

**The Regionalisation of RTD Policy:
International Experience
and Lessons for Austria**

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Abstract

The subject of the study is the regionalisation of research and technology development (RTD) policy in Europe, drawing out policy lessons particularly for the Austrian case. An overview of recent trends in European policy practice highlights key developments before a more detailed look at the experience of four case study regions is provided. The regional level approach to strategic RTD planning experience, as well as the national context for policy support in this area, are analysed for Bremen, Flanders, North-East England and Northern Sweden. An overview of the regional technology policy and strategies in the Austrian *Länder* is then provided before policy recommendations are drawn out. These focus on the key factors influencing the process of regional level strategic planning and the relationship between regional and national authorities in this policy field.

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1. INTRODUCTION

This paper is based on the Final Report for the study on the regionalisation of RTD policy in international context and the identification of lessons for Austria, commissioned by the Austrian former Federal Ministry for Science and Transport (*Bundesministerium für Wissenschaft und Verkehr*). It provides the results of the empirical research undertaken as the core of the study before presenting the corresponding recommendations and conclusions which have been tailored for the Austrian context.

The study as a whole had four main components.

- An overview of recent European experience in RTD policy, highlighting key developments and looking particularly at trends in regionalisation.
- Detailed research work in four case study regions (Bremen, Flanders, North-East England and Northern Sweden), selected by the commissioning Ministry. The case study research analyses the regional experience in strategic RTD planning experience as well as the national context for RTD policy support. Part of the rationale behind the selection of the case study regions was their participation in the European Commission's (DG XIII) RITTS initiative (Regional Innovation and Technology Transfer Strategy).
- An overview of the Austrian experience in regional technology policy and strategic planning at *Land* level.
- Policy recommendations and conclusions for the Austrian situation. These recommendations and conclusions are based on an assessment of key factors relating to the process of regional level strategic planning, and the relationship between national and regional level policy-making, and draw from both case study and wider research work.

The report is presented in English with the final conclusions and recommendations chapter also translated into German. The report has been prepared by the European Policies Research Centre, Glasgow (Ruth Downes and Mary Louise Rooney) and InTeReg, Joanneum Research, Vienna (Dorothea Sturn and Thomas Jud).

2. TECHNOLOGY POLICY TRENDS IN EUROPE

2.1 Introduction

Policy-makers in the field of technology, RTD and innovation support are faced with increasing challenges in the design and implementation of effective policy. The framework conditions for technology policy are changing and are influenced by global, European, national and regional level factors. This section outlines briefly some of the key challenges to emerge over the last decade as a background for the more detailed analysis of four national and regional case studies. It cannot deal in detail with every aspect but aims to provide an understanding of the key motors of change and their effects on the policy area.

2.2 Challenges Facing Policy-makers

The challenges facing the design and implementation of technology policies are complex and multi-faceted. Many of the influencing factors overlap and it is often difficult to isolate clearly the individual components. However, there are a number of key aspects which can be usefully highlighted

- *European economic and technological framework conditions.* Competitiveness has become a key policy concern throughout Europe, reflected in the range of government papers and reports on this issue at both national and European levels. This concern has spilled over into the technology policy field and, at European level, the promotion of competitive and sustainable growth comprises one of the thematic priorities of the EU's Fifth Framework Programme. Equally at national level, the UK 1993 White Paper, for example, states that "a close partnership and better diffusion of ideas between the science and engineering communities, industry, the financial sector and Government are needed as part of the crucial effort to improve our national competitiveness and quality of life". One of the objectives of government involvement in RTD and innovation in France is "to contribute to economic competitiveness and technological development".

In more specific technology terms, the ability within Europe to convert research results into commercially viable products is seen to be a particularly weak link - with a corresponding impact on competitiveness. This has generally led to a greater focus on ways in which to promote commercialisation of research results and encourage the undertaking of industrially relevant research. Further, it has resulted in a wider consideration of factors affecting the process of technology development and innovation and has introduced a greater emphasis, for example, on demand side constraints and requirements.

- *Budgetary restrictions.* The majority of European Union countries have faced pressures on public expenditure in recent years resulting, among other factors, from recessionary conditions and the economic demands of European integration. Technology policy has sometimes been one of the first areas to be negatively affected by budgetary cuts. In parallel with this trend, the lower level of spending is combined with a drive for greater value for money from public assistance measures. This has promoted the greater use of evaluation and control to map more accurately where public money is being spent and what the concrete results have been.

- *Changing understanding of the nature of innovation.* Innovation is now understood to be an iterative interaction between a wide range of actors including research organisations, firms, policy providers and the market. This is a very different understanding to the former linear model which supposed a series of clear phases from concept development to product launch. The new model of innovation is considerably more complex involving a greater number of actors and focusing as much on relationships and the operation of systems and networks as on the individual actors themselves. Further, research into the process of learning and knowledge transfer also identifies much knowledge as tacit and collective and therefore linked to its human and social context. Taken together, these concepts bring into sharper focus the role of the social environment within which innovation actors operate.
- *Greater complexity of aims and objectives.* The involvement of a much wider range of players in the process of innovation and development increases the demands on technology policy and the challenges of its strategic direction. Technological answers are increasingly being sought for a much wider range of socio-economic issues such as employment, environmental and ecological concerns, health and quality of life etc. Initiatives such as the UK's Foresight Programme, for example, has shifted from its original focus on the strategic direction of technology in a more narrow definition towards the involvement of a much wider range of concerns and the integration of technology into their solution.

2.3 Impact on Nature of Technology Policies

2.3.1 Policy content, objectives and instruments

The above challenges have all impacted the way in which technology policy is designed and implemented. In terms of policy content and objectives, the following areas can be highlighted.

- *Greater strategic direction* is evident in technology policies, often reflected in the selection of key '*Schwerpunkte*' or foci. This targeting is undertaken to concentrate resources more effectively, both to achieve better returns for the investment and to focus on areas which will particularly aid competitiveness. The *Schwerpunkte* can comprise both areas of technology and types of support eg. collaborative work between industry and university, company networking etc. Once these *Schwerpunkte* have been identified, policy measures are selected which best support or reflect these areas. Targeted technology policy programmes increasingly operate on a competition principle ie. different consortia compete for public support under a given '*Schwerpunkt*'. Recent examples of such targeting include:

a range of scientific priorities identified in France in 1996 based on the existence of markets and demand, the degree of scientific potential and a high level of industrial content. The technology policy statement at that time reconfirmed the traditional commitment to collaborative projects through the launch of four research programmes in specified areas.

the UK Foresight programme and steering group which were established through the 1993 White Paper to direct and focus UK technology policy and now comprise a central component of the policy approach.

the German *Leitprojekte* initiative, designed to bring specialised knowledge to more

complex high-technology projects, which has selected themes which specify an end target rather than a technology area in itself. These include, for example, mobility in heavily congested areas, diagnosis and therapy with molecular medicine and the use of global knowledge for training and further education.

- Different types of support instruments have emerged to reflect the changing perception of RTD and innovation in particular, as well as to promote greater leverage from the private sector (diffusion-oriented approach). These include the integration of new elements in the mix of policy instruments, focusing on so-called ‘soft-factors’ such as:

the increasing prominence of venture and risk capital funds, together with similar initiatives such as business angels.

personnel transfer programmes and the placement of industrialists in research environments and vice versa which are evident in virtually every European country. This reflects the move to promote the mechanisms of transfer, rather than direct RTD support.

increasing focus on improving the effectiveness of interface organisations and links (*Schnittstellen*), whether between large and small firms, industry and academia or company networking. Measures to promote and improve links between industry and the generators of research have become a key part of assistance measures in most countries and reflect, in part, the perceived need to increase the commercialisation of research results.

the promotion of networking (both between firms and between firms and research sources) responding to the new understanding of the process of innovation and further developed in measures such as the development of innovation strategies which look at the entirety of the innovative system.

- *SMEs* have become an increasingly key target group for technology and RTD policies. This reflects the recognition that *SMEs* play a key role in the process of dynamic economic development and employment creation and are often highly innovative and more flexible than larger firms. Equally, however, it is understood that *SMEs* face particular difficulties in accessing research results and undertaking successful innovation.

The tendency in the 1970s and early 1980s to focus industrially-related RTD support on large firms carrying out large projects has shifted notably towards measures which attempt to draw *SMEs* into the process of successful innovation. Such measures range from the promotion of networking to support for project-related collaboration which stipulates the involvement of *SMEs*. This trend can be identified in most countries including those such as Sweden, which has a tradition of channelling resources into a limited number of leading edge large indigenous firms.

SMEs are not a homogenous group with identical needs and the different approaches which can be observed within *SME*-oriented policy reflect this. These include, for example:

initiatives to try and encourage direct links and the transfer of expertise between large and small firms. Through the Flemish PLATO initiative, large firms provide RTD related training and seminars for the participation of local *SMEs* and similar schemes are evident, for example, in the UK.

targeting particular groups of *SMEs*. The technologically advanced *Land* of Baden-

Württemberg, for example, offers a range of incentives for the sub-group of new technology based firms (NTBFs) including soft loans, partnership capital and guarantees, and Bavaria offers similar measures.

SME support much further down the technology spectrum and often linked to access to 'off the shelf' technologies. Support for complementary areas such as marketing, management development and quality control can be of equal importance for the SME, providing new challenges for technology policy *per se* and for its coordination with other policy areas.

2.3.2 Organisation and structure

The organisation and structure of technology policy has also altered to reflect the type of influences already outlined. The following points highlight a number of areas where this is evidenced.

- At the level of technology policy programmes, greater targeting is reflected in institutional structures with the creation of policy advisory committees or forums designed to identify key technology areas (in a domestic and international context). This can lead to greater initiative for cross-sectoral coordination, as has been the case, for example, with the institutional structures emerging in the UK from the Foresight programme.
- The search for the most efficient method of programme implementation, given heightened managerial demands and the increasing complexity of programmes, has led to the growing shift of management and development tasks away from government ministries towards agencies or even separate project management organisations (*Projektträgerschaften*). This is linked to a more specific definition of the tasks undertaken by various levels (policy, programme and project levels) and the optimisation of '*Schnittstellen*' between strategic and operative functions as well as between the policy making and management levels.
- At the level of institutions, public research institutes have moved towards new organisational structures and higher levels of self-financing, often emerging from industry generated projects. The focus of research is therefore moving to some degree away from research institutes and universities working more in isolation and more towards industrially-relevant research. The work of publicly financed research institutes is also increasingly being judged in the light of their contribution to the wider society and the extent to which the research is duplicated elsewhere

In Sweden, for example, where the majority of public RTD assistance has traditionally flowed into the university system, a 1993 Act obliged the universities to become more involved with society and industry. Funding has moved to a partially competitive basis, encouraging more industry-oriented RTD.

In Germany, the introduction of the so-called '*Blauen Liste*' created an evaluation procedure for all research institutes which receive equal co-financing from the federal and *Länder* governments.

These changes in organisation and structure are accompanied by two trends. First, there is an involvement of a much wider range of actors in the design, and also implementation, of innovation policies in particular. This increases the need for coordination mechanisms, both

horizontal and vertical, to ensure greater effectiveness and efficiency. Second, the role of evaluation and monitoring has increased, in line with requirements for value for money and also increased targeting of resources.

2.4 The Role of the Regional Level

In the context of some of the developments outlined above, two issues relating to the role of the regional level should be highlighted in particular: the shifts in focus and design of regional technology policy and changing scale of policy.

2.4.1 The changing character of regional technology policy

It is important to note that all the trends outlined above relating to the content and design of technology policy can also be identified at regional level. An improved targeting of policy, a stronger diffusion oriented approach with particular focus on SMEs, a more explicit strategic basis and the above mentioned organisational changes are all identifiable within regional technology policies.

The exceptional feature of regional level policy is the fact that the region can provide a more appropriate spatial dimension for the design and implementation of elements of technology and/or innovation policy. The potential benefits of regional policy derive either from a greater knowledge of the relevant characteristics of the local economy or from the establishment of a local network and institutions which have a direct interest in the success of programmes and policies.

This is especially true for ‘diffusion-oriented measures’ such as the promotion of networking and consensus building, all of which are potentially easier when the actors involved have a closer understanding of the particular preconditions and characteristics involved. Equally, SME support is based on trust and relationships to a much greater degree than with larger firms and spatial distance is also important where internal resources are limited. Thus, the regional level provision of support is potentially more suitable for this kind of policy measure. Given the shift towards such foci within technology policy approaches at national level, this has implications for the division of policy responsibilities in this field.

2.4.2 The changing scale of regional technology policy

A process of decentralisation and deconcentration is occurring throughout Europe - both within individual countries and as a response to the process of European integration. The Structural Funds have further increased the role of the region in economic development and promoted the notion of partnership, cooperation and regional strategic planning. Regional competence building has been promoted in countries where the regions have not traditionally had important strategic roles, as well as within federal countries where greater powers are constitutionally vested at sub-national levels. Formerly centralised countries, such as Sweden, France and the UK, are showing significant movement towards more regionalised structures. This is true in general terms and also more specifically within the approaches to technology policy.

At regional level, the incorporation of innovation into regional economic planning is

becoming increasingly widespread. This is partly the result of the more restricted scope of industrial policy instruments as a result of competition policy rules but also reflects the understanding that previous types of regional economic development policy, such as capital and infrastructure oriented measures, are increasingly less effective or viable. A new study on the incorporation of technology and innovation policy instruments in European Union Objective 2 programmes illustrates this. The share of technology policy measures in the programmes have increased significantly, with a shift in focus within the technology policy measures in favour of innovation-related instruments and away from a more research-oriented approach. It is also clear that the use of soft measures is increasing.

2.4.3 Possible drawbacks of decentralisation

It is important to recognise that decentralisation is sometimes inappropriate or is only useful in combination with effective co-ordinating mechanisms. The most obvious drawbacks stem from, on the one hand, the risk of overlap and duplication, and, on the other, inefficiencies in policy delivery resulting from a lack of economies of scale and scope. Thus, the aggregate gains can be substantially lower than the sum of the parts - the wasteful competition of regions, for example, can result in a subsidy race which is not only simply a zero-sum game but is actually directly negative.

Regional level policy can also be more susceptible to 'rent-seeking' and the phenomenon of 'keeping up with the Joneses'. This can result in a complex network of similar organisations, with regions copying their neighbours, or, given the temptation of regional support organisations to satisfy the widest possible range of clients, the creation of large number of insufficiently financed funding pots. Further, particularly in relation to spatial development objectives, regional level policy making can often be unrefined. The shift of technology policy competencies from national to regional level, for example, can result in a concentration of resources on regional sub-centres and thus increase regional polarisation. Policies designed and implemented at regional level are not, in themselves, a guarantee of regionally appropriate policy.

2.5 Summary

In summary of the above discussion, the main theme to emerge is the greater targeting of European technology policies which has emerged over the past decade. The increased use of specific targeting has a variety of roots. These include, for example, reduced levels of public expenditure, the requirement to focus on areas of potential competitive value and the need to introduce clear strategic guidelines within the increasingly complex process of innovation. Targeting is employed at a number of levels from the thematic programmes of the European Commission to national technology foci. Greater consideration is given to the strategic backing for targeted measures, the type of instrument which would best support it and the nature of the target group (increasingly SMEs). The role and importance of evaluation has also correspondingly grown.

The targeting approach is also evident in policies both for and within regions. National technology or innovation policies are increasingly oriented to reflect specific conditions within a region or are decentralised in administration to allow the regions to undertake targeting on the basis of closer knowledge of what is 'on the ground'. Within regions, there is growing evidence of innovative approaches to regional RTD policy and the tailoring of

initiatives to target groups or areas.

A further important development in terms of policy mix, which is evident at both national and regional levels, is the move towards a more diffusion-oriented approach to technology policy. This emphasizes the mechanisms for the transfer and adoption of technology into firms, and SMEs in particular, rather than on the support of research itself. The type of measures included in this approach vary considerably from direct technology transfer and cooperation assistance to the more complex support of networking or specific clusters. The complexities of this type of approach are a key challenge for current technology policy makers.

3. CASE STUDY: BREMEN

3.1 Regional Background

3.1.1 Economic development in the Land of Bremen

The collapse of traditional industries (and shipbuilding in particular), as well as the re-location of production facilities, resulted in a serious structural crisis in the *Land* of Bremen. Since 1986, however, a change in the downward trend has been observed and the *Land* has again come close to the development level of other west German *Länder*. However, a growth gap has persisted and Bremerhaven remains confronted with very high levels of unemployment (18.4 percent).

3.1.2 Bremen innovation system

The innovation activities within the regional economy are insufficient. The large companies mostly comprise branch plants which do not have their research facilities sited in the region (particularly marked in the case of the largest regional employer, Daimler Benz) and the representation of innovative SMEs and entrepreneurs is below average. There is also too little cooperation-based activity and few network relationships both between companies and between companies and research facilities.

The reasons for this deficit include the above mentioned collapse of the historical cluster but also the huge concentration in terms of high technology activity on a single sector, ie. air and space technology. This sector displays a high dependence on public research support and offers few possibilities for cooperation with production-oriented SMEs.

Other characteristics of the innovation system include:

- a poor supply of qualified and scientific personnel; and
- a good infrastructure basis but concentrated on the technology park of the University of Bremen.

3.1.3 RTD infrastructure in Bremen

In addition to four universities or higher education institutes, Bremen has a total of 18 non-university research institutes which principally (12 of 18) belong to the *Land*. The remaining four are run within the framework of the common agreement between the federal and *Land* governments on the joint support of research. There are no research institutes in Bremen funded solely by the federal government.

The *Bremen Innovations- und Technologiezentrum* (Bremen Innovation and Technology Centre, BITZ) is the largest and longest-standing of the three technology centres (founded in 1986 and currently housing 29 firms). In addition, the *Technologiezentrum Bremen-Nord* (North Bremen Technology Centre) and the *Bremerhavener Innovations- und Gründerzentrum, BRIG* (Bremerhaven Innovation and Entrepreneur Centre) also

operate. Three transfer offices within higher education institutes and two *Land* organisations are involved with technology and knowledge transfer.

The technology park at the University of Bremen is one of the 20 largest parks in Germany and can be considered a highly productive concentration of research potential. The technology park currently employs ca. 3,500 people – over 1,000 new jobs have been created by firms in the park since their location within its premises.

3.2 National Policy and the Implementation of National Measures in Bremen Land

3.2.1 Regional policy

The responsibility of the *Länder* for regional policy in Germany is rooted in the *Grundgesetz* (Basic Law). The *Grundgesetz* states that the improvement of the regional economic structure is the task of the *Land* with the involvement of the federal government and, in given cases, the EU. The national involvement occurs within the framework of the Joint Task (GA) ‘Improvement of the Regional Economic Structure’. The national assisted areas and the associated resources are negotiated between the federal and *Länder* governments and are set out in the annual GA framework plans. In GA regions, it is possible to apply for the dedicated resources and the *Länder* are also able to provide higher financial support in these areas. The *Länder* have complete autonomy both in the allocation of federal resources to projects and in the implementation of the support – the use of the resources is assessed on purely legal and technical grounds at federal level.

The new GA designation or national assisted areas map for 1998 includes parts of the city of Bremen and the whole of Bremerhaven. The GA is implemented in Bremen both through business investment and environmental measures and through infrastructure projects.

3.2.2 RTD policy

3.2.2.1 Trends in RTD support

Federal level RTD support has fallen continuously over recent years while the financial contribution of the *Länder* has risen. The total research quota has fallen from 2.9 between 1987-89 to 2.4 between 1994-95. In terms of distribution, there has been a remarkable constancy of federal level expenditure with technology support, in contrast to other European countries, showing no real increase in share.

3.2.2.2 Federal measures and instruments

The RTD support provided by the federal government can be divided into the following groups of instruments:

- *Indirect measures* are potential-oriented measures (principally the financing of research personnel) and measures to support cooperation between science and the economy. Indirect support has increased in recent years and accounted in 1995 for DM 670 million.

- *Indirect-specific measures* encourage the rapid application of new key technologies (diffusion instrument) particularly by SMEs. Indirect-specific support has been declining in recent years and, in 1995, accounted for ca. DM 300 million or less than four percent of the total spending of the BMBF.
- *Direct project support* comprises the central component of the RTD support of the federal government, accounting for ca. 45 percent of BMBF resources and allocated usually to larger and higher profile projects in defined key target areas (ca. DM 3.5 billion in 1995).
- *Institutional support* is the financing of federal institutes undertaking RTD activities, federal-*Land* financed institutes and the co-financing of *Land* centres and RTD activities. In 1995, ca. DM 4 billion was given for this purpose (ca. 52 percent of BMBF resources).

Around a third of the current total support of the BMWF is directed towards firms. This share has fallen in recent years through both direct project support and indirect-specific measures.

3.2.2.3 Joint federal-Land instruments and measures

The joint federal-*Land* research support comprises principally the common financing of infrastructure ie. supporting the construction of higher education institutes and research centres of supra-regional and national interest (joint support under the ‘Framework Agreement on Research Support’ including, for example, Max Planck Gesellschaft and Fraunhofer Gesellschaft etc). In terms of higher education institutes, plans and investments recommended by the *Wissenschaftsrat* (Science Council) are generally financed 50/50 by the federal government and the respective *Land*. The institutes falling under the Framework Agreement on Research Support are negotiated on an individual basis, with each institute having a different financing balance between the federal and *Länder* governments (either the *Land* where the institute is located or all the *Länder* together). The Federal-*Länder* Commission for Education Planning and Research Support has been set up as the forum for joint research support and coordination although it has a recommendatory function only.

3.2.2.4 The implementation of national RTD support in Bremen

The *Land* of Bremen receives 2.2 percent of the total federal RTD expenditure, which is higher than its corresponding share of GDP (1.2 percent), but represents a normal weighting within the old *Länder* given its status as a city *Land*. The national RTD support is used in the following ways in Bremen:

- *Bremische Programme* (Bremen Programme), co-financed by the federal government. The drafting of the programme, its implementation and monitoring are the responsibility of the *Land*.
- Joint federal-Bremen research support.
- Programmes with only federal government financing (mainly from the BMWF).

In terms of Bremen’s share of total BMBF expenditure, the proportion of direct project support (over three percent) shows a particular above average weighting in Bremen’s favour – although air and space technology accounts for three-quarters of this. Institutional support is

also above average at 2.7 percent, with the large research institute Alfred-Wegener-Institut being the main recipient. Bremen receives a below average share of the indirect-specific measure resources at only 0.4 percent of the total.

3.3 Regional Technology and Structural Policy in Bremen

3.3.1 Strategies and programmes

3.3.1.1 Strategy development

The responsibility for RTDI policy-making lies formally with the senatorial authorities. The senator for science, art and sport is responsible for higher education and science-related RTDI policy, while the senator for economy, *Mittelstand*, technology and European affairs is responsible for business-related RTDI policy (including business infrastructure and technology transfer). However, there is no fixed institutional division or regulated process of strategy formulation. The result is a lack of committees or councils with the remit of developing strategies, establishing thematic foci and reaching consensual agreement. Strategies are generally formulated spontaneously for specific actions on the initiative of individual key actors. Individual actors judge the level of cooperation and contact at project or action level to be very good but to be difficult or non-existent at the level of overall strategy formulation.

In part, the task of strategy formulation lies with the *Bremer Ausschuß für Wirtschaftsforschung* (Bremen Committee for Economic Research, BAW). This organisation formerly acted as an in-house research institute and strategy consultant to the *Land* government in its position as an arm of the economic senate although it now operates as an independent research institute. In the 1980s, an attempt was made to make the innovation centre the coordinating and strategic forum but this approach was abandoned. The possibility of giving a future stronger strategic leadership role to the *Bremer Innovationsagentur* (Bremen Innovation Agency, BIA) can only be decided once the new organisational structure of Bremen technology policy has been finalised.

However, current activities in this area include:

- the formulation of technology policy within the framework of medium-term programmes; and,
- an explicit parliamentary control of programmes and individual projects within the specific Bremen framework of constitutional bodies, the so-called “*Deputationen*” (comprising both members of the *Land* parliament and representatives from other areas)

Even in the absence of a fixed strategy, a degree of common sense is evident in the key requirements and direction of technology policy. In the 1970s, the dominant strategy was focused on structural and employment maintenance issues in relation to the large shipbuilding and steel industries. In the 1980s, and the late 1980s in particular, the emphasis shifted to technology which was more or less synonymous with the creation of physical infrastructure. This, in turn, was virtually synonymous with the successive expansion of the technology park at the University of Bremen. Currently, the principal thrust is to encourage the use of the

existing supply through other, principally soft, measures. The RITTS initiative, as well as the creation of the Bremen Innovation Agency, have had a central role in this new strategy of business-oriented, demand-led technology policy which has technology transfer, the linking both of science and the economy and of tangible and intangible infrastructure or soft instruments at its heart.

3.3.1.2 Medium-term programmes and concepts

- The *Wirtschaftsstrukturpolitische Aktionsprogramme* (Economic Structural Policy Action Programme, WAP), which has a four year duration, can be viewed as an overall concept for regional economic policy in Bremen. It includes all business-related technology policy under the responsibility of the senator of economy. The programme is divided into six funds (including a technology fund). The range of instruments is specified within the framework of the thematic programmes (*Fachprogramme*), financed either by third parties eg. federal or EU programmes (*Drittmittelprogramme*) or by the *Land* itself (*Landesfachprogramme*). The WAP, however, has no strong strategic direction and is basically an umbrella for a range of resource pots. However, it does provide a good overview of all the economic development activities of the *Land* which would otherwise be provided through a large number of independent packages.
- The *Bremische Innovationsprogramm* (Bremen Innovation Programme, BIP) is a thematic programme of the WAP. While it is not a strategic programme in the strict sense, it provides a well-grounded, integrated mix of measures within the overall framework of the wider Bremen economic development policy. The current relevance of the programme, which officially ended in 1995, is unclear and, due to the current restructuring of Bremen technology policy, no successor programme has been created.
- The *RITTS programme* in Bremen is interesting in the strategic context because it deals with a specific regional technology policy-related problem. In order to expand on the, to date, often supply-oriented measures, RITTS aimed to introduce complex and demand-led technology transfer processes in order to make regional firms more innovative and willing to cooperate.

3.3.1.3 Current developments: Restructuring Programme and Special Investment Programme

Bremen receives DM 8.3 billion of debt relief as part of a restructuring programme (*Sanierungsprogramm*) and DM 1.8 billion for a Bremen Special Investment Programme (*Investitionssonderprogramm*, ISP) because of its extremely difficult budgetary position as a *Land*. These two programmes are for the expansion of the infrastructure base. The ISP resources have, to a large extent, been dedicated to RTDI-relevant activities (scientific infrastructure and contributions to the WAP) and a significant strengthening of RTDI in the *Land* of Bremen can therefore be expected from these additional resources.

3.3.2 Structures, Management and Organisation

3.3.2.1 Responsibilities and actors

The Science and the Economic Departments are responsible for the technology policy of the *Land*, with the Economic Department responsible for business-related technology policy as well as the WAP and BIP programmes and RITTS. Technology support is generally implemented through *Projekträger* (organisations responsible for project management).

The *Bremer Innovationsagentur* (Bremen Innovation Agency, BIA) is an independent agency with full responsibility for the projects they manage and, in the future, will act as a one-stop-shop for all technology and innovation projects. In the case of some projects, management responsibility is still associated with AXON (a private consultancy firm which emerged from the Bremen office of the VDI/VDE) but will successively be shifted to the BIA. Public tasks which are still be carried out by AXON include the region's Innovation Relay Centre and EU consultancy (Euro Info Centre). The BIA and AXON were both central actors in the RITTS initiative.

Other actors and incentive support providers include:

- The *Wirtschaftsförderungsgesellschaft der Freien Hansestadt Bremen GmbH* (Economic Development Agency of the Free Hanseatic City of Bremen Ltd, WfG), which principally supports existing business and economic activities. Bremerhaven has its own agency, the Development Agency of Bremerhaven mbH.
- The *Hanseatische Industrie Beteiligungen GmbH* (Hanseatic Industry Participation Ltd) administers the Bremen Innovation Fund (BIF) which provides risk capital for technology oriented entrepreneurs as well as existing innovative firms.
- The *Handelskammer Bremen* (Bremen Trade Chamber) is the first point of contact for most firms and offers consultancy services in key areas. The Chamber is involved in many central strategic decisions.
- *Bremen Business International GmbH* (BBI) is involved mainly in acquisitions, the attraction of inward investment and the support of foreign firms. It also represents Bremen abroad.
- The *Rationalisierungskuratorium der deutschen Wirtschaft* (Rationalisation Organisation of the German Economy, RWK) provides initial consultancy.
- The extensive design support of the *Land* of Bremen is developed by *Bremen Design GmbH* (the Design Centre Bremen and Design Lab Bremerhaven).

3.3.2.2 Current restructuring

A reorganisation of the entire economic support system (ie. technology and SME support) is currently being undertaken on the recommendation of a recent McKinsey study. To date, the holding company '*Bremer Gesellschaft für Wirtschaft und Arbeit*' (Bremen Company for Economy and Labour) has managed five subsidiaries although the tasks of the holding

company were poorly defined. The fund resources and the approval of individual projects were dealt with through the senatorial authorities or the so-called *Deputationen*.

Following the reform of the structure, a new holding company (BIG) will provide fund resources on a trustee basis to three funds or agencies which can support projects without requiring the signature of the senatorial authorities. This will certainly result in a simplification of the process and an increase in the speed of decision-making. The BIA will act as a one-stop-shop in this new structure for all questions and support in the area of technology and innovation. The umbrella functions of the BIG have been better defined and some of the tasks previously undertaken by the subsidiaries will now pass to the holding company.

The new structure is particularly important in the operational area. The development of longer-term objectives and strategies will remain a policy-maker responsibility – although clearly in close conjunction with the project work of existing agencies. The exact nature of this division of tasks is still to be clarified, particularly given the current change-over of those centrally responsible within the senatorial authorities. To date, there has been no contract between the BIG and the senatorial authorities which regulates the division of strategic and operational tasks and product development. The direct relationships/links between the individual operative companies such as BIA, WfG and the senatorial authorities are also unclear. The whole question of strategic controlling also remains completely open.

3.3.3 Measures and Instruments

3.3.3.1 Overview of specific programmes

Most of the relevant business-oriented RTDI programmes are found within the ‘Technology Fund’ of the WAP and a few small programme components can also be seen in the ‘Ecology’ and ‘Bremerhaven’ funds. A range of individual programmes are implemented within the WAP, each specified by regulatory guidelines and instruments, although the Bremen programmes (eg. the previously mentioned BIP) and those programmes funded through third party finance (eg. Objective 2 programme) should be differentiated. Most of these programmes comprise direct business support.

In the area of infrastructure, some support is provided which is unrelated to specific programmes and, where programmes do exist, they tend more to define overall objectives and priorities than regulate the exact nature of the support.

The focus of activities remains project support for companies and the extension of the physical infrastructure. However, a current move towards the greater use of soft instruments and intangible infrastructure is notable – a further ramification to emerge from RITTS.

3.3.3.2 Business innovation support – consultancy and subsidies

The Objective 2 programme and resources from the Community Initiatives are used in addition to the support provided under the Bremen Innovation Programme.

The support of consultancy services in the Bremen Innovation Programme comprises two specific technology-oriented consultancy and information services. In addition, there are

general business consultancy opportunities (outside the Technology Fund) provided by the RKW and the Trade Chamber.

Project support under the BIP comprises a range of business subsidies. The business measures have two notable features:

- First, a comparatively high proportion of personnel transfer measures.
- Second, a strong focus on SMEs. The entire palette of support has only one programme which is aimed at larger firms – the so-called *Verbundprogramm* which supports long-term collaboration between firms and research units in large networks.

3.3.3.3 *Technology transfer and RITTS*

Most of the measures in the key area of ‘Technology Transfer’ originate from RITTS and the Technology Park Programme. They are principally funded by Objective 2 resources and implemented by the BIA.

As RITTS is time-limited, there are no longer any actual RITTS projects. However, some of the continuing or follow-on projects still use the name as it is associated with an innovative approach and, in this sense, has almost become a regional trade mark.

Some projects at the interface between science and the economy have been intensively monitored, adapted and structured by the BIA. The BIA works closely with companies in this area and tries, in particular, to involve SMEs.

3.3.3.4 *New firm formation programmes and BIF*

The support of technology-oriented new firm formation and entrepreneurs is a key focal point of the regional support measures. In particular, there is a concerted use of instruments in the three-pronged form of consultancy and support, risk capital and infrastructure within the framework of the ‘SME and Entrepreneur Initiative’ of the Economic Senator. Risk capital is provided principally by the soft venture fund ‘Bremen Innovation Fund’ (BIF) in the form of loans or participation in innovative SMEs. An *Initialfonds* (public risk capital fund) was created in 1998 as part of BIF. This fund offers technology-oriented entrepreneurs particularly good conditions and is provided in conjunction with the initiative B.E.G.IN (a package of funding specifically for entrepreneurs) and the stipendium model (for early phases of the new firm).

3.3.3.5 *Thematic foci*

Thematic foci can be identified above all at the level of national project support and are oriented principally to the area of ‘space’. The EU support provided through the Structural Funds also have certain specified foci. In Bremen, these include the issue of conversion, which would not have developed so explicitly in the absence of the participation in the KONVER Community Initiative.

At *Land* level, thematic foci are mentioned in a number of documents (infrastructure, ISP, BIP defined foci) although there is no explicit direction of measures to support prioritised areas of technology. The majority of support measures do not differentiate by technology area.

A genuine thematic focus can be identified under the heading of information and communication technology – on the basis of the productive ATM infrastructure there is, first, much support available for the introduction of I&C technologies and, second, the initiation of special projects eg. EDI (currently finishing) and ‘Multimedia’.

3.3.3.6 Other interesting projects

This section is not designed to present the large successful projects such as the technology park or RITTS, but rather will describe a number of smaller projects which were mentioned during fieldwork interviews and are innovative or successful in nature.

- A number of successful initiatives exist in light construction where infrastructure measures and soft measures were combined in an innovative way.
- Transfer projects are often successful when they involve the initiative of a group of firms with a common strong interest. This was the case in the ‘Cooling Technology Joint Project Bremerhaven’. A group of fish traders commissioned the TTZ to develop a new cooling system which could be used directly at the harbour and meet certain logistical requirements. The project included base financing for the basic research but was only viable in conjunction with specific contract research.
- The creation of a private university (New International University Bremen) with the thematic foci of science and engineering on the site of the former military academy Bremen-Grohn.
- The test case ‘Commercial application of scientific RTD results of the *Land* Bremen’ was able to initiate successful new firm formation, as well as a number of projects funded through third party finance, by linking RTDI projects with potential customers. A concept for an application company is being developed by a virtual Bremen application network (what tasks should such a company have, what processes would be necessary).
- The establishment of Call Centres in Bremen is not at the core of technology policy but is nevertheless worthy of mention. Specific support for this purpose (particularly for the infrastructure) was provided through an economic development initiative. The resulting call centre projects have resulted to date in 1,500 jobs and specific training certificates are now being developed for these posts.
- Following the two successful development projects for the DG XIII Innovation Programme, Bremen is now participating in another programme – a TRIPS (Trans-Regional Innovation Project) is being developed together with Milan and Upper Austria which has been approved by the Commission. Work on the project has not yet started.

3.3.3.7 Problems and bottlenecks in technology policy

The principal problem areas and bottlenecks cited included the following.

- The response of firms to technology policy measures/actions is lacking and promoting a technology-related orientation is often difficult. New initiatives thus require intensive direct contact and follow-through ie. active technology transfer. This is both expensive and labour-intensive, and there is a lack of experience and appropriate systems for this new approach. Initial lessons in this area could be learned from RITTS, given that specific monitoring and accompanying of projects, as well as the pro-active introduction of firms to scientific and research institutes, was attempted within this initiative.
- The relationship between Bremen and Bremerhaven is also problematic - Bremerhaven is, and always was, the notably poorer city on the basis of all available indicators. Bremen city has also been emphasised in the technology policy field with the explicit promotion of the Bremen Technology Park. Despite successful starting points (eg. the TTZ Bremerhaven), little has been done in this field to overcome these regional disparities.
- The long and complex project application requirements have been widely criticised. It is anticipated that this will improve within the new structure given that the funding agencies will no longer need to get approval for each individual project. The sometimes very long processing times for individual projects are also, in part, related to the lack of budgetary overview - the correspondence between individual sources of support funding, positive from a flexibility point of view, has also sometimes resulted in a lack of clarity about the availability of free resources for individual activities.
- The spectrum of assistance in itself was not criticised, with the common consensus being that, rather than missing elements, there was, if anything, too much on offer. As a result, there is demand for a reduction in the number of support programmes which should be designed to be more strategic and targeted and have specified, assessable tasks.
- Linked to the above point, there was criticism about the huge overlap between the areas of responsibility of individual actors. This is particularly notable in the consulting field where at least four organisations are active in Bremen. Existing organisations are naturally unwilling to pass over competencies and thus, in the event of organisational change or the creation of new institutions, this results in an increase of the overlap. The successful creation of the BIA, therefore, should have required a significant transfer of competencies from existing actors ('everyone has core competencies for everything').

3.3.3.8 Resources

Regional (ie. Bremen) RTDI-measures are the principal source of financing for the economy and firms, while national and international sources are dominant for the science and research sector. Regarding the question of the optimal distribution between regional, national and international levels, all interviewees naturally backed the highest possible national and international participation. This opinion assumes that the majority of measures should be developed and decided locally and therefore a higher national and international participation effectively means the continuation of the same policy approach with higher external resources.

In terms of the relationship between federal and *Land* expenditure, Bremen profits unproportionally well from federal expenditure (federal resources of DM 210 million in 1994 and DM 183 million in 1993) but only provides an average amount from its own coffers - DM 153 million in 1993 or 1.1 percent of the RTD expenditure of all the *Länder*, just below its GDP share of 1.2 percent. It should be noted, however, that the additional ISP resources of DM 4.7 billion until 2004 will significantly increase the resources dedicated to RTD in the *Land*.

A total of DM 1,181.8 million was provided between 1992-95 through the economic restructuring action programme (WAP), of which DM 167.9 million was through the technology fund (14.2 percent).

Differentiated by type of measure, 23.7 percent is provided for business support, 13.9 percent for intangible 'soft' infrastructure (showing a steady increase from 12.2 percent in 1992 to 16.4 percent in 1995) and 62.4 percent for the construction of economic infrastructure.

3.3.4 RITTS

3.3.4.1 Strategy and motivation

The RITTS project was the result of personal initiative by a department head in the senatorial authorities. He wrote the proposal, together with a consultant, and the involvement of other actors was only sought following the confirmation of DG XIII approval.

The project, which ran until 1996, had a targeted aim based on specific regional characteristics - RITTS was an attempt, as an extension to the supply-oriented technology policy of the *Land*, to activate regional firms, stimulate demand and thus increase the cooperation and willingness to innovate among firms.

The understanding of technology transfer which underlies this aim is a very broad one. It assumes that the specific connection component is only a small part of the transfer and what is really required is the initiation of the entire process. This whole process incorporates all the necessary steps involved in encouraging firms to innovate and cooperate.

The new organisation of technology policy is also related to this - there were few feedback or control mechanisms in place for technology policy measures. RITTS presented an example of the necessary organisational changes required for a stronger demand orientation (more private actors, more evaluation and monitoring etc) in the policy.

RITTS ran in parallel and cooperation with a similar strategic initiative - the re-formulation of a strategy for the existing technology park - which was funded under the EU Science Park Development Scheme.

3.3.4.2 Structure, management and organisation

A small Steering Group and Working Group, which incorporated many regional actors (intermediaries and individual firms), was at the centre of the organisation. 17 pilot projects resulted from the workshops, although they were not all fully implemented. In practice, the simple and realistic projects, for which local actors could take responsibility, were those

which reached the implementation stage. The implemented projects tended to take a highly pragmatic approach. Additional Structural Fund resources for technology transfer were provided in close cooperation with the RITTS.

The expert working group for RITTS was also integrated with the science park project, which was running simultaneously, and allowed a close link between the two projects to be realised - although also resulted in 'too many' experts. The local actors underestimated the requirement for their own input. The coordination and internal communication between the experts was poor and the cooperation with consultants was also not without difficulties.

A particularly problematic area was considered to be the management of the project by international experts. A strong, regionally-based project leader and a professional management structure would have been more beneficial.

3.3.4.3 RITTS action plan

Five new foci or objectives were formulated which were designed to be integrated within the re-formulation of the BIP:

- industry-driven rather than research-driven technology transfer;
- improvement of the dialogue between the RTDI institutions;
- support for networks and cooperation;
- support and improved leverage of private and outside financing for innovation; and,
- feedback and own financing of technology transfer structures.

3.3.4.4 The results of RITTS

In large part, the regional significance of RITTS came from the fact that it was an EU project and was thus providing third party finance. Co-financing resources could be refused only with difficulty - that is, the internal Bremen justification for the resources could easily be argued. From discussions with regional experts, four principal effects of RITTS have emerged.

- *Project and structural effect* - RITTS was designed to be an impulse to integrate new approaches into the BIP, although the fact that the BIP has not been continued prevented this from occurring. However, projects of a medium- to long-term nature were initiated through RITTS. As previously mentioned, some of the RITTS projects are still on-going and, in part, are being accompanied and evaluated by the same international experts. There were not only project-level impulses within Bremen but change prompted partly by RITTS was also seen at a structural level. A number of structures rooted in the RITTS project can be seen in the re-organisation of the technology and SME support of the *Land*. The one-stop-shop character of the BIA, for example, is reflected in the nature of the BIG holding company.
- *Awareness effect* - 'RITTS has become embedded in the thinking of the actors'. RITTS changed the way of thinking in the region independently of the individual projects, leading to more open discussions and improved cooperation. This has also encouraged new

projects such as, for example, the stipendium model for entrepreneurs or the creation of the *Initialfonds*. RITTS has brought about a generally more demand- or needs-oriented approach to the regional technology policy discussion. A re-thinking of the regional technology policy landscape, and the catalytic effect of RITTS in terms of speeding and strengthening ideas, were also positive by-products of the initiative.

- *Contacts and internationalisation effect* - new contacts within Europe (eg. close contacts with Groningen) were forged as a result of the cooperation with international experts and the responsible individuals in the Commission as well as through the opportunity to learn from others (a form of background benchmarking). This has improved not only the regional know-how about the international status quo in innovation theory, but also the success chances of other projects facing international competition (eg. TRIPS as well as other national programmes such as the BioRegio competition of the BMBF) as the relevant competitors and Commission members were known and regional actors could be more easily motivated into action.
- *Image effect* - the entire process of the common generation of ideas and their implementation has been very positive. The umbrella of RITTS, the name of which has become virtually a regional trade mark, enhanced the value of individual projects.

There were also critical opinions in the evaluation of RITTS. These were generally directed not towards the project itself but rather towards the opportunities for the implementation of the new ideas within the political culture of the region. A central stumbling block was seen to be the 'micro-political structures' (competency conflicts particularly within the senatorial authorities - who can be blocked by whom and with what) and the lack of power of the RITTS actors to stimulate long-lasting changes. This is particularly true given the very low awareness of the RITTS project at higher political levels.

4. CASE STUDY: FLANDERS

4.1 Regional Background

4.1.1 Economic development in Flanders

Flanders is one of the three Belgian regions, with a population of just under six million. It is located in the north of the country with important sea ports such as Antwerp, Oostende and Zeebrugge. The socio-economic structures of the Belgian regions differ considerably. Flanders accounts for around 60 percent of the Belgian GDP and its GDP increased by 2.5 percent in 1997. Its industrial structure is relatively diversified, is strongly export oriented and is rooted in more advanced sectors such as automotives, chemicals and electronics. Parts of the region have undergone serious problems related to the decline of the textile industry. Flanders also experienced significant tertiary sector growth in the 1980s. Unemployment in 1997 was 5.8 percent, considerably lower than the Walloon equivalent. The size structure of Flemish firms is strongly weighted towards small firms, with over 90 percent of all firms employing fewer than 10 employees.

4.1.2 Flemish innovation system

There is a considerable amount of high technology innovation undertaken in Flanders in conjunction with the key research institutes, high-tech valleys and universities (see section 4.1.3). The range of RTD providers is very strong, particularly in certain sectoral areas which build on existing areas of competence. There is also a very positive supply of venture capital and risk finance for innovative activities among Flemish firms, offered by banks, business angels or through funds linked to specific technology developers. One of the high-tech 'valleys', for example, offers a fund for investment money collected on the market.

The more negative aspect of the Flemish innovation system is its complexity and the lack of transparency of services on offer. This makes it difficult for firms further down the technology spectrum, and for SMEs in particular, to identify accurately where to obtain suitable assistance. While it is recognised that a certain level of redundancy and overlap is necessary, as different platforms will draw in different types of firms/SMEs, greater coordination of organisations is required to make the supply provision less confusing. Further, studies have highlighted a mismatch between the services provided in the region and the actual needs of SMEs in particular. The research providers appear to cater most effectively to those firms which are already technologically active.

4.1.3 RTD infrastructure in Flanders

Flanders has a strong existing RTD infrastructure. In addition to six universities, three important public research centres operate in the region. These comprise:

- *IMEC*: created in 1984 by the Flemish government to stimulate microelectronic technologies in Flanders. It has an annual budget of ca. BEF 2 billion, of which around 60% is a government subsidy, and employs around 750 people. IMEC carries out

internationally-oriented scientific research in the field of micro-biology and also has an educational and training function. IMEC has a strong industrial orientation (total contract research income in 1997 of BEF 1.2 billion), including with local Flemish firms. A range of industrial related services are offered including training, consulting, joint RTD, licensing, prototyping and service provision. IMEC also offers a cooperation scheme entitled Industrial Affiliation Programme, designed to integrate industrial researchers into IMEC research teams. In 1997, IMEC started an IT-oriented venture capital fund called "IT Partners" which is aimed at startups or rapidly growing companies.

- *VITO* (Flemish Institute for Technological Research): was created 1992 from the previously federal nuclear research centre and retained non-nuclear competencies principally in non-nuclear energy, environment, raw materials and materials research. It operates on the basis of ten centres of expertise, employs 424 people and has an annual budget of BEF 1.5 billion, BEF 1 billion of which is government subsidy. Similarly to IMEC, VITO has both research and training functions and has recently made increased effort to raise its profile among industry. PRODEM, for example, is a demonstration and testing centre for environmental technologies which is aimed at the support of SMEs.
- *VIB* (Flemish Interuniversity Institute for Biotechnology): operates in the field of biotechnology and combines the resources of nine biotech research groups (around 600 scientists and technicians) in different universities. It was founded in 1995 by the Flemish government and has received a financial commitment of public money of around BEF 5 billion over the next five years. VIB has three complementary core activities comprising strategic basic research, social research and communication, and the valorisation of results through an active patent and licence policy. The Technology Transfer department is responsible for this third area and for negotiations with Belgian and international firms. The department also looks for investors and companies to develop spin-offs or subsidiaries based on Flemish biotech know-how and arranges negotiations with VN Biotech Fund Flanders which invests venture capital in this field.

A further important component of the Flemish RTD infrastructure is the *collective research centres*. These centres comprise the research units of the Belgian sectoral organisations and emerged following World War II to stimulate the industrial restructuring task. They generally operate on a so-called solidarity principle ie. that the research and advice generated by the centres must be relevant to the entire sector and not just individual firms. Their objective is to meet the specific scientific and technological research needs of companies, and particularly medium-sized firms, in their sectors. They undertake pre-competitive research as well as the exploitation of these results in industry. These centres operate in a range of sectors, some of the largest ones representing ceramics, metallic construction, metallurgy, roads, textile and glass, wood and construction. They are financed through compulsory contributions from the sectoral industries, public support and contract research. The collective centres have recently formed an umbrella organisation called VLOOT.

Five *Innovation and Incubator Centres* (I&I Centres) operate in Flanders in Leuven, Brussels, Gent, Antwerp and Limburg. They function as business parks where new start-ups and young technology based companies can locate and receive assistance principally in the form of common administrative services. Other types of service offered include assistance with personnel recruitment, accounting or the identification of finance. The I&I Centres have varyingly good links into neighbouring research institutes and universities. The manager of the Leuven I&I, for example, meets regularly with the university's RTD department, which

deals with all contract research, and IMEC to discuss possible spin-off companies which could be based on emerging research.

Finally, three so-called *high tech 'valleys'* exist in Flanders and comprise high-technology clusters built around existing areas of expertise and competence. These are: Language Valley; DSP Valley (digital signal processing) and Multi-Media Valley.

At the local level, *regional development agencies* (GOMs) are funded by the Flemish government to provide free business advice. Their remit does not specifically include innovation or RTD related components but they have the potential to act as important intermediaries and contact points in this field for SMEs in particular. They are officially part of the DG XIII funded 'innovation network' which gives them the function of identifying suitable partners for firms with technology-related enquiries. There is, however, often a lack of technical expertise within the organisations. A number of the GOMs are now integrating innovation-related themes more actively into their remit, but much depends on the motivation of individuals within each GOM.

4.2 National Policy

The Belgian system of government is highly regionalised in nature with the creation, in 1980, of three autonomous regional governments - Flanders, Brussels Capital and Walloon. Responsibility for a range of policy areas have gradually been passed to regional governments starting with public investment, economic development, land use, vocational training and employment policy functions and then, through the 1980s and early 1990s, transport and education, agriculture and technology/RTD. The level of regional autonomy is much greater than is the case in Austria.

4.2.1 Regional policy

Regional policy in Belgium is highly decentralised. The central government provides the basic legislative framework but Flanders and Walloon are responsible for the implementation of the law and the financing of the incentives on offer. The only aspects of regional policy which are kept at federal level are fiscal policy and employment aid - although some labour measures are also determined at regional level. In Flanders, the regional assistance for large projects (generally with fixed investment in excess of BEF 500 million) is decided by all the ministers of the Flemish government while smaller projects are delegated to the regional Minister of the Economy.

The highly regionalised nature of regional policy in Belgium has resulted in different policy objectives being pursued in the regions. In Flanders, increasing emphasis is being placed on the attraction and development of investment deemed to be of 'strategic importance' to the region. The aim is to secure projects that contribute substantially to regional development, such as those involving significant RTD activity. There is also an explicit emphasis on the attraction of inward investment.

The main instruments of regional policy are the capital grant and interest subsidy, administered jointly in Flanders. Additional measures include awards for first-time foreign investors, environmental investment and soft investment projects. The move towards soft investments is designed to encourage companies to invest more in business areas such as

technological and product innovation and the acquisition of new skills. Nationally, a range of fiscal measures operate, including an investment deduction allowing SMEs to deduct a certain percentage of the amount invested in RTD or energy saving investment from its taxable income. In terms of designated area, the assisted area map covers 35 percent of the national population, 16 percent of which is in Flanders.

4.2.2 RTD policy

Federal level RTD and innovation policy no longer operates in any real sense in Belgium. The primary responsibility passed to the regions as part of the regionalisation process and the only competencies retained at national level are those considered to be of national relevance such as space and nuclear research. Even in these areas, there is now increasing demand (particularly from Flanders) for a move towards more regionalised structures.

Federal level RTD and innovation policy is considered impractical in Belgium, particularly in light of the very different regional characteristics and economic conditions of the three regions. Many regional level policy makers do not consider there to be a real 'Belgian reality' on which to base a national policy in this area. The advantages of regionalised policy are perceived to include the ability to target it at areas of direct relevance to the region and a closer direct relationship and understanding of regional businesses and the RTD infrastructure.

4.3 Regional Technology and Structural Policies

4.3.1 Strategies and programmes

The overall direction of Flemish industrial and RTD policy is set by the Cabinet of the Minister-President of the Flemish government. This is undertaken in consultation with the Regional Social Economic Council (which includes representatives of the employers association, trade unions and the universities), the Flemish Council for Science Policy (comprising members nominated by the universities' council, the Social and Economic Council and the government), and the IWT and FWO, the two operative arms of the government in this field (see 3.2). Policy decisions are also discussed more informally with business leaders and industrial representatives as well as the sectoral federations. The universities generally have a relatively strong voice in the strategic planning channels, while industrial input is less formalised and SMEs in particular are poorly represented.

A recent development initiated by the IWT in 1996 to help inform the strategic planning process is the Flemish Technology Observatory. The Observatory has two principal aims:

- the development of a statistical base to be used for policy making, monitoring and research;
- a survey and presentation of innovation studies, designed to synthesis academic studies and policy trend analysis in an on-going series of reports. The aim is to provide information which can keep the IWT, Flemish government, businesses and the wider public up-to-date.

Both of these areas are designed to promote networking both nationally and internationally and to pool relevant expertise and knowledge.

4.3.1.1 Strategic approach of Flemish government

The Flemish government has focused considerable attention on RTD policy since gaining full control over much of this policy area. The government has committed with the current legislature to raise annual RTD expenditure to two percent of the gross regional product - a figure in line with the OECD average. This has meant an annual increase of ca. BEF 2 billion, raising the budget from BEF 32 billion in 1995 to an anticipated BEF 40 billion in 1999.

The science and technology policy of the Flemish government emphasises a number of key areas including:

- the increased internationalisation and globalisation of science and technology;
- the strengthening of fundamental research;
- the increased awareness of the importance of science and technology in society;
- the creation of centres of excellence, concentration and cooperation; and,
- the strengthening and technological revaluation of SMEs.

The recent strategic direction of the Flemish government in this field has been more towards an innovation-based approach. A so-called 'Innovation Decree' has been produced which aims to develop a typology of innovation and define the type of support which can be provided for each level. This Decree is not yet fully finalised and some difficulties have been encountered in the development of this approach. One central element of the new thinking is the requirement to streamline procedures particularly with a view to allowing more rapid access for SMEs to gain assistance in this area. Criticisms of the approach include the insufficient attention being given to institutional structures which are currently oriented more towards traditional technology support than to innovation.

There has been a tradition within the Flemish science and technology policy of focus on particularly technology areas. During the 1980s, for example, four areas were selected based on areas of competence within Flemish universities and the links with potential business strengths - micro-electronics; bio technology; new materials; and environmental technology. Their promotion was designed to use pre-existing expertise but have the potential for development in new directions. One result of this strategic approach was the emergence of strong research institutes such as IMEC in micro-electronics and VIB in bio-technology. Related fields have also received support such as speech technology.

The Flemish government is now developing a new cluster based initiative in tandem with the newly emerging innovation-oriented policy. This has come partly from the recognition that the majority of SMEs are not regular 'customers' of RTD support and that more SME oriented initiatives and approaches were required to help overcome the barrier between SMEs and academic research. The clusters are to be industry, rather than government, determined to move away from the poorly perceived 1970s 'cluster' policy which effectively provided support for failing industries. The current policy is designed to provide support for industry-initiated clusters which would increase its membership and help the members to undertake pre-competitive activity. There has been considerably variation in the quality of the clusters which have been supported through this policy. There has been overall criticism that the policy is uncoordinated, leading in some cases to duplication with existing industry groups,

and a lack of application of rigorous quality criteria. Equally, the emerging clusters often reflect traditional sectors rather than being developed within new sectors or with a cross-sectoral focus.

4.3.2 Structures, management and organisation

4.3.2.1 Flemish government and IWT

The IWT was created in 1992 and is the central organisation within Flanders responsible for the provision of government support in the field of RTD and innovation. Its main task is to finance basic and applied RTD in companies and research institutes both autonomously and as part of specific programmes or initiatives of the Flemish government. Some of its activities are specifically tailored to the support of SMEs - although the IWT is still widely perceived to be overly bureaucratic and academic and not sufficiently able to speak the language of SMEs. It provides financial incentives, as well as a range of other services including:

- *technology transfer*: providing advice on in-house technology development and the utilisation of existing technologies through technology transfer;
- *partner search*: providing information on potential partners throughout Europe based on access to technology transfer networks and foreign contacts; and,
- *guidance with international subsidies*: advice and information on European Commission research programmes and assistance in the preparation of proposals.

The FWO is the second operative arm of the Flemish government in the field of science and technology. It was formerly a national organisation but the Flemish board of trustees received full decision-making autonomy in 1992. The FWO is responsible for the support and financing of scientific research in Flemish universities and research institutions. The organisation is managed by representatives of Flemish universities, Flemish and national authorities and the socio-economic organisations.

RTD policy within Flanders has both centralised and decentralised components to it. It is centralised in the sense that one key organisation, the IWT, is responsible for its implementation. This approach has been taken by the Flemish government for a number of reasons. These include the perceived need to develop a critical mass and an efficient implementation structure for a region of only 5-6 million people and the requirement to provide a clear single interface for companies.

The more decentralised aspect to Flemish RTD policy lies in the emerging IWT approach to operating a local innovation network in conjunction with existing regional actors. This will include the provision of support for activities which require cooperation between actors. This approach is emerging in preference to the establishment of local level IWT offices which could further complicate the range of organisations operating in this field. The ultimate aim is to have a well organised and efficient innovation network, run by local actors, and animated and coordinated by the central IWT. The IWT would support locally run initiatives financially and take on responsibilities which are more effectively carried out by a larger and more centralised organisation (effectively the subsidiarity principle). RTD project assessment and support would still be undertaken centrally, with local agencies either channelling

proposals or directing firms straight to the IWT. The centralised assessment and award procedures are considered necessary for reasons of critical mass given that local agencies cannot have the required technical expertise. It also ensures more homogenous and transparent decision-making structures.

This local innovation network approach is still in its infancy and some disagreement is apparent about the exact way to take such an approach forward. Two ‘philosophies’ appear to exist, one which supports the more active role of a centralised organisation and an element of compulsion in generating a coordinated network, while the other is more decentralised in nature and supports the creation of a network structure which existing organisations are free to use to facilitate coordination and business linkage if helpful to them.

4.3.2.2 Other regionalised structures

The structuring of the country into autonomous regions has affected the operational organisation of formerly national organisations. This is true, for example, for the sectoral collective centres and can be illustrated in the example of WTCM which encompasses the metal, mechanical, electrical and electronic manufacturing and plastic materials fields. Following regionalisation, the WTCM underwent a restructuring exercise which identified 40 technologies of relevance to the WTCM remit and analysed how well the organisation was meeting the needs of the companies in these areas. This resulted in the setting of five new priorities and the creation of 12 ‘technology poles’ which were cross-sectoral in nature and better able to cover the activities of member firms. The 12 poles are designed to increase efficiency, avoid overlap and promote synergy. They are split across Belgium, with seven in Flanders (all located in one area to create economies of scale and increase efficiency). This comprises a national level approach to knowledge acquisition.

Knowledge transfer, however, was strongly regionalised to match the industrial policy competence of regional governments and allow closer links to regional industry. The regional directorates are responsible for ensuring that information from all the technology poles (regardless of their location within Belgium) is available to firms within their jurisdiction. The new structure aims to optimise the costs and efficiency of knowledge creation through centralising activities on a national level but equally optimise the efficiency and transparency of transfer by regionalising this service as far as possible. The transfer units can also have links to other research centres eg. IMEC or VITO.

An additional sub-Flanders structure comprises the *Strategic Plans* which are funded by the provinces and designed to analyse methods of stimulating the local economy. The boards of the Strategic Plans include representatives of the main economic actors in the region, including the GOM, Chambers, employers union etc. Following analysis of the strengths and weaknesses of the local economy, a series of projects or actions (generally self-funded) can be initiated to support relevant growth. One example is the activities of Strategic Plan Limburg which currently comprise:

- a RIS initiative (see section 4.3.3);
- an environmental programme to support companies in developing an annual action plan for measures exceeding national requirements;

- the PLATO initiative within which large companies act as a parent for smaller ones providing a range of business related information and support. This has been a stimulus for business cooperation;
- trade fairs and business contact days;
- management training.
- star sector initiative for the strategic development of a number of sectors which have been identified on the basis of existing competence and growth prospects. Around ten companies from these sectors have then been brought together to brainstorm about the direction of the sector, current activities and future prospects.

The Strategic Plans, like the GOMs, did not have an initial specific involvement within the innovation field, but many are moving increasingly in this direction. The RIS exercise initiated by Strategic Plan Limburg is one example of this.

4.3.2.3 Measures and instruments

The main Flemish government incentives available to firms in the field of RTD and innovation are provided through the IWT. Distinction is made between two types of research project:

- *basic industrial research*, eligible for a 50 percent subsidy;
- *prototype development*, eligible for advance payments equivalent to a 25 percent subsidy; and,
- *SME projects*, or projects of particular importance at a European level, eligible for an additional 10 percent subsidy.

The IWT also offers specific SME-oriented support. The firms must be located in Flanders, have fewer than 200 employees and a maximum annual turnover of BEF 600 million

- *SME feasibility study*, limited to a period of nine months and with a maximum budget of BEF 1 million, to undertake research on the technical feasibility of an idea or development (60 percent subsidy); and
- *SME innovation project*, with a maximum duration of 18 months and a maximum research budget of BEF 15 million, to develop new products, production processes or services (35 percent subsidy).

The IWT also administers aspects of the Flemish government's cluster policy (which is likely to increase in the future) as well as EU programmes. It also produces a handbook of advice to Flemish firms which outlines the main financial instruments as well as the names, contact addresses and activities of all the principal actors in the RTD infrastructure.

4.3.3 RITTS

Two RITTS/RIS exercises have been carried out in Flanders: a RITTS from the 1993 call which covered the whole Flemish region and a RIS from the 1995 call which covers the Limburg region within Flanders. The experience of the two exercises has been very different.

- *Flanders RITTS* was initiated by an individual within the Flemish government, although there was more general recognition of the need for a form of audit of activities. A previous study undertaken by a consultancy firm in 1991 had already reviewed the Flemish system but with disappointing recommendations. It was hoped that the RITTS might provide more detailed and specific conclusions and policy recommendations but the final report did not meet these expectations.

The RITTS study ultimately became of theoretical exercise as no real input was given to the development of a practical action plan or the implementation of any aspect of the conclusions. This occurred for a number of reasons including a lack of initial consensus-building and integration of a wide range of partners and insufficient commitment to following through the study. However, some positive aspects did emerge from the exercise, such as the confirmation that the support infrastructure has to be more directly oriented to the needs of SMEs. Some of the more SME-oriented approaches now developing within the IWT are, at least in part, a response to the study. This includes, for example, the need to provide support within SMEs for the management and absorption of new technology. Further, the results fed into the thinking process behind the development of the innovation approach of the Flemish government.

- *Limburg RIS* still on-going but is much more dynamic in character. Within the region, it has been called SPIN-OFF in an attempt to find a name more immediately identifiable by the business community. The entire exercise has been characterised by the explicit and deep-rooted integration of business to ensure relevance and increase the opportunities for effective implementation. The Steering Committee comprises government, economic organisations and businesses, and representatives were asked at the start to ensure their commitment to the project for its duration.

The star sectors (see section 4.3.2.2) were used as the basis for demand side analysis and the aim was to carry out more in-depth qualitative research rather than a broader look at a higher number of firms. This analysis was used to determine problem areas, such as the difficulties of external control and generating in-house innovation, and workshops on these topics were organised involving over 100 companies in total. Four pilot projects are now being developed for the implementation stage. These have been consciously structured as broad frameworks and businesses and intermediaries were asked where their principal interest lay. The final groupings will then determine the actual projects to be undertaken. The four areas are:

the stimulation of innovation in SMEs (aimed initially at those already showing potential);

‘condition-creating’ government (ie. projects to improve the targeting and effectiveness of government activities in this field);

‘condition-creating’ intermediaries; and,

‘condition-creating’ education and RTD.

One of the key differences between the two strategic exercises lies in their link to implementation. The RITTS strategy for Flanders lacked a clear link in this area and was not driven with implementation in mind. This has not been the case with the Limburg RIS, partly reflected in the much stronger business involvement - although clearly the actual impact of the pilot projects cannot yet be assessed. The Flemish RITTS emerged principally as an academic exercise which, while contributing to wider governmental thinking, had little direct impact on structures or regional involvement in RTD.

5. CASE STUDY: NORTH EAST ENGLAND

5.1 Regional background

5.1.1 Economic development in the North East England

North East England shows typical symptoms of a region in industrial decline including high unemployment, low GDP, lack of small firms and new firm formation. Regional GDP per capita levels show the region to be lagging in national comparison. Over the period 1981-1993, for example, regional GDP fell from 93.5 percent of the UK figure to 88.9 percent. The EU Objective 2 designation also reflects the nature of the regional problems of this area.

Since the 1980s, the region has undergone substantial structural change. A pattern of decreasing employment has been experienced in the primary and manufacturing sectors which, over the period 1981-95, have seen levels of employment fall from 7.0 to 1.4 percent and 39.9 to 21.8 percent respectively. Employment in services, however, has risen from 57.1 to 71.4 percent. Overall, there was a 7.5 percent net decrease of jobs over the period, with increasing levels of female and part-time employment.

The current main sources of employment within the manufacturing sector are the chemical, metal, machinery and equipment manufacturing industries, although they appear to be in steady decline. The North East region still remains economically dependent on large firms and rates of new firm formation, and company survival, are lower than the national average.

Unemployment trends for the region show that between 1990 and 1997 the rate of unemployment decreased. This positive trend, however, was not consistent over the whole period. Between 1990 and 1993 there was a gradual increase, which peaked at 13.3 percent in 1993, before steadily decreasing to 9.3 percent in 1997 - still considerably higher than the national rate of 6.7 percent. This pattern broadly mirrored the fluctuations in national unemployment rates.

5.1.2 Characteristics of NEE innovation system

Innovative activity in the North East is perceived to be lower than optimal. This is due to a number of factors including the decline of traditional industries, inadequate links between region's industrial sector and universities and, to some extent, the lack of a clear regional innovation strategy.

The region is well endowed with higher education institutions and much of the region's RTD activity is carried out in the university sector. Technology and innovation support agencies are also plentiful in the region, ranging from publicly supported organisations to independent self-financed ones. The volume and diversity of organisations providing technology related support, and the overlap of services on offer, creates a complicated structure.

On the demand side, there appears to be a reluctance amongst many of the regional firms to take up this type of assistance. A survey was carried out in 1996 by the Regional Technology

Centre which concluded that only 20 per cent of North-East manufacturing companies make regular use of support advice. Employment within high technology sectors in the North East is below average and regional SMEs are not generally strong innovators.

Regeneration in the North East has also been characterised by inward investment activities, most notably Nissan in 1984 and more recently Siemens in 1995, with an investment of £1.1 billion in a microchip plant. In 1995, there were around 380 foreign companies in the area employing in the region of 80,000 people. Although many of these investments are perceived as high tech in nature, they operate more of a screwdriver type assembly operation. Externally controlled firms often do not bring their research capacity to the region with ramifications for the linkages between firms and local research providers.

5.1.3 RTD infrastructure

North East England houses six universities and 27 education colleges. Some attempt has been made by the universities to promote technology transfer, oriented towards the specific requirements of the regional industrial base. These include:

- *HESIN* (Higher Education Support for Industry in the North) - established in 1993 by the six universities to provide support for inward investment projects and local firms through promotion of its collective expertise.
- *Knowledge House*, created by the universities in 1995 to support regional SMEs through their expertise and research facilities. The initiative is run as a brokerage service where, after an initial enquiry, the information is passed to each university in order to establish who will be best placed to provide a solution to the problem or carry out the requested research. The initial enquiry is free but daily rates are charged for the provision of further assistance.

Many technology support providers in the region operate in the area of technology transfer, with the aim of improving the performance of regionally based firms. These include:

- *RTC North Ltd (Regional Technology Centre)* - set up in the region by the national government Department of Trade and Industry (DTI) in 1987 and later establishing itself as an independent company. Working together with local universities (through HESIN) and other local actors, it aims to increase the competitiveness of the northern region through increased technology transfer. It undertakes business support activities in three areas:
 - new products: services offered include exploring the opportunities for new products, seeking partners for licencing and joint ventures and marketing research and planning;
 - RTD and technical support: including the provision of funding for IT projects from the Northern IT Research Fund and providing assistance to SMEs to commercialise available technology or develop new RTD products;
 - technology marketing: increasing company awareness of new technology through NETS linkage; the Business Exchange Network which promotes company matchmaking; and B2B, the Business to Business Exchange of Best Practice programme.

- *CADCAM Centre* - established as a focal point where local companies, especially those involved in manufacturing, could seek advice on specific technical problems. Solutions are sought from CAD/CAM employees which include staff with previous technical experience. In addition, training is provided for CAD and CAM technical software packages.
- *MARI Computer Systems Ltd (Microelectronics Advanced Research Institution)* is a provider of consultancy type support in the area of information technology, with presence also in other UK locations.
- Other technology providers include *Cleveland Innovation*, which specialises in product design and new product development from initial concept to detailed design and test evaluation and *North East Innovation Centre Company*, which specialises in the provision of practical technology support to SMEs in the region. More specialised sectorally based organisations include *RAPRA Technology Ltd (Rubber and Plastics Research Association)* and *TWI North (The Welding Institute)*.

There are a number of initiatives operating in the North East which promote the networking of technology support providers, either in general terms or in specific fields. These include:

- *NETS (North East Technology Support)* - NETS comprises a network of 24 regionally based partners who work together exchanging experience and expertise in the area of technology and collaborating on technology related problems. The aim of the network is to encourage communication between different organisations who can offer each other practical advice and support, develop a collective pool of knowledge and provide a clearer overview to technology users of the services on offer in the region. NETS has been integrated as part of the technology support component of the regional Competitive Project (see section 5.3.1). Participating partners include many of the technology support providers noted above, the universities and further education colleges. NETS produces 'The Hitchhikers Guide' to technology organisations and support opportunities in the region, designed to simplify access to assistance.

The original impetus for NETS emerged from the implementation of the European STRIDE programme, which was managed in the North East to ensure that funded projects were collaborative in nature, involving a range of organisations. This organisational cooperation continued in some cases after the completion of STRIDE and NETS was later formalised as a network and is now integrated as part of the regional Competitiveness Project (see section 5.3.1).

- *Northern Informatics* is a private/public sector partnership involving the local government, schools, colleges and voluntary organisations established in 1995. It is less a technology provider or intermediary and more an awareness raising body with the aim of changing the culture of the region through the introduction of the information society to members of the public who would not normally have this type of access. The focus of activities is not directly related to increasing the economic performance of the region. Its aims are both social and economic, with the recognition economic and technological advance can create technology 'have' and 'have not' regions. It introduces the concept of the information society to all types of social groups ranging from small businesses to OAPs and school children.

- *The Northern Energy Initiative* - this is a regional technology initiative comprising a non-profit company with a board representing the leading companies and education organisations in the energy sector. It provides information and advice as well as a forum for discussion and networking. It aims to create improvements in the use of energy technologies with emphasis on those which are clean, sustainable and efficient.
- *Shopfloor Solutions* - Shopfloor Solutions is an initiative involving some of the regional universities, colleges and innovation support organisations providing SMEs with assistance in accessing new technologies in the manufacturing and IT fields. It provides expertise in various areas including technology transfer, CAD/CAM data exchange and technology counselling.

5.2 National Policy and the deployment of national measures in NEE

5.2.1 Regional policy

The UK has a highly centralised system of government although with administrative structures which differ between England, Scotland, Wales and Northern Ireland. In England, the ten Government Offices represent central government at regional level. These Government Offices are subject to central control for functions such as incentive awards, whereas the Scottish and Welsh Offices have more decision-making autonomy within the framework of national guidelines. Government Offices represent at regional level the Departments of the Environment, Transport and the Regions (DETR), Education and Employment (DfEE) and Trade and Industry (DTI).

The main instrument of regional policy in the UK is Regional Selective Assistance (RSA) which is available only in designated assisted areas. The RSA takes the form of a project-related grant available for projects which bring an identifiable regional or national benefit or create and safeguard employment. The budget for the UK in 1996-97 was £253 million.

Business Links are regionally based offices which provide advice on various business related issues, including support in the RSA application. They comprise part of a DTI initiative to provide a focus of business information accessible locally to businesses throughout the country. Business Links are not so much a part of national regional policy but represent an element of national support for SMEs and the improvement of regional competitiveness. Support is offered in various areas including business information, personal business advice, innovation and technology and exporting. Each Business Link has a so-called Innovation and Technology Counsellor (ITC). These ITCs provide support for local firms in identifying suitable partners for technology or innovation questions, locating sources of funding for development and supporting firms in the initial moves to develop new products or production processes. The ITCs are in a good position to act as a gateway for access to the wider provision of regional RTD support, but their technical knowledge is variable.

5.2.2 RTD policy

Technology policy in the UK is a central government responsibility and, in recent year, has been dominated by concerns of the country's competitiveness relative to its principal international competitors. The White Paper of Science and Technology, produced in April 1993 and entitled 'Realising Our Potential - A Strategy for Science, Engineering and Technology', laid out the rationale, funding principles and organisation of this policy area for the next decade. The White Paper recognised the importance of innovation in the improvement of competitiveness but was careful not to remove the responsibility for investing in innovation and commercial development from businesses. The focus, rather, was placed on the linkages and bridges between the science community and industry, supporting the generation of high quality research and strong partnerships with industry and wider society. The funding of basic research shifted to favour that which contributes more directly to increasing national competitiveness and innovation support focused more on information exchange and technology transfer than direct support for businesses.

In organisational terms, the Department of Trade and Industry is responsible for the development and coordination of government policy in this area. It has a large portfolio of support in this field, falling primarily under the remit of the Office of Science and Technology. Within the direct business and innovation policy functions of the DTI, the Small Firms and Regional Development section combines innovation support with regional emphasis.

National schemes designed to increase RTD in the country as a whole are more prominent in the UK than specific regional RTD policies. A number of schemes, however, do either encourage parallel regional activities or are administered regionally through (in England) the Government Offices. Key technology policy measures include:

- *FORESIGHT Programme.* The UK Technology Foresight Programme was launched in 1994 with the aim '...to improve the competitiveness of the UK economy, and enhance the quality of life, by bringing together business, the science base and Government to identify and respond to emerging opportunities in markets and technologies'. It is run by the Office of Science and Technology (OST) within the DTI. An important rationale behind the programme was to improve linkages between industry, government and academia and to improve the commercialisation of the UK science base. A Steering Group was formed comprising representatives from industry, science and engineering communities, academia and government departments. The objective of the Group was to identify technology sectors and special panels to assess trends and commercial opportunities and ensure the diffusion of this information to researchers and industry. Sixteen sectoral sectors were originally identified and researched and the results disseminated to suggest directions that future research in both academia and industry could be developed. These directions are also reflected in other government policy measures, such as LINK and SMART.

An Audit of the Foresight programme was published in October 1997 which identified a number of key findings. These included the fact that linkages between government departments and Foresight activities were insufficiently strong, resulting in the creation of an interministerial committee to facilitate improved coordination. It also recommended a higher focus on the promotion of regional and SME related activities. The next round of Foresight will be launched in 1999, with a focus on wealth creation and quality of life more

generally. This is reflected in the choice of themes, which moves away from a strong sectoral basis towards more cross-sectoral issues such as ageing population, social cohesion, education and training and sustainable development. The aim of the next round is to increase the participation of the panels to make the programme more self-sustaining and spread the underlying ideas to as many participants as possible.

The Foresight concept is encouraged at regional level, although the practical implementation has proved difficult. This relates partly to a regional reluctance to take on initiatives with a central government 'stamp' and is partly an issue of timescale. At national level, the panels are examining trends and developments over the medium- to long-term and this planning timescale is out of the range of the majority of smaller regionally based firms. The networking concept could, in theory, work well in a regional context and one of the aims of the next round of Foresight is to identify ways of encouraging such development.

- *LINK Programme.* The aim of this programme is the promotion of collaboration between industry and the research base focusing on technology or generic product areas. Currently there are 57 LINK programmes, with 50 percent of funding provided by Government departments and research councils. Industry provides the remaining funding.

LINK projects are designed to reflect Foresight priorities combining the work of at least one company and research institute or organisation (ranging from universities to hospitals or independent research organisations). It is open to all sizes of UK based companies and also to UK based multinationals provided they have a manufacturing and research interest in the UK.

- *SMART Programme.* SMART started in 1986 as a pilot project which was eventually developed into a full scheme in 1988. A reviewed SMART scheme was introduced in 1997, combining a number of existing incentive schemes. Grants are awarded to SMEs to allow the carrying out of feasibility studies for innovative technology and new product developments involving technological advance. Grants of up to £45,000 are available for feasibility studies or ECU200,000 to support development projects. Allowances are made for projects designed for markets with high barriers to entry or long development times (such as in the medical sector) which can be funded up to a total of ECU600,000. Grants are awarded on a competitive basis and application assistance is available through the Business Links. The budget for 1998 is ca. £30 million. The SMART assistance focuses on future technologies and their effective market exploitation and thus also supports the aims of the Foresight programme. This link has been officially acknowledged and in June 1998 SMART Foresight awards were presented to SMART projects which corresponded particularly closely with Foresight objectives.

It is a national scheme but administered regionally through the Government Offices. Financing for SMART schemes is divided among regions based on various criteria with national guidelines in place to ensure consistency of project selection across regions. The regional administration is both practical in terms of resources and local knowledge but also creates an important regional dimension in project award decisions.

- *Teaching Company Scheme.* The Teaching Company Scheme is a scheme sponsored by ten government departments focusing on encouraging and supporting company and university partnerships in order to enhance technology transfer and stimulate training. The programme creates a university-company link by enabling placements for graduates within companies to work on company benefiting projects. The placements are financed in part by government grants and in part by participating firms. An SME participating for the first time will contribute ca. 30 percent of direct costs (around £10,000 per associate per annum) while a larger company will contribute at least 60 percent. It aims to encourage companies to undertake projects which would normally be outwith their human resource capacity, aid young graduates in learning the business culture through hands on training and help universities to produce graduates with relevant industrial skills for the future. The tasks undertaken by the placement graduates include the introduction of new or improved products and processes, introducing or working on improving systems and new/improved market penetration. The majority of UK universities are involved in the TCS along with 600 firms, supporting around 1000 graduates.

5.3 Regional technology and structural policy

There is only limited scope within the centralised structure of the UK for autonomous regional level RTD policy-making. Technology policy is designed and financed principally at national level with the regional level having an implementation role only. The main organisation involved in this work in the Government Office, in this case Government Office North East (GO-NE), which operates the national SMART scheme in the region, as well as playing an active role in the Teaching Company Scheme and regional Foresight. GO-NE is also responsible for the delivery of the Objective 2 programme in the region, which has a significant focus on RTD and innovation support. Through the regional administration of national schemes, GO-NE inevitably exerts some influence on the direction of funding, but has little independent policy-making powers.

As in Sweden, however, there are considerable moves towards decentralisation within the UK. This has become particularly prevalent following the coming to power of a new Labour government in May 1997. Greater devolution of power is now being given to Scotland and Wales and, within England, nine Regional Development Agencies (RDAs) are being created in April 1999. The aim of the new RDAs is to coordinate national, regional and local economic development activities and their creation is a significant departure from previous practice and represents an important new regionalised dimension to economic development. The RDAs, according to the 1997 White Paper, will formulate regional economic development strategies, coordinate the actions of other partners, oversee the administration of key national and EU budgets, develop regional skills and promote inward investment. Clearly there is potential for RTD and innovation components to be integrated within this framework, although the extent and nature of this integration is likely to vary between regions.

5.3.1 *Strategies and programmes*

An important mechanism within the current administrative framework for influencing RTD and innovation at regional level is through the development of regional technology strategies and attempts to coordinate the activities of existing actors. A range of this type of initiative has been undertaken in North East England over the last 5-10 years and include:

- *The Competitiveness Project* - a three year project with the stated objective of achieving, through partnership, a higher level of regional prosperity by benchmarking business performance and improving business support. The resulting strategy is also designed to ensure that overlap and duplication of business support activities is avoided. The Project is led by the Northern Development Company in conjunction with a partnership of organisations including the Confederation of British Industry, the Training and Enterprise Councils, Business Links, GO-NE, Chambers and educational institutions. There are five components to the Competitive Project: company benchmarking, technology support, training, market opportunities, and the provision of finance.
The project, which is funded through the Regional Challenge programme (competitive award using Structural Fund finance) and by regional partners (local authorities, trade unions and the private sector), is due to be completed in 1998, at which time the strategy will be assessed by GO-NE for its potential for implementation in the region. Although it not a strategy specifically for increasing the region's technology and innovation capacity, it does included technology and innovation support as one target area for future improved synergy.
- *Objective 2 strategy* - the region is eligible for funding under Objective 2 of the Structural Funds. The two SPDs for earlier programming periods (1994-96 and 1997-99) both contained sections devoted to funding for technology and innovation. The most recent SPD (1997-99) contains one priority for technology, innovation and the environment which encompasses four separate technology measures:
 - RTD and technology transfer
 - information technology for SMEs
 - environment initiatives
 - technology & environment skills.
- *RITS* - it was recognised within GO-NE that a separate RTD strategy was required to ensure the transparent and coherent implementation of the technology and innovation element of the Objective 2 strategy, taking full account of the requirements of the region. The RITS strategy (Regional Innovation and Technology Strategy) was developed for this purpose. The first version, which provided guidance for technology measures in the 1994-96 SPD, was called RITS1, whilst the present (second) RITS strategy accompanying the 1997-99 SPD is aptly named RITS2.

Whereas RITS1 was developed solely on the basis of supporting the Objective 2 strategy and providing a framework as to how ERDF funding would be used in the region, RITS2 widens the scope and encompasses all publicly funded technology transfer activities and actors in the region with the objective of creating greater synergy. It outlines a series of overall objectives, including the identification and exploitation of regionally appropriate technologies, increasing the overall level of RTDI, exploit IT to better effect and promote life-long learning emphasising innovation and technological development. Each

objective then includes a range of actions. The implementation of the strategy promotes the improved coordination of organisations and funds already operating in the region. In particular, new organisational structures are established for the administration of Structural Fund resources. This includes the integration of NETS into the structure and the formation of a local Action Plan for technology measures which focuses specifically on the strategic implementation of resources in this area.

- *Regional Technology Foresight* - related to the national Foresight initiative, a regional Foresight programme has been established in the North East. One of the aims of the Foresight programme is to increase links between the education sector and industry. Within North East England there is a Foresight office at the University of Newcastle which has a co-ordinator who can provide access to the latest information in business sectors as well as information on networks and partnerships being developed in specific sectors. Information is also provided on funding sources and opportunities.

5.3.2 RITTS

The RITTS initiative in the North East is now in the final write-up stage and has been led the Northern Development Company, the inward investment and economic development agency in the region. In common with other RITTS projects, the study sought to establish SME requirements, analyse technology supply in the region, particularly in light of demand side requirements and identify actors at various administrative levels interested in stimulating technology transfer and innovation in the region. The Phase One report addressed issues such as the strategies and funding regimes of actors in the region, alternative means of accessing and providing support, the coverage and quality of providers and services and improving the relationship between demand and supply. Topics identified for further discussion included demand-side assistance, the rationalisation of the supply side, increasing the professional competence of supply side providers, quality control and monitoring and evaluation procedures.

The RITTS project has had a very limited direct impact on the region. The original intention had been for the RITTS strategy to feed into the 1997-99 Objective 2 SPD, providing better integration of in-depth regional technology and innovation analysis. However, due to an 18 month delay between the submission of the application to undertake the project and the award of the contract, this did not prove possible. In addition, the region had already decided to continue with a RITS2 strategy (see section 5.3.1) which effectively removed the requirement for an additional RITTS strategy. However, the practical experience, as well as some of the emerging conclusions, have been absorbed into the Competitiveness Project initiative, which is also being led by the NDC.

5.3.3 Summary characteristics of regional technology support in North East England

One of the positive aspects of the RTD infrastructure in North East England is the large number of technology support providers. Firms in the area, in theory, should be able to seek and find assistance either directly or through brokerage channels such as the Business Links. The negative aspect of this situation, however, is the complexity of supply and the areas of overlap or duplication. The clarification and simplification of this situation has been included in recent regional RTD strategies and would help firms more easily identify appropriate help.

A demand side characteristic of the North East is the current lack of demand among regional firms for external RTD or innovation support. There is a requirement for more pro-active assistance to help the managers of firms, and SMEs in particular, to recognise how the transfer of technology (at whatever level) might be able to benefit their firms and improve their economic performance. Tailored awareness raising (rather than more blanket type initiatives) and a clearer presentation of the type and nature of technology-related services would both be beneficial in this regard.

North East England has undertaken a number of, sometimes overlapping, strategic planning exercises, with rationale ranging from the specific to the much more all-encompassing. This has certainly helped to increase awareness of the benefits of strategic planning and raise the profile of this kind of activity in the region. However, there is a danger that too many strategies can confuse the picture and create uncertainty about the actual clear direction for future development to which all involved actors can subscribe and follow. One important aspect to emerge from the experience of strategic planning is the need for good leadership, both organisational and personal, which can drive the exercise forward and be dynamic, receptive to change and able to involve the key organisations and business world to best effect.

6. CASE STUDY : NORTHERN SWEDEN

6.1 Regional Background

The Northern Sweden RITTS encompassed four counties in north Sweden - Västernorrland, Jämtland, Västerbotten and Norrbotten. In order to ensure sufficient in-depth study, the analysis has been restricted to the county of Västernorrland, where the RITTS exercise had a positive impact on institutional structures in particular.

6.1.1 Economic development in Västernorrland

The Västernorrland county is on the north-eastern coast of Sweden and has a population of ca. 260,000 (Swedish total: 8.6 million). Its base industry is oriented principally to its strong natural resource base, and forestry in particular, and is highly export oriented. Some advanced engineering companies now operate in the region, creating potential opportunities for skilled labour development and technology transfer. The county has a good standard of living and a high environmental quality. Infrastructure links have recently been improved with the construction of the 'High Bridge' linking the coastal areas.

Its principal economic problems include:

- significant out-migration which is often selective in nature and focuses on younger age groups, worsened by the already low population density;
- economic dependence on a small number of larger companies (around 20 large companies in Västernorrland account for around 90 percent of exports) and the sub-contracting reliance of many SMEs; and,
- large geographical distances between firms and economic centres, as well as the relative peripherality of the county as a whole.

6.1.2 Västernorrland innovation system

The industrial sector of the county is dominated by a small number of major companies which often dictate labour market demands and play an important role in infrastructure provision. This has had a negative effect on the entrepreneurial climate and has led to the dependence of many SMEs on sub-contracting. This, in turn, has negatively affected the ability of SMEs to develop new products and processes. A further difficulty in terms of stimulating innovative activity is the relatively low educational levels of much of the industrial workforce. More positively, the manufacturing industry in Västernorrland showed higher productivity growth in the 1980s than the Swedish average, partly as a result of a push towards technology transfer and investment in modern equipment. This focus on promoting technology transfer has continued in the 1990s.

On the supply side, there is a good provision of RTD organisations and intermediaries in Västernorrland, although a key problem lies in the lack of overview of available services. Given the large geographical distances and the low population density, individual actions tend

to be small scale, resulting in a lack of critical mass. This poses a particular problem for SMEs, the dominant enterprise size group in the region, which often require more pro-active action. There are also considerable barriers to the cooperation between the principal university college in the region and SMEs. Further, the RITTS evaluation identified a lack of 'need-orientation' ie. that the services provided did not sufficiently match with the actual needs of the companies.

6.1.3 RTD infrastructure in Västernorrland

The RTD infrastructure in Västernorrland is relatively comprehensive. Mitthögskolan, or *Mid Sweden University*, is the county's university college located in Härnösand. It is organised, partly as a result of geographical distance, as a multi-campus network with four principal centres. The university operates a bridging institution, KIC, which combines industrial liaison and international contact functions. KIC offers a range of services including student placement, cross border technology transfer, assistance in new firm creation and database systems for industrial-university links. An EU-funded Innovation Relay Centre was recently established as a joint venture between the industrial liaison units of the three universities, or university colleges, in Northern Sweden (also Umeå and Luleå).

A network of *knowledge centres* operates in the county comprising a range of research organisations linked specifically to industry. The centres are sectorally rooted, have varying organisational forms and offer a range of cooperation and research support services. The knowledge centres operate in fields such as energy, aluminium, hydraulics and chemicals. Many of the centres are underpinned by the networking principle and have helped to stimulate cooperation among local firms. The LTCK (Regional Technology Centre Kramfors), for example, was initiated by 17 local companies as a response to the closure of the major Saab-Scania plant in Kramfors and has the objective of coordinating resources in industrial development, education and training to benefit engineering companies in the county. Principally as a result of the RITTS exercise, the centres now cooperate on a regular basis and promote themselves through joint marketing initiatives.

BIC Mid Sweden, part of the European Business and Innovation Centre Network, also operates in the county and as part of the knowledge centre cooperation. The BIC is supported by a wide regional partnership and focuses on the identification and promotion of internationally-oriented and innovative companies/entrepreneurs in the region. A number of private consultancy firms are also active in the region providing specialised advice and support to firms.

The final important organisation in the RTD infrastructure is *ALMI*, which comprises part of a national network of organisations under the umbrella of a parent company. ALMI provides a range of services to local business and entrepreneurs including financial support and the provision of consultancy services. In terms of innovation and RTD support, ALMI acts more as a general discussion partner and a platform for referring companies to more specialised intermediaries.

6.2 National Policy

6.2.1 Regional policy

Swedish regional policy is rooted in social welfare policy although questions of efficiency are now becoming increasingly important. Recent objectives of this policy area include the generation of growth throughout Sweden and the creation of strong and growing companies in the assisted areas. The general philosophy has been that regional incentive schemes should be designed and operated at national level to allow coordination with the national economic planning framework - although a process of decentralisation has gained considerable momentum in recent years.

The Ministry of Industry and Trade has overall responsibility for regional policy and oversees its implementation. NUTEK, the National Board for Industrial and Technical Development, is the administrative arm of the government (see section 2.2.1) and has complete decision-making authority over key regional incentives, as well as other activities such as evaluation and developing regional and local competence in matters of economic development. At sub-national level, the County Administrative Boards (CABs) manage and administer regional policy and must prepare long-term regional development strategies, primarily to create jobs and growth in the enterprise sector. The CABs receive an annual funding allocation for regional development measures which can be applied in a variety of policy measures. They also have decision-making competence within some national measures up to a certain threshold, above which the decision is taken by NUTEK.

The most recent move towards decentralisation has been the introduction of 'regional growth agreements', to become effective in 2000. These are to be drawn up by the CAB in conjunction with local partners and NUTEK support and can apply to entire counties, parts of counties or various forms of inter-county cooperation. The main aim is to encourage local partners to agree on measures to be taken and the best way to coordinate state resources at local level. It is anticipated that this initiative will encourage a more holistic approach to regional economic development, drawing together a range of disparate sources of finance and encouraging the integration of areas such as RTD and innovation as part of a wider overall strategy. The agreements will be based on regional economic analysis and will set goals and priorities, in a similar manner to Structural Fund Single Programming Documents. Those parts of the agreement requiring state funding will then be negotiated with the government.

A range of regional policy measures operate in Sweden. The spatially targeted financial incentives primarily include regional development grants for both hard and soft investment, an employment grant, a transport grant and a social security concession. Other regional measures comprise aid for rural development, a location loan, and loans offered by Norrlandsfonden (a regional development agency in the north of Sweden). In terms of designated areas, the assisted areas map encompasses 13.5 percent of the population (although 62 percent of the geographical area) and includes parts of the Västernorrland county.

6.2.2 RTD policy

Overall RTD expenditure in Sweden is carried out principally in the manufacturing industry (with the 25 largest companies accounting for nearly 85 percent of total RTD spending) and in the higher education sector. There is a very high level of private sector RTD carried out in Sweden. In terms of public sector expenditure, the central government is the main financier with the university sector considered the key channel for maximising public expenditure in this area¹. Historically, such research resources in the university system have been targeted at fundamental research but emphasis is now shifting towards more applied research activity.

A key change occurred with the 1996 RTD Bill which introduced the so-called 'Third Task'. This accorded universities a wider range of duties including the requirement to cooperate with business and society and consider the particular preconditions of industry-related research. This includes the active promotion of links with industry, as well as the more intangible issues such as changing the attitudes of university researchers and scientists to industrial cooperation. This development reflects, in part, the changing focus of Swedish industrial policy towards the more effective support of SMEs, traditionally the weakest part of Swedish industry with the least technological know-how.

6.2.2.1 Organisational structures

NUTEK is the principal organisation responsible for the implementation of Swedish RTD policy within its overall responsibility for industrial policy. NUTEK has three main foci: (i) technical RTD supporting industrial growth and renewal; (ii) business development emphasising creation of new businesses and SME growth; and (iii) regional development focusing on local and regional industrial policy. It formerly also had competencies in the area of energy, but these have recently been moved to a separate agency.

NUTEK has four principal functions:

- to monitor the development of industry and the implementation of Swedish industrial policy as national experts;
- to act as national coordinator of technology, innovation, regional and small business policy;
- to stimulate concerted actions in specific areas at national level by initiating meetings for central actors and managing programmes requiring national coordination; and
- to provide advice, information and financial support to businesses which want to grow and seek new markets

There is currently a strong move within Swedish RTD policy (as well as other policy areas) towards greater regionalisation and decentralisation within a formerly highly centralised country. One ramification of this is a significant re-orientation in the activities of NUTEK,

¹ Interestingly, a 1995 NUTEK study showed that large companies viewed public support for research at universities and research institutes as the most important method of supporting their innovative activities. The next most important public support methods were programmes to encourage cooperation in RTD and subsidies. Clearly, this picture may be different for SMEs.

emphasised by a recent change in budgetary responsibilities which moved the provision of core university funding away from NUTEK to separate funds. An area of activity which is gaining increasing prominence through this re-orientation process is coordination and the provision of best practice and benchmarking. It is considered that a central organisation, maintaining good dialogue with the regions, can usefully carry out this role but it necessitates the creation of sound structures for explicit coordination and information flow between national and regional actors. The process of re-defining the role of NUTEK is on-going and there is currently a degree of uncertainty about the exact future direction of the organisation.

6.2.2.2 National measures

A wide range of policy instruments are used in Sweden to fulfil technological objectives. These range from very general instruments to fund pre-competitive research in universities to highly targeted support for firms. Higher education absorbs the highest proportion of spending, accounting for 85 percent of public funding for non-military RTD (NUTEK, 1996).

NUTEK operates a range of RTD measures centrally, some of which have an explicit regional component and many of which are implemented in conjunction with regional actors such as the CABs and ALMI. The overall focus of the activities and measures of NUTEK have shifted towards industrially-relevant, problem-oriented RTD and industrial use of new technology. The promotion of collaboration and the support of SMEs are also increasingly important areas of activity. The main lines of action in the RTD field include:

- *RTD programmes*, grouped into thematic areas and carried out over varying set time periods (in 1996, more than 60 individual programmes in 1996 with a budget of over 480 MSEK)
- *research consortia and collaboration projects* (nine on-going interdisciplinary materials consortia with NUTEK budget of 41.5 MSEK)
- *competence centres* (28 centres established in 1995 at eight different universities/technology institutes with a two year budget of MSEK 533.2, 31 percent of which was from NUTEK)
- *industrial cooperative research programmes* in a range of thematic areas (annual NUTEK funding of ca. 210 MSEK)
- *research based new enterprises and technology transfer to SMEs*
- *international cooperation and participation in EU programmes.*

The competence centres are an important new component of the Swedish RTD system and are designed to encourage university and industry linkages. Each centre involves the participation (including financial) of a group of companies, a university or technology institute and NUTEK. Over 160 companies now participate between the 28 centres. The academic-business collaboration is designed to provide long-term benefits for the companies, stimulate industrial input into the strategic goals for academic research and strengthen the overall competence in collaborative and cooperative development research. An initial evaluation of the first 12 Centres in 1997 concluded that the quality and motivation of the researchers was positive and that the industrial partners were also of a high standard. Commitment to the

Centres was generally good and original objectives of the initiative were considered to have been met.

Under the technology transfer to SMEs focus, two initiatives are of particular interest. First, in 1997, NUTEK launched a four-year programme called University Colleges and the Surrounding Enterprises with the objective of facilitating SME-university links. The programme is designed to defray the costs of commissioned academic work through, for example, the use of special collaboration vouchers. Second, an experimental programme called Renewal of the National Technology Transfer System was initiated for the period 1996-98 with the aim of improving technology transfer systems, particularly to SMEs. The objective was not to create new systems, but to improve the effectiveness of existing ones. One part of this programme comprised support for the creation of 100 networks or groups of SMEs. Initial finance was provided for the creation of these groups, and then additional support was given to 30 groups for the implementation of a joint project with a local technology supplier.

Direct assistance to firms is more limited than in most European countries only comprises ca. 15 percent of NUTEK's expenditure (EPRC, 1996). A range of measures are operated for the provision of such support including:

- *seed financing programme* - high risk loans with conditional repayment or grants with royalty clauses for mainly small technology based firms for innovation programmes in the pre-commercial stage. The programme is implemented in conjunction with regional partners such as ALMI and technopole organisations
- *technology transfer to SMEs* - designed to use industrial research institutes to help SMEs solve problems through, for example, minor technology audits or subsidised consultancy. Within this programme, NUTEK has also provided start-up funding for 100 local company networks designed to strengthen the ability of companies to identify technology needs.
- *SNITS (Small and New Companies Development of Innovations and Technology Transfer Support)* - programme objective is to strengthen the motives for SMEs to carry out advanced technical RTD projects through exposure to important technological topics and encouragement of related development. Funding provided for feasibility study to develop a business plan with requirement to create a strategic buyer relationship from the start.
- *RTD Consortia for regional development* - objective of helping consortia of SMEs (low to medium tech) in Structural Fund assisted areas to cooperate with research institutes and universities and larger companies. Companies contribute two-thirds of the overall cost and the consortia are demand-driven with groups of businesses proposing joint projects.

6.3 Regional Technology and Structural Policy

6.3.1 Regional-level organisational structures

Sweden is a centralised country, divided into 288 municipalities and 23 counties. The municipalities are run by municipal councils and have responsibilities relating to the provision of services and facilities. In addition to what they are required to provide by law, some service provision is at their own discretion because of their right to levy income taxes and

receive some tax revenue on real estate. Municipalities also have responsibilities for local and physical planning.

The counties represent the regional level of government. Each county has an elected county council which is primarily responsible for health care and certain types of education and vocational training. The councils also determine key decisions of principle for the development of their territories. The County Administrative Boards (CABs) represent the national administration at regional level and are headed by the county governor, appointed by the government. The CABs are the bodies primarily charged with economic development in the county and are responsible for the public services provided by the State and for the government's control of the municipalities. CAB staff are state civil servants, reporting to the relevant authorities in Stockholm but the ruling board members are elected by the county councils. As noted above, the CABs receive a regional development funding allocation which can be used to support initiatives within the county.

In Västernorrland, a Development Council has been created on the basis of partnership structures which were established in conjunction with the implementation of European Structural Fund programmes. This group comprises representatives of all the principal economic development bodies within the county, including the CAB, county council, municipalities, labour associations as well as businesses with the aim of coordinating economic development in the county. The Council has met twice a year since 1996. Municipality visits are also undertaken to inform the CAB of economic development approaches and thinking at local level. These focus principally on the fields of industrial and infrastructure development.

6.3.2 Regional strategies

RTD and innovation related activities are incorporated into the overall regional planning framework undertaken by the CAB in conjunction with other bodies such as the Västernorrland Development Council. This type of strategic planning is likely to be intensified under the new requirement to produce regional growth agreements (see section 6.2.1), although the priority which will be given to RTD within these agreements will vary between counties.

The most recent strategy produced by the Västernorrland CAB is entitled 'The Future of Västernorrland - goals and strategies 1995-99'. The document outlines the main direction for the county over this period and brings together former and current goals and strategies in addition to new CAB regional development objectives. The strategies included in the document are based on socio-economic analysis of the county, the appraisal of current development and future strategies at municipal level, and public and business opinion. The document is designed to be an 'overall conceptual and programmatic framework' for those involved in development work in the county and should encourage a holistic approach to development.

Seven 'strategic currents' are identified and shown below, highlighting the technology or innovation-related components:

- *Creating favourable pre-conditions* - including the commitment to elaborate a strategic programme for new technology on the basis of action programmes to date, as well as a series of concrete actions under information technology;
- *Environment as means and objective* - including a concrete action stating that environmental collaboration between authorities and companies, industrial groups and business sectors should be developed to accelerate environmental technology, linked to local and national technology transfer efforts;
- *Province of positive every day life* - including some concrete actions aimed at training and innovative ways of integrating unemployed into the workforce;
- *Development and renewal of business and labour market* - highlighting the key role of an enterprise spirit, sharper technology and organisational development and rapid utilisation of IT opportunities to the county's future development. Concrete actions focus on development of networks and a renewed technology transfer programme;
- *New development niche strategy* - based on the need to diversify from a narrow economic base. Each municipality is to develop have a niche focus, listed in document, which relates (although not specifically in the document) to the Knowledge Centre in the area;
- *Vitalising, nurturing and safeguarding existing business community* - mentioning the need for the existing business base to collaborate to raise long term competitiveness, including in the area of technology and the upgrading of training levels in the regional labour force;
- *Placing Västernorrland on the international map* - internationalisation requirements, much based on the use of IT and encouraging international contacts and collaboration (eg. through ITH training) and accessing new markets. Includes a 'special emphasis on environmental technology and infrastructure/civil engineering.

The strategy includes a commitment to elaborate a strategic programme in the field of RTD and new technology. This has not, as yet, been undertaken for a number of reasons including internal political debate, lack of resources within the CAB and the acknowledgement that many of the ideas for RTD implementation which have been raised through the strategy are already being implemented through the functioning of the Knowledge Centre network.

The other important strategic document of relevance to RTD development and innovation in Västernorrland is the Strategic Planning Document for the Ångermanlandskusten Objective 2 region, a sub-area of Västernorrland. The SPD is based on the above strategy and also incorporates thinking from the Northern Sweden RITTS initiative. It takes an integrated approach to development, giving particular priority to projects involving the use of new technologies and network cooperation. Measure 2 focuses on entrepreneurship and innovation, with the aim of increasing the proportion of own product development among traditional sub-contracting companies, as well as raising product quality. The type of actions to be supported include information and consultancy services, feasibility studies, technology and innovation audits, networking actions and adaptation support.

6.3.3 Measures and instruments

The CAB directs and initiates action in the county using the annual allocation of money from central government for the implementation of regional level economic development activity. This amount varies by county and in Västernorrland is currently around SEK 120 million. The finance can be used for a variety of uses ranging from any county aid schemes (such as rural support in Västernorrland) to co-finance for Structural Fund programmes. There are no specific RTD or innovation measures operated by the Västernorrland county but funding is given on a more *ad hoc* basis to initiatives, organisations or projects in this field which fit with the strategic direction of development in the county. The CAB can also use its influence to encourage RTD or innovation related activity within the county eg. the promotion of municipality based IT centres to raise the awareness among the local population of IT issues and access.

The direction of CAB funding for the promotion of RTD and innovation in the county has changed over the recent years. In the mid 1990s, SEK 4-5 million was given by the CAB to the Mid Sweden university for research purposes which the university itself could determine. The focus has now shifted much more towards bridging functions and networking, with similar levels of finance available specifically for projects undertaken in cooperation with local firms or research centres. The knowledge centres are also viewed by the CAB as a very important initiative in this respect and have received corresponding financial support. In addition, the Ministry of Industry and Trade has very recently awarded an additional SEK 10 million for networking and bridging functions in the county which is to be matched by the CAB. There is some internal discussion within the county as to exactly how this money is to be used with the CAB strongly advocating its use within networks such as the knowledge centres which work closely with local industry.

6.3.4 RITTS

The original rationale for the Northern Sweden RITTS programme, which encompassed the four northern Swedish counties, emerged from *ad hoc* meetings between the four CABs where RTD issues comprised part of the discussion. NUTEK was represented at these meetings and the push to apply for a joint RITTS project came from this quarter. The CAB representative from Västernorrland was also the programme manager of the Ångermanlandskusten Objective 2 programme, which later proved beneficial for the integration of ideas and strategic direction between the two initiatives. As required by DG XIII, external consultants were brought in to help with the elaboration of the strategy and, in the case of Northern Sweden, these comprised inno GmbH (Germany), Technopolis (UK) and Temaplan (Sweden). The Steering Group for the RITTS comprised representatives from NUTEK and the four CABs.

6.3.4.1 RITTS analysis and Action Plan

A number of key issues emerged from the analyses and discussions undertaken within the RITTS framework. These included:

- the need to have a holistic approach to innovation and technology transfer, incorporating a wider approach than just 'technology';

- the importance of understanding the geographical and physical characteristics of the region - in the case of Västernorrland, for example, the difficulties of geographical distance complicate issues such as networking and cooperation;
- the identification of competition between public and private suppliers of technology support in the region and the requirement for a form of 'ethical code' to ensure that public actors do not undercut using public resources;
- a review of the actors working in the region raised issues such as the need for more pro-active mentoring and the lack of resources and technical expertise in the municipality industrial liaison offices which might otherwise be strong platforms for reaching SMEs in particular.

On the basis of the supply and demand side analysis, and the discussions from the workshop-based regional consultation, a specific Action Plan for implementation in Phase III of the initiative was devised. It focused on two areas in particular:

- *Competence building in SMEs*: based on the recognition that the technology support structures were less well established for 'ordinary' SMEs. Without investment in competence development, such SMEs lack the ability to define problems and needs in terms of technology and business development. Proposed actions included:

pro-active mentoring to combat the time and resource restrictions faced by many SMEs and help raise their awareness of relevant new developments. Options include a subsidised technology/business audit to develop an initial action plan. Given their access to local firms, the suggestion was made to increase the knowledge of business advisors within local authorities of the wider technology transfer infrastructure.

financial support for the recruitment of an academic, building on existing programmes for this type of promotion in the northern Swedish counties. RITTS proposals included ensuring better access of SMEs to this type of support and increasing the evaluation and network activities of the engineers/academics being placed into industry.

subsidised consultancy to encourage SMEs to use external assistance.

company networking, building on the success in national initiatives such as the NUTEK networking promotion.

- *Increasing the transparency of the support system*: based on the analysis that there were a large number of actors in the technology and innovation field in northern Sweden, but the scope of their activities was unclear and often overlapping. It was considered important to increase transparency and inform companies clearly of the options available. Proposed actions included:

networks between actors to allow a clearer overview and an increased knowledge between actors of the activities of others. It was proposed that it would be beneficial for a limited number of actors within the network to act as 'consultants' for the others, receiving particular support for this role.

marketing of the system to provide information to companies and fully exploit all possible media options.

6.3.4.2 Implementation of RITTS

The impact of the RITTS study in Northern Sweden, and in Västernorrland county in particular, is evident in a number of areas. One is the way in which the thinking and analysis which emerged from the study affected and influenced the actions of wider regional planning. This is true in the incorporation of many of the approaches and action proposals into the Ångermanlandskusten Objective 2 programme, as well as the county development strategy (see section 6.3.2). The county board of Norrbotten similarly included reference to the RITTS project in the proposed regional action plan for that county. In Västernorrland, the need to orient support more towards demand side requirements, rather than the traditional focus on the supply side infrastructure, was particularly influential in changing the approach to RTD and innovation support.

The specific networking of the Knowledge Centres which operate in Västernorrland emerged as a result of the RITTS project. Representatives of the Centres were brought together in workshops within the framework of the RITTS research analysis and recognised the benefits of more regular contact. The need for closer cooperation was then further emphasised in the RITTS Action Plan. This resulted in the creation of a more formal network with the aim of better understanding the activities of the other participants and reviewing options for joint projects, marketing and promotion. Joint marketing material has been developed and information about other Centres can be passed on to firms where they have relevant problems. The marketing material has also been distributed to other economic development actors in the region, such as the CAB and ALMI, to further promote awareness. They recently applied to NUTEK for funding to undertake more formal demand analysis and to enable them to supply initial free company visits.

The RITTS project also influenced the integration and participation of the northern Swedish IRC in the NUTEK 'Renewal of the National Technology Transfer System' programme (see section 6.2.2.2). A joint proposal was submitted by the three Swedish IRCs, which was subsequently divided into two experimental projects, each receiving financial assistance of ca. SEK 4 million. The northern Swedish project (Navigator) was run by two IRCs and focused on the involvement and coordination of a range of technology providers to enable a more efficient transfer of technology related questions to the most appropriate actor. An awareness of the need for greater supply side coordination and transparency which emerged from the RITTS workshops was an important motivating factor in the drafting of this bid.

It is interesting to note that some of the Northern Swedish RITTS results also impacted policy approaches at national level. This is particularly true in the case of company networking and demand side activity - the objective, for example, of the NUTEK Renewal of the National Technology Transfer System. This resulted principally from the fact that the Swedish national participants in the RITTS project (Temaplan) also acted as *ad hoc* advisors and evaluators to NUTEK and thus a cross-fertilisation of ideas was possible.

7. OVERVIEW OF REGIONAL STRATEGY CONCEPTS FOR RTD POLICY IN AUSTRIA

Earlier chapters of the report have pointed to European trends in the regionalisation of policy-making and presented the results of empirical research undertaken in four European RITTS regions. This chapter presents a brief overview of the recently developed RTD-related strategy concepts of the Austrian *Bundesländer*. This synopsis of strategic technology and innovation policy at regional level is designed to help place the international activities from the case study work within the Austrian context and guide their assessment and the corresponding recommendations for Austria.

7.1 Strategic technology policy in the Austrian *Bundesländer*

There are a very wide range of different technology and innovation policy support measures and initiatives available in all the Austrian *Bundesländer* and indeed this area is constantly being expanded and supplemented. Policy-makers base their activities and thinking on studies, research reports, programme documents etc. which address different RTD-related aspects and problems - although only some of the *Bundesländer* have holistic economic or technology policy concepts which integrate the various activities around specific objectives and strategies. Such strategic documents existed, at time of writing, in Salzburg, Tirol, Carinthia, Upper Austria and Styria. In Lower Austria, this type of strategic paper was being written within the framework of a RIS initiative and was completed in late autumn 1998. In addition, a RITTS project was completed for the region of Lower Austria South and RITTS projects were initiated in Salzburg and Tirol. The SPD for Burgenland for the 1995-99 programming period has not been included in this overview partly because the content and planning processes is widely known and partly because a new SPD is being developed for the next programming period.

The following overview of regional strategic papers does not describe the individual strategies and concepts but rather presents a summary of their content under a number of headings and further illustrates them using specific examples. The following headings or questions are used to guide the discussion:

- what role or importance do the technology policy strategies and measures have in the wider economic development context of the region and how are they integrated into regional economic development policy?
- is regional economic development policy in general moving more in the direction of regional technology policy?
- are the strategies and measures based closely on regional characteristics and needs or do they comprise more general recommendations?
- to what extent is explicit account taken of federal measures in the strategy concepts?
- what steps are taken to implement the development strategies?
- has the strategy development led to the creation of new institutions or the operation of new actors?
- what impact has there been on technology policy budgets?

7.2 Role of technology policy and its integration into the regional economic policy framework

The importance given to technology policy within the strategy concepts of the Austrian *Bundesländer* differs widely. In Styria, for example, a separate technology policy concept (1995) has been developed which is used as the basis for a series of implementation measures. In Upper Austria, 'technology' is one of the three key thematic areas in the *Strategy Programme for Upper Austria 2000+* (1998). The *Economic Development Strategy for Tirol* (1998) does not include technology policy as a key strategic direction for 'the future economic development of Tirol' but nevertheless includes it as one of the seven action areas of Tirolean economic policy. In the Salzburg *Economic Strategy* (1997), technology and innovation policy strategies are integrated under other, higher level, objectives making this area an important, although not prioritised, horizontal theme. There are no technology or innovation policy related elements in the *Future Development Strategy for Carinthia* (1998). Projects and measures in the RTD sphere are, named and described but are more instruments for the implementation of general strategies eg. in the infrastructure area, for the support of new firm formation etc.

The role and importance given to technology and innovation policy in regional strategy papers points to the degree to which this area is integrated into the wider economic policy landscape of the regions.

- In Styria, a separate technology policy concept has been developed which is not part of a wider economic strategy document. The whole regional economic development policy of this *Bundesland* is more strongly oriented towards technology and innovation, as will be described later in more detail, and this automatically promotes a closer integration and networking with other economic policy areas. The technology policy itself recommends the creation of a technology policy network which would take over such an integrative and consensus-building function. This network would comprise a cooperation model for the Styrian technology policy which would incorporate all those principally involved in decision-making and implementation within a specific organisational structure in order to develop the Styrian technology policy on a continuous basis and embed it in the wider context of regional development policy within Styria.
- In Upper Austria, technology policy is one of the three main areas included in the development concept - technology, vocational training and locational marketing - and strategies and measures are developed for each. However, these are oriented towards a series of more general strategic aims for the economic and industrial development of the *Bundesland*. In addition, the development of all the three main areas of the concept, as well as their implementation, is coordinated by a single organisation, the TMG.
- Technology policy measures are incorporated within the 'Innovation and Technology' action field of the Tirolean strategy which, together with the other six action fields, are used to implement the higher-level objectives and strategies for 'future Tirolean economic development'.
- In the Salzburg concept, technology and innovation policy-related components are included within the higher-level objectives of a quality action plan and structural policy and therefore comprise an integrated part of the related packet of measures.

- Technology policy initiatives in the Carinthian development concept have the nature of support measures. They act as instruments for the implementation of the programme foci of living and environmental quality, education and economy, economic networking etc.

While the strategies included in the overall concepts do illustrate a degree between networking of different policy areas, the support measures used in their implementation are generally not integrated with each other. None of the concepts include an impact assessment of the proposed support measures which could show the interactions between the different support activities and thereby the corresponding requirement for their coordination

7.3 The orientation of regional economic policy towards regional technology policy

The existing strategy papers can be divided into two groups. The Styrian and Upper Austrian concepts most show a trend towards the stronger orientation of regional economic policy in the direction of technology and innovation policy.

- In Styria, this trend is evident, first, in the wide consensus on the importance and role of regional technology policy which is viewed as a means of stimulating and exploiting the endogenous potential of the regional economy and integrating it into wider international networks. Thus economic concepts and other economic development strategy documents have been formulated in Styria which have not adopted the same 'semi-official' character of the technology policy concept. They remain limited to particular policy-maker or decision-making groups. Second, this trend is evident in the regional support measures and initiatives which have recently been introduced or are currently being planned and all of which, to a greater or lesser extent, can be included within the technology and innovation sphere. This includes, for example, the Styrian car cluster initiative, the move towards the creation of a wood cluster and the support of innovation assistants for SMEs.
- A stronger orientation towards technology policy also has a two-fold manifestation in Upper Austria. First, the basic principles of the *Strategic Programme for Upper Austria 2000+*, on which the strategies and measures of the three main areas (technology, vocational training and locational marketing) are based, include an explicit emphasis on technology and innovation. The strengthening of technology and know-how transfer, the support of future technologies and the encouragement of innovation through cooperation are all, for example, promoted. Second, the other two areas of vocational training and locational marketing are also increasingly being implemented through technology and innovation policy measures. Vocational education, for example, is explicitly viewed as a 'starting point for the development and application of innovation'. The training measures themselves are geared towards general technical areas as well as specific chosen fields of technology but also include new innovative areas such as design and communication engineering. In locational marketing, technology policy-based approaches are found above all in the area of economic support and the provision and use of infrastructure (eg. telecommunications infrastructure).

In the other strategy papers, while technology and innovation policy plays a certain role, a stronger orientation of the overall regional economic development policy in the direction of regional technology and innovation policy is less evident.

7.4 The rooting of strategies and measures in specific regional characteristics

All the currently available strategy documents include an analysis of the specific regional situation, although this takes widely differing forms between the individual documents. Some *Bundesländer* limit this analysis to a short overview description of the economic base conditions while others incorporate a wider-ranging, empirical analysis section which describes in more detail the individual facets of the regional economy. Despite these differences, the development of most of the concepts is based on an extensive study of the economic situation, even if this analysis is not included in the final document. In addition, all the strategy papers have been drafted following an extensive consultation process with the key regional decision-makers from the economic, political and administrative spheres. The strategies and measures, therefore, comprise a combination of top-down and bottom-up approaches.

This approach does, without doubt, allow a deeper understanding of the specific regional problems and conditions and an improved reflection of regional requirements in the strategic direction and specific support measures.

The wide range of strategic aims and measures included within the individual concepts do not deal solely with the solution of very specific regional problems. Many strategic aims are formulated very generally and are more like an overall statement of intent than a specific plan of action. Further, many of these general strategic aims are interchangeable between the *Bundesländer* as they are more a reflection of current trends than of the results of the regional economic analysis or the needs of the regional economic actors. The recognition of the need to improve the regional transport and communication infrastructure or the creation of initiatives to support new firm formation are examples of this. Even the proposed support measures are often very similar between the different concepts and strategic documents.

Overall however, the strategy documents not only show an attempt to take specific regional characteristics and conditions into account, in many cases this is also done successfully.

7.5 Coordination with federal level strategies and measures

The coordination of regional strategies with federal level initiatives is not a theme awarded particular importance in any of the current strategic concepts. The closest exception is the *Technology Policy Concept of Styria* which includes the integration of federal-level initiatives and measures into Styrian technology policy as one of its six overall principles. In the Tirolean concept, the influence of the federal and EU governments is described as framework setting - the existing, often too narrow fields of action should, where necessary, be expanded through 'lobbying for Tirol'.

At the level of the support measures, however, many concepts include at least some requirement for federal initiatives and measures to be included in regional activities or for a degree of coordination to take place. The proposed technology policy network in Styria, for example, is designed to be a way of coordinating new or expanded regional measures with federal initiatives. In Salzburg, the action line 'targeted investment and technology support programme' supports the creation of a 'technology oriented support network' which should help Salzburg firms to use federal and EU technology incentives and measures more effectively.

7.6 Implementation of regional technology policy strategies

All the strategy documents take a twofold approach to ensuring the implementation of their strategic objectives and measures.

The extensive communication and consultation process which has accompanied the development of each strategy document can be viewed as the first component. In many cases, the first draft of the strategy papers were taken forward with the help of expert input, discussed with key regional actors in workshops or one-to-one discussions and the recommendations and suggestions subsequently used to expand and refine the original draft. The way this process was carried out in practice ranged from a strongly bottom-up approach, where the various regional decision-makers were directly integrated into the formulation of the strategy and measures (eg. Carinthia and Salzburg) to a strongly top-down approach, where already completed drafts were discussed with regional actors and subsequently expanded or developed (eg. Styria, Upper Austria). These communication and consultation processes do not only, as previously mentioned, result in more account being taken of specific regional conditions and characteristics but also increase the visibility and acceptance of the resulting strategies and measures which can significantly improve the opportunities for their successful implementation.

Each concept includes various mechanisms which are designed to guarantee the implementation of the formulated strategies and measures and these can be considered the second component of the twofold approach to implementation. Virtually every concept or strategy document includes a chapter dedicated to the implementation of the presented objectives and measures. This generally illustrates a form of organisational framework for implementation which incorporates existing or new institutions and which designates specific tasks or responsibilities to individual organisations with the aim of realising the overall strategic objectives or programme in a coordinated manner. In Upper Austria, for example, the TMG has taken on the overall coordination of all the projects and initiatives given to other specific organisations to carry out. On the issue of the financing of individual initiatives, the TMG must consult with both the Office of the Upper Austrian government and a specific expenditure committee which checks the compliance of the projects with the strategic objectives of the programme. In Salzburg, a separate programme team, under the direction of the Office of the regional government of Salzburg, has been given the tasks of implementation (or the coordination of implementation).

7.7 RTD strategies and their impact on the regional institutional landscape

Virtually every strategy concept includes recommendations related to the creation of new or the restructuring of existing institutions. It would be very time-consuming to present a full picture of the institutional impact of the regional strategy papers and it is not possible within the framework of this overview chapter. The following comments, therefore, are limited to those institutional measures which propose either the creation of new or the restructuring of existing technology policy institutions.

As previously mentioned, most of the strategy papers include an organisational framework for the realisation of the strategic objectives and measures. In most cases, this comprises a time-limited 'project management' structure. Permanent structures are only recommended by the strategy concepts in Carinthia, Tirol and Styria.

- Under the heading 'Principles of implementation', the Carinthian *Future Development Concept* recommends the creation of a series of committees and actors which would be responsible not only for the specific implementation of the concept but also for the continued development of its strategies and measures. The structure for implementation and further development comprises two institutions with strategic and two with operational functions. The adaptation and further development of the economic policy strategy is the responsibility of the 'Steering Group for the Future of Carinthia' (*Lenkungsgruppe Zukunft Kärnten*), which has accompanied the concept development process throughout. The 'Carinthian Future Committee' (*Kärntner Zukunftsrat*) assists and supports the Steering Group in its activities. The implementation of the concept and the newly developed strategies is initiated, coordinated and managed by the 'Office for the Future of Carinthia' (*Geschäftsstelle Zukunft Kärnten*). The actors with operational functions are assigned to the regional administration, those with strategic functions operate more in the sphere of regional policy-making. Experts are involved at both levels to ensure sufficient technical input into the implementation of the tasks.
- In Styria, the creation of the 'technology policy network' was recommended which comprises the 'Committee for technology policy of the Styrian government, a unit to support decision-making by the committee, an Office of the Committee and a 'Cooperation Forum'. The network is not designed just to coordinate and manage the implementation process but should also evaluate regional technology policy and be involved in its continued future development. The Committee should, above all, take over strategic functions, the Office should be responsible for the implementation of the strategic initiatives and the Cooperation Forum should improve the coordination and information flow between existing institutions, report on the developing initiatives and act as a point of contact to other regions, the federal government and international organisations. It should be noted, however, that even the basis of this structure has not yet been put in place although the technology policy concept has existed since 1995.
- In Tyrol, in addition to the new thematic content (eg. stronger innovation orientation) and organisational approach (eg. integration of range of support measures) of economic and regional support, a coordination office for economic policy is to be created. This coordination office is designed to improve both the transparency of the highly fragmented Tirolean support landscape and its internal coordination. In the medium-term, this office is to be made into a department of the Office of the Tirolean government.

7.8 Impact of strategy development on the technology policy budget

The financing of the implementation of strategies and measures is a theme in most of the concepts although it is mentioned more to stress its importance than its implications for realising strategies and measures. Steps should be taken to create the necessary financial scope to implement the strategies. The extent and source of the resources are not further elaborated. Exceptions to this are found in Upper Austria and Salzburg.

- In Upper Austria, the resources for the realisation of the *Strategic Programme* come from the privatisation revenues which have been put into a 'Future Fund' (*Zukunftsfonds*). The strategy concept was developed to use AS 1 billion from this fund over a five year period for the support of research and technology transfer, further education and training and the attraction of inward investment within an agreed strategic framework. The exact division

of this additional finance between the three principal areas of the *Strategic Programme*, and between the individual measures and initiatives, remains open and will be decided once the process of implementation starts.

- In Salzburg, additional resources on this scale are not available for economic and technology policy measures. This is likely to be one reason why little emphasis is given to the theme of financing at the strategy level of the Salzburg *Economic Development Concept*. At the level of the measures, however, there are cases where the source and level of the financial resources to be used for particular measures are precisely defined. These details imply that the resources are coming more from shifts in existing available budgets or through changes to the approach to support. It is not possible to judge from the measures presented in the Economic Concept whether or not additional financial resources will be allocated to the field of technology and innovation policy in the future.

8. CONCLUSIONS AND RECOMMENDATIONS

The empirical research undertaken in the four case study countries and regions has highlighted a range of approaches to the question of the regionalisation of RTD and innovation policy. The aim of this final chapter is to draw out elements from these case study experiences which are of relevance to the current debate on the design and implementation of regional innovation policy in Austria. This discussion focuses on two areas: the role of the federal or national authorities in a more regionalised policy approach; and, the areas of RTD and innovation policy which can most effectively be regionalised. A number of recommendations and good practice examples are provided in conclusion.

8.1 To regionalise or not to regionalise?

8.1.1 Approaches to regionalisation

Technology and innovation policy has become increasingly complex and wide-ranging in recent years, with measures ranging between basic and applied research support and technology transfer mechanisms, infrastructure facilities and intangible areas such as the encouragement of networking, training and management support. In tandem, there has been a broader trend towards regionalisation and the involvement of sub-national authorities in policy design and implementation across a number of policy areas and countries.

There is no automatic linkage between these two trends. RTD policy has traditionally been a central government responsibility in many countries, but the increasing use of regional innovation and technology strategies and activities shows that there are valid arguments for regionalising aspects of RTD policy design and delivery. This is a dynamic field, and various combinations of political and institutional factors determine how the central-regional balance in RTD policy-making is reached in individual countries and regions. Further, RTD policy comprises numerous elements with differential possibilities for regionalisation.

From the case study research undertaken in this project, it is possible to identify several different approaches to regionalising the design and delivery of RTD policy. An overview is presented in Table 1.

Table 1: Approaches to the Regionalisation of RTD Policy

Approach to regionalisation	National role	Regional role	Case study example
Full devolution of design and delivery	<ul style="list-style-type: none"> ↳ Provision of basic legislative framework. 	<ul style="list-style-type: none"> ↳ Strategic design and financing of policy approach and measures. ↳ Creation of institutional framework for delivery and implementation of policy. 	Flanders.
Partial devolution of design and delivery	<ul style="list-style-type: none"> ↳ Retention of certain financing measures eg. for larger projects in key national Schwerpunkte. 	<ul style="list-style-type: none"> ↳ Strategic design and financing of regionally-oriented policy approach and measures. ↳ Creation of regionally specific institutional framework and implementation of policy. 	Bremen.
Joint approach to design and delivery, principally in infrastructure	<ul style="list-style-type: none"> ↳ Collaborative design and financing of measures, often related in infrastructure. ↳ Collaborative implementation 	<ul style="list-style-type: none"> ↳ Collaborative design and financing of infrastructure facilities. ↳ Formulation of proposals for infrastructure projects ↳ Collaborative implementation 	<ul style="list-style-type: none"> ↳ Germany –Hochschulen and research institutes of “überregionaler Bedeutung” and “gesamtstaatlichem Interesse”. ↳ Swedish Competence Centres, also involving collaboration of private sector and universities.
Devolution of delivery:			
<ul style="list-style-type: none"> ↳ Full 	<ul style="list-style-type: none"> ↳ Design and co-financing of support measure and guidance on award criteria – main role as financial contributor. 	<ul style="list-style-type: none"> ↳ Implementation autonomy. 	<ul style="list-style-type: none"> ↳ Support for strategic and technology consultants for SMEs implemented by ALMI. ↳ UK SMART scheme.
<ul style="list-style-type: none"> ↳ Partial 	<ul style="list-style-type: none"> ↳ Design and financing of support measure and establishment of award criteria. 	<ul style="list-style-type: none"> ↳ Implementation of scheme using nationally established criteria. 	<ul style="list-style-type: none"> ↳ Swedish CAB involvement in number of NUTEK schemes.
<ul style="list-style-type: none"> ↳ Limited 	<ul style="list-style-type: none"> ↳ Design and financing of support scheme and establishment of award criteria. ↳ Implementation above certain financial ceiling. 	<ul style="list-style-type: none"> ↳ Implementation up to certain level of financial award. 	
No devolution of design or delivery	<ul style="list-style-type: none"> ↳ National design, financing and implementation of policy measures. 	<ul style="list-style-type: none"> ↳ No involvement ↳ Awareness raising activities with possible support in application process 	<ul style="list-style-type: none"> ↳ UK LINK scheme ↳ Swedish SNITS scheme

8.1.2 Factors affecting regionalisation

While the national and sub-national loci of RTD policy responsibilities and roles are primarily determined by country-specific factors, there are several over-arching criteria which influence decisions regarding the management of RTD policy design and delivery. The application of these criteria to the range of RTD policy areas results in the mix of approaches evident within individual countries. These criteria include strategic importance, field of action, local knowledge input and target group.

- *Strategic importance.* Activities which are oriented towards the understanding, diffusion and application of wider technology trends or the identification of key areas of importance to national development are clearly best carried out at national level. This permits a national overview approach and the provision of available resources to investigate developments on the international scene.

Strategic Importance: UK example

The UK Foresight programme is a key example of this type of activity. The aim of Foresight is to develop visions for the future growth of national wealth and quality of life based on needs, opportunities and threats as well as to build bridges between business, science and government. This is undertaken through a series of thematic and sectoral panels, bringing together business, the science base, the voluntary sector and government. The results are used by companies to shape business strategies, to stimulate collaboration across sectors, academic disciplines and with the science base as well as to inform policy and spending decisions across Government. Links with more direct business support measures within RTD policy are made through the Foresight LINK and Foresight SMART awards. The LINK programme is one of the key UK schemes for the promotion of partnership between industry and the research base in pre-competitive research with potential for commercial exploitation. All the new LINK programmes address the priorities highlighted under Foresight. Similarly, an explicit link has been made with the SMART programme and awards are given for those SMART projects which fit most clearly with the Foresight aims and are particularly innovative in nature. These links create synergies between national level strategic thinking and the practical support of business in the field of RTD, including through schemes with a strong degree of regional implementation.

- *Field of action.* The scale, specialism and sphere of influence of RTD facilities influences the level at which related support measures are sensibly designed and managed. While individual regions may all wish to have high profile research units, competence centres etc, a wider overview is usually necessary to avoid unnecessary duplication and a realistic assessment of issues such as carrying capacity and critical mass. The design of such measures can still incorporate regional and other input within the context of national overview and control.

Field of action: Swedish example

The 1996-98 Renewal of National Technology Transfer System programme in Sweden is one example of a measure involving national overview and initiative but incorporating regional input. The programme had the overall objective of creating and improving a system through which SMEs could access and utilise technology in their business development. The aim of the programme was not to create new structures or systems, but rather to improve the efficiency and visibility of the existing ones. Supply-side projects focused on issues including cooperation, improved sign-posting, quality standards and shorter transaction times. On the demand side, the national authorities through NUTEK provided start-up funding for 100 local groups of SMEs. The aim of these groups was to strengthen the ability of companies to identify their technology needs and cooperate in their efforts to access and work with suitable providers. The NUTEK funding was provided to help support the initial cooperation and develop viable projects involving liaison with universities or competence/research centres. The groups were formed locally with the assistance of regional actors such as ALMI and applied to NUTEK for the funding. Thirty of the groups then received additional funding for the continued development of potentially successful projects.

- *Local knowledge input.* Measures such as pro-active mentoring, the support of local SME networks or technology transfer through local brokerage services are likely to be better suited to regional responsibility where there is a more in-depth understanding of local conditions and the nature and operation of local firms. National measures in such areas run a danger of ‘averaging’ ie. taking a range of particular regional preconditions into consideration, ‘averaging’ them and producing a support measure which does not effectively target any of them.

Local Knowledge Input: Bremen example

Most of the measures in the Bremen RITTS can serve as examples of local knowledge input. RITTS tried to take the demands and requirements of local firms as a starting point to extend the traditional supply-side, principally infrastructure based policy. This ‘industry-driven’ rather than ‘research-driven’ technology transfer approach resulted in the majority of measures addressing firms or groups of firms with the aim of improving their ability to innovate and cooperate and to interact with RTDI institutes.

- *Target group.* The nature of the target group influences where a measure would be effectively designed and implemented. Support measures aimed at high technology, growth-oriented firms can more easily be handled at national level as these firms are, in themselves, much more able to access central sources of finance. Where the target group comprises firms with technological or innovative promise, but where more support is required to activate the potential, regional involvement may be more appropriate to stimulate the necessary trust and local on-going support.

Target Group: UK example

One example of this is the recent UK government pledge to support an Enterprise Fund worth £150 million, in partnership with the private sector, through a range of initiatives including:

- ↵ a national venture capital fund to support early-stage, high-technology businesses (currently being discussed with leading financial institutions);*
- ↵ new regional venture capital funds to specialise in the provision of small scale equity to businesses with growth potential. This will draw on local expertise and be carried out in conjunction with the RDAs;*
- ↵ additional help to the Small Firms Loan Guarantee Scheme for businesses without the collateral or track record normally required by banks; and*
- ↵ consultation with the finance industry to identify ways to develop innovative financing ideas to assist growth businesses.*

8.1.3 Practical management of regionalised RTD policy

Managing the regionalisation of RTD policy in practice is complex, and different countries have employed diverse solutions. Three examples from the case studies highlight: the role of a national strategic framework; the use of block funding; and collaborative regional strategic plans. These examples are illustrative and are not the sole route to regionalisation practised in the case study countries.

- *National framework setting.*

National framework setting can occur when the national government authorities set the overall framework for a particular initiative which is then followed-through by sub-national authorities. Clearly, the national government establishes the context for RTDI developments in a very broad sense through its macro-economic policy as well as funding decisions in areas such as education. However, within specific RTD initiatives, national framework setting allows national priorities to be established, in line with other government actions, but with regional considerations still taken into account in the design and implementation stages. A positive potential ramification of this approach is the promotion of consultation and feedback between different levels of government.

National Framework Setting: UK example

The UK 1998 Competitiveness White Paper includes a number of commitments characterised by national framework setting. These include, for example, the provision of finance for enhanced business support services through the Business Links. The national objective includes the creation of at least 10,000 start-ups a year by 2001, and regional strategies for its achievement are to include qualitative as well as quantitative criteria. Equally, the new English Regional Development Agencies (RDAs) are to be given a fund to identify key skills gaps affecting regional economic development on the basis of which future plans addressing these problems will be drawn up in consultation with national authorities.

- ***Block funding.***

The provision of block funding by the national government to sub-national authorities is another approach to the division of responsibilities within RTD policy. The government may put certain terms and conditions or priorities on the money, effectively making it a form of national framework setting. However, block funding can also represent an approach to regionalisation where the national involvement is limited to the provision of finance which can be spent in a regionally sensitive way, responding to local initiatives and particular preconditions. In the latter case, regional structures need to be robust enough to target and implement the resources of the block funding effectively.

Block Funding: Swedish and German examples

In Sweden, the regional level CABs are given a block grant by the central government for the implementation of regional level economic development activity. The finance can be used for a variety of purposes including the support of county aid schemes and co-financing Structural Fund programmes. Although not explicitly RTD related, the CABs have the freedom to use the finance in this area. In the case of Västernorrland, this money has been used, for example, to support the Knowledge Centres as well as region-specific initiatives and awareness raising activities among the local population. Clearly this block grant only comprises a part of the available national and regional funding for RTD activities and occurs within a system where the CAB represents the national government at regional level.

A combination of the framework setting and block grant approach can be seen within the German “Gemeinschaftsaufgabe”. Annual framework plans for the “Gemeinschaftsaufgabe: Verbesserung der regionalen Wirtschaftsstruktur” cover both the designation of assisted areas and the funding available to them. The plans are a result of a consensus building process between Federal and Länder authorities but the full responsibility for project decision-making as well as the implementation and administration of the resources are retained by the Länder.

- *Collaboration in the context of regional strategic planning.*

Regional strategic planning is becoming an increasingly common phenomenon. This has emerged for a number of reasons including the Structural Funds, other EU initiatives such as the increasingly widespread RITTS/RIS measures, and regional and local planning fora within individual countries. The Structural Fund programmes, which are increasingly incorporating important RTD and innovation elements, have their own consultation channels which have proved important in generating vertical debate in a number of countries – although such channels are also evident in other areas.

Strategic Collaboration: UK and Swedish examples

A UK example of regional strategic planning outside the Structural Funds is the proposed collaboration between the new English RDAs and the national authorities. The 1998 Competitiveness White Paper requests the RDAs to review the coherence and quality of business support in their area against local and regional priorities in their economic strategies (including RTD and innovation related elements). The consultation process will conclude with a conference to discuss the results and their policy implications. A further example is the additional £10 million to be given to the RDAs over three years to spend on priorities which they identify for increasing competitiveness such as the promotion of innovation, networks and business clusters.

The new Swedish regional growth agreements, devised by the CABs in conjunction with local partners, are designed to promote an integrated, regional approach to economic development. These growth agreements are likely to include key RTD considerations and will be discussed with central government to ensure policy coherence. Those parts requiring state funding will be negotiated.

8.2 Recommendations

The case study experience has shown that there is no single solution to the questions of regionalisation and different models have greater or lesser degrees of success depending on factors such as the strategic direction of technology policy, the national framework and the existence of a federal tradition.

8.2.1 *Increased complexity*

Certain common trends can be highlighted from case study and other examples of current RTD policy. These include: a focus on 'soft', demand-oriented and network-related measures; the emphasis on innovation systems in the strategic orientation of measures and bundles of measures; and the targeting of socio-economic objectives.

These trends have two central ramifications. First, an increase in importance of the regional level. This is related to the fact that the determinants of competitiveness are not the abstract results of functional interaction in the global economy but rather are linked closely to the territorial area of a nation or region. The majority of strongly communication or network-related measures are best implemented at regional level because of the proximity to relevant actors and the possibility to differentiate and tailor measures to individual regional characteristics and dynamics.

The second ramification is the increased complexity of the systems and target groups which innovation and technology policy is attempting to influence. The number of policy areas, interest groups and thematic disciplines which must be taken into account in innovation and technology policy-making increases hugely when the policy is, first, aiming to target not just innovative actors themselves but also the framework conditions within which they operate and, second, attempting to contribute solutions to socio-economic problems in areas including employment, environment, health and equal opportunities.

New approaches to the division of labour between national and regional levels, as well as to facilitation/liaison, strategy development and communication both within the policy area and between different policy areas, are necessary in order to keep in step with these new developments

8.2.2 *Regionalisation from above or from below?*

A process of regionalisation from above is evident in the less federal case study countries ie. the UK and Sweden. In many national programmes, for example, only broad guidelines are provided with the details of development and implementation left to the sub-national authorities. These types of regionalised measures are often linked to the creation of regional fora and decision-making structures².

² Similar regionalisation trends can be seen in the large German *Länder* such as Nordrhein-Westfalen and Niedersachsen

In countries with a strong federal structure such as Germany and Belgium, policy competencies and responsibilities for innovation, economic and regional development are often hard to find at national level. Joint programmes between the federal government and the *Land* or region are very often only found in the area of research infrastructure with the federal government otherwise principally involved as a co-financier of regional programmes.

In Austria, a process of regionalisation from below is more evident. As described in Chapter 7 of the report, the Austrian *Bundesländer* have not only increased their financial commitment to research, technology and innovation in recent years but their policy-making in this area has also taken on a much more strategic character. Organisational changes are also evident as the *Bundesländer* increasingly outsource their research and economic policy to external agencies. These organisations are, in general, able to operate in a more targeted and efficient manner than the *Land* government administration and are more in a position to develop and implement complex strategic programmes.

8.2.3 Activity sphere for the national level

Against this background, the following recommendations can be made.

- *Strategic coherence and the creation of a common framework for action.*

Uncoordinated regionalisation can lead to the formulation of a many small, isolated strategy documents which attempt to implement relatively small financial resource packages within a highly opaque system. This potential scenario necessitates the creation of coordination structures at national level which can better tackle large-scale initiatives, learn from one another and devise and coordinate action fields of supra-regional importance. The fragmentation of technology policy competencies at federal level in Austria makes this task more challenging. Joint work, consultation and agreement between the federal government and the *Länder* through a forum similar to ÖROK could be considered in this context. However, it should be noted that consensus-building in such fora can be time-consuming, difficult and laborious. It would be necessary, therefore, to ensure that the areas and tasks to be included within the remit of any such forum were clearly defined and limited.

- *Horizontal and vertical coordination and facilitation/liaison*

An effective and active innovation policy cannot be created in a vacuum either by federal or *Länder* authorities. Policy-making at both levels requires cooperation, information exchange and a joint process of experimentation and learning with a whole range of socio-economic partners and organisations. In addition to, and partly instead of, the traditional process of 'hierarchical leading', a policy built on network structures must emerge.

Coordination: UK example

In the UK a Knowledge Management Unit (KMU) has been created within the Department of Trade and Industry (DTI), principally responsible for technology policy. The aim of the KMU is to change the culture and build systems and processes which can encourage the capture and sharing of knowledge both within and between departments and with the customers of the DTI. A recent seminar on knowledge management highlighted issues such as the importance of a shared set of values and the need to build trusting relationships with colleagues at all levels. The KMU works closely with other groups within government such as the Competitiveness Unit, the Innovation Unit and the Information Management and Process Engineering Directorate to develop projects of short term and longer-term benefit to knowledge sharing within government.

- *Avoidance of combination financing and intransparent responsibilities*

The division of labour and competencies between the federal government and the *Länder* must be clearly defined to avoid the danger of the process of coordination and agreement process effectively becoming a mutual blockade. Programmes involving combination financing should only be implemented where the content of the programme clearly justifies the involvement of both parties and where the responsibilities are explicitly defined.

Financing issues: German example

*The Report on the Technological Potential of Germany 1998³ clearly advocates the reduction of combined financing which principally concerns joint institutional support. It is argued that this type of financing leads to a mutual blockade between the federal and *Länder* governments, opaque priorities within individual projects and the effective discrimination of other forms of support.*

- *National framework conditions – regional organisation and implementation*

In the case of some national programmes, and particularly those with the objective of diffusion, the creation of SME networks or the strengthening of the innovative ability of SMEs, a partial regionalisation can be recommended. Within this, the federal government would formulate the broad framework conditions and objectives of a given programme but the details of its organisation and implementation would be the responsibility of the *Länder*. This approach is particularly appropriate given that such programmes are almost universal at regional level and could therefore undergo a corresponding strengthening and increased emphasis.

³ Federal Ministry for Education and Research (1999) *The Technological Potential of Germany – Concluding final study 1998*, Bonn

National Framework Conditions: UK SMART

The UK SMART programme is a national scheme implemented at regional level using national guidelines to ensure equal treatment of projects across the country. The budget for the programme is divided between the regions on the basis of a series of criteria including past performance, population, GDP, manufacturing base etc. The regional implementation is designed both to ease the practical administration of the scheme and to allow a degree of regional and local input into the actual funding decisