the taxes collected. This agreement permits the Basque authorities to collect almost all the taxes levied in the Community and then to administrate the revenue collected according to their own budget and that of the Spanish central government.
3. The decree 92/1982 created the “Technological centre under tutelage”. The Basque Government funded the 50% of their expenditure. Based on this public support, the activity of the technological centres experienced a rapid expansion.
4. Plan de Estrategia Tecnológica, PET 1990-1992
5. Marco General de Política Industrial, 1991-1995
6. Plan de Tecnología Industrial, PTI 1993-1996
7. Currently, there are 11 Priority Clusters: ACEDE, the Basque Cluster Association of the Home Appliance Industry, ACICAE Automotive Cluster, AFM Spanish Association of Machine Tool Manufacturers, ACLIMA Cluster Association of Environment Industries, GAIA Cluster Association of Telecommunications, PORT OF BILBAO Association for the Competitive Development and Commercial Promotion of the Port of Bilbao and its Environment, FORO MARÍTIMO VASCO The Basque Maritime Forum, ENERGY Cluster, HEGAN Association of Basque Aeronautics Companies, PAPER Cluster is an association of Basque pulp and paper firms and the recently created EIKEN Cluster of Audiovisual Sector.
8. Plan de Ciencia y Tecnología, PCT 1997-2000.
9. Plan de Ciencia, Tecnología e Innovación, PCTI 2001-2004
10. The Autonomous Community of the Basque Country region was one of the first 19 European Communities/Regions in which this exercise was approved by the DGXVI and DGIII, with the particularity that the system that the EU proposed for managing this initiative consisted of an operating model, identical to the one already established in the 1997-2000 Science and Technology Plan that had been distributed at a European level.
11. The Lehendakari, President of the Basque Country region, expressed in his investiture speech in July 2001 his commitment to the EU framework by announcing a new strategy for sustainable social and economic progress, based on two axes: the creation of wealth, innovation and sustainable growth and social cohesion, equality and social integration. These commitments were repeated by the Lehendakari in 2005 where he emphasised a commitment to sustainable growth by integrating environmental considerations into social and economic policies. The ultimate aim was to make the concept of sustainability a fundamental criteria employed in both urban development and the growth of the various sectors of the economy.

12. In March 2000, the European Council approved the Lisbon Strategy with the strategic objective to make Europe “the most dynamic and competitive knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion, and respect for the environment by 2010”. This multi-dimensional strategy underlines the role of innovation derived productivity growth as facilitator of social cohesion and environmental sustainability. It does emphasise the role of increased productivity through innovation but however, the aims are not solely economic in nature. Later, in January 2005 European Commission revitalised the Lisbon Strategy although the priorities continued to be strengthening and renewing the economy of EU and closing the technological gap to its main competitors.
13. Plan de Competitividad Empresarial e Innovación Social 2006-2009.
14. Plan de Ciencia, Tecnología e Innovación 2010
15. The innovation TV is also working on the web <http://tv.euskadinnova.net>.
16. Ezten FCR, Sustapen FCR, Elkano XXI FCR, Inversión en Empresas Digitales FCR, Seed Gipuzkoa SCR,
17. CEIA, CEDEMI, BEAZ, SAIOLAN and BERRILAN
18. The regional development agency, SPRI Sociedad para la Promoción y Reconversión Industrial, S.A. validates the agendas.
19. These areas are redefined in the ongoing strategy: Biosciences, nanosciences, alternative energy and electronics for intelligent transport.

CONCLUSIONS AND POLICY MESSAGES

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This final chapter analyses the main messages and learning points for Wales and similar regions from the five regional economic development models analysed in the report. Guidelines are divided into those concerning the approach to the design and implementation of the strategy and those dealing with more specific policy contents.

Strategy design guidelines

Strategies should signal policy priorities

One of the main points emerging from the five regional case studies has concerned the importance of using the strategy as a signalling document about the priorities of the regional government. Sometimes, strategy frameworks are overly comprehensive documents that try to cover most of the topics at the core of the development debate and achieve too many, sometimes conflicting, goals. However, the prime objective of a strategy should be to set a clear vision about the future development of the region and to address the community of local stakeholders on what the development priorities are and where public funding will be accordingly available. This is more likely to happen by narrowing down priorities and objectives and by setting up a clear and transparent system of public policy funding.

So, for instance, the main strategic document in Schleswig-Holstein (i.e. Future Programme Economy) rested on the four pillars of: a) boosting knowledge and innovation, b) raising firm competitiveness; c) upgrading infrastructure; d) developing regional potentials. Since the beginning, however, it was evident that the first two pillars accounted for the largest share of public funding (over 70%) and that consequently it was the regional government's intention to support technology transfer programmes and workforce skills upgrading more than, for instance, business-oriented infrastructures such as business parks.

Policy prioritisation and clear budget allocation do not seem to be particularly strong in the main strategic document of WAG, “Wales: A Vibrant Economy” (WAVE). It is very likely that there are other more technical documents where information on budgeting and policy priorities is available in Wales, but at the same time it would be helpful if this type of information were given in broad terms also in documents such as WAVE meant for the wider community of local stakeholders (e.g. business associations, NGOs, etc.) as well as the general audience.

Pros and cons of a bottom-up approach to strategy design

Basically each of the five regions has adopted a bottom-up approach to strategy design that has involved the main local stakeholders in strategic debates about priorities and policies for future development in the region. This approach has generally enabled regional governments to craft demand-driven policies or at least be informed about the real needs of policy targets, be they enterprises or people. For instance, in Schleswig-Holstein regional councils have consisted of a very broad range of stakeholders such as municipalities, universities, chambers of commerce and trade unions. They have acted as regional advisory committees on the different infrastructure projects undertaken by the regional government and have made possible the

implementation of projects that did not mirror only the interests of single municipalities but rather those of the whole region. Through participation in regional councils, municipalities have also learned from each other's best practices. In Tuscany, where there is a longstanding tradition of social dialogue between the regional government and the social partners, the main policymaking counterparts of the regional government have been industry associations and trade unions.

Whilst similar participative approaches have many advantages, one possible drawback consists in the fact that if the involved stakeholders do not include representatives of the most vulnerable social groups, the design of demand-driven policies will end up overlooking the needs of these groups. Related to this is also the fact that the strongest stakeholders may be able to exert greater pressure than others on the policies being discussed and decided, thus acting as real lobbies. An example comes from Pennsylvania's industry partnerships, which were certainly a successful approach to meeting the high-level skills needs of whole sectors, but in doing so they mainly targeted incumbent workers and possibly neglected the training needs of disadvantaged social groups such as the unemployed or ethnic minorities with language problems.

Policy coordination and political leadership are crucial

There is always a tension between policy design and implementation which makes policy coherence and coordination difficult to achieve. This is all the more true in heterogeneous domains such as innovation policies, which include a very wide range of actors and possible policy tools. Political leadership can help achieve the objective of policy coordination by catalysing initial attention and resources to launch the policy/strategy. High-level political leadership will not have to be necessarily long-lasting since it is understood that politics and policy have different timeframes, but shown at the beginning political leadership will help gather momentum around the objective and distribute tasks and responsibilities for which policymakers will remain accountable.

Pennsylvania's workforce development strategy is a case in point. Here, the new elected governor acted quickly on the results of a research report on the state of health of Pennsylvania's economy and labour market and established the Economic Development Committee (EDC) within his cabinet's office. The very location of the EDC proved the importance of its role as the body coordinating the whole set of state development policies, as well as the direct commitment of the highest state political figure to the success of the development strategy. More specifically, the EDC was set with the mission to coordinate all policies and programmes that affected economic growth, job creation and workforce development; craft new policies and programmes for business development and job creation; establish metrics for assessing the performance of state policies; etc.

As part of its policy coordination effort, the state government of Pennsylvania also set up an "Alignment Committee" and a "Performance Management Committee". The former provides recommendations on the way the state departments managing workforce, education and economic development should work together to improve policy outcomes at both the state and local levels. The latter gives recommendations on how to implement and improve the state's Performance Management Plan, which establishes accountability standards with a view to monitoring the effectiveness of policies in the three domains of workforce, education and economic development. The set-up of an integrated information management system can therefore go a long way in strengthening policy coordination by providing data and indicators that describe current conditions and recent trends, statistical information on policy outcomes and an assessment of the extent to which programmes are addressing the region's needs.

In addition to a horizontal dimension (i.e. thematic areas), policy coordination has also a vertical (i.e. levels of jurisdiction) dimension. At the vertical level, coordination can be eased

through the participation in the design of policies of bodies which have already a multiple territorial representation. For instance, in the case of Pennsylvania policy coordination between the different levels of jurisdiction was facilitated by the participation of Workforce Investment Boards (WIB), which had both state and local offices. Vertical coordination is also crucial because it allows the engagement of local leaders, who will be empowered to make decisions that tailor policies to local needs.

Policy content guidelines

Local innovation systems are at the core of development strategies

The set-up of local innovation systems has been one of the prime goals in the examined regions. This has included the financial support of industrial R&D, the creation of public research organisations and, above all, knowledge transfer programmes fostering industry-university partnerships. In general, the success of a local innovation system has depended on the extent to which regional governments have been able to provide support not only to the few knowledge-intensive companies, but also to expand the base of local innovative firms so as to avoid that the former grew apart from the rest of the economy.

The region which has gone further off in supporting local innovation systems has been Styria. The Austrian region has both strived to increase the number of “regional leaders” and enlarge the base of local innovative firms. The former were considered those firms which drive the rest of the local economy as a result of their size, R&D investments or proportion of skilled employees. The latter have been supported mainly through so-called “competence centres”, which have joined scientific and technical staff from the university and industry worlds to carry out precompetitive research. Eleven centres were set up in Austria as a whole, six of which in Styria. In the case of similar centres, there is a strategic choice to be made between supporting precompetitive or applied industrial research. The former has indeed the merit of approaching more than the latter the nature of public good since it provides a base of semi-applied knowledge from which a larger number of firms can draw. Moreover, by stopping at the stage of prototype, precompetitive research is more likely to attract the interest and collaboration of universities and academics. By contrast, applied research is estimated to have a greater direct impact on productivity growth, even though the public support of this type of research can have significant deadweight costs if it replaces private industrial R&D. Other than knowledge transfer programmes, Styria has also created its own public research organisations (i.e. Joanneum centres) and has tried to promote cooperation between firms with similar research orientations.

Local innovation systems also call for special attention to devote to the university system through policies such as graduate placement programmes, training grants for researchers, post-doctoral grants and mobility programmes to foster the hiring of researchers by industry. The Basque Country is the region which has worked more intensively in this domain.

Sector-based approaches have been common in many regions

Each of the five regions has had some sectoral component in its development strategy. These policies have received attention in light of the positive externalities (knowledge spillovers, pooling of skilled labour, product specialisation, etc.) regional policy can encourage at the industry level. Sectoral strategies have either focused on industries which have traditionally been large provider of regional employment or on knowledge-intensive sectors in light of their prospected contribution to the growth of the local economy. There are also at least three different types of sectoral approaches: a) cluster development programmes which mainly try to encourage business networks in the belief they will generate economies of scale (e.g. joint purchases) and scope (i.e. product specialisation); b) technology upgrading programmes, which support the shift of local producers from broad unspecified markets to market niches through

higher-quality production; c) workforce development programmes, which chiefly seek to increase industrial productivity by upgrading worker skills.

A clear example of the third approach comes from Pennsylvania's industry partnerships, while Styria has mainly invested in the traditionally strong industry of mechanical engineering to promote the emergence and development of highly specialised niche sectors. This has been made possible thanks to its well-developed local innovation system examined above. Today Styria has therefore been able to move from unspecified production to high concentrations of economic activity in a relatively small range of technology fields and industries. The Basque Country and Schleswig-Holstein have, on the other hand, both primarily backed new emerging industries such as biotechnologies and renewable energies. They have also both stressed the importance of a cluster approach to sector development. Clusters have played a key role also in Tuscany, the cradle of Italian industrial districts, even though the focus in this region has rather been on the traditionally strong manufacturing sectors of leather production and textile.

Sector-based approaches have sometimes been charged with a "pick-the-winner" bias typical of old-fashion industrial policy. However, some regions have been able to shun this problem by setting up competitive tender processes in which it was up to industry stakeholders to come together and formulate sector development proposals for funding approval by the regional government. This methodology, which has been adopted both in Pennsylvania's industry partnerships and Styria's competence centres, should soothe pick-the-winner concerns. Another aspect that should be taken into consideration when supporting specific sectors is that there is always a varying lapse of time between the given policy support and the eventual concrete development of the sector, a gap that policymakers often tend to underestimate. Finally, especially in the case of emerging knowledge-intensive sectors regional governments should be aware that while the demand for these sectors might be sizeable in the near future, the supply from other regions could be significant as well. Competition is therefore fierce in these industries, which also need a well-developed research infrastructure.

Cluster development has been the most common among the sector-based approaches

Cluster development has been the most common of the sector-based approaches in the examined regions. Depending on local circumstances, cluster policies have been both unsuccessful and successful. In Schleswig-Holstein cluster policy has suffered from many drawbacks. First of all, clusters have been defined too broadly. The number of industries represented in each cluster was often very large and, with regard to geography, it was enough to be located in the *lând* for a firm to be considered part of a cluster. Schleswig-Holstein's policymakers were also held to minimise political risks by selecting industries that had proven successful in other regions and to find difficult to stop funding clusters after a certain period of time. The strong influence of politics in the management of publicly supported clusters and the consequent difficulty in getting businesses and other private stakeholders involved were additional problems with Schleswig-Holstein's cluster policy.

While WAG policymakers should be warned of these potential problems, cluster strategies have also proven more effective elsewhere. In Styria, for instance, cluster development was seen as an alternative to the previous regional industrial structure dominated by large inflexible firms. Here, the focus was on the promotion of clusters which would be sizeable customers of the steel and steel products manufactured in the region; hence, for instance, the decision to invest in an automotive cluster. Cluster development has been successful in Tuscany too, which has a longstanding tradition of promoting industrial districts and has more recently focused on the re-organisation of the local supply chain, the provision of "real" business development services to local enterprises and business networks, and the promotion of formal tools of inter-firm cooperation such as business consortia.

Workforce development is at the heart of regional development strategies

The upgrading of worker skills has also been a core issue in a number of regional development strategies. This is particularly true for Pennsylvania, where workforce development has indeed dovetailed with sector development through the design of industry partnerships focused on workforce development. Pennsylvania's industry partnerships have been struck between training providers, employer associations and other stakeholders to design demand-driven sector-based training courses. Industries have not been chosen a priori by the state government, but they have been the outcome of a process in which different stakeholders have come together with joint requests for high-level skill training. Indeed, one of the requirements for a partnership to be approved and funded by the state government was that the industry's employers be surveyed with regard to their skill needs. Such partnerships have enabled Pennsylvania to achieve economies of scale in the provision of training, align the curricula of training providers with industry needs, promote communication among firms, and disseminate best practices in the field of vocational training.

Corporate social responsibility starts to be a public policy issue

In a number of regions the urge for economic competitiveness is increasingly coupled with that for social and environmental sustainability. In Tuscany this has taken the form of public support for corporate social responsibility (CSR). In 2002 the regional government launched "*Fabrica Ethica*", a programme that provides financial incentives to those firms working towards meeting internationally recognised CSR standards. A CSR committee has also been established with a view to identifying and monitoring CSR practices in the region. Another project, "*Felafip*", supports the diffusion of CSR practices in firms and network of firms in the leather sector, which is prone to pollution and worker health hazards. More generally, Tuscany's CSR policies consist in a set of financial incentives, concrete business development services and dissemination of knowledge and best practices on the theme. The approach does not only involve large firms, but is rather pursued along the whole supply chain within the region.

Internationalisation is increasingly seen as a by-product of innovation

Business internationalisation is also in the agenda of many regional governments, even though increasingly, especially in advanced economies, it is seen as a by-product of business innovation, the latter being a precondition for the former. An interesting experience comes from Styria, which throughout the last decades has been able to harness at best the opening-up of new markets on its eastern border. In this context, the RIST programme has specifically helped those Styrian firms interested in South-east European markets by assisting them with local administration requirements, providing coaching and mentoring during the first steps of the business internationalisation process and encouraging cooperative projects with Eastern European partners. The peculiarity of this programme has therefore been to focus on a very specific target market which was considered to hold a considerable potential for the exports and outward FDI of local firms.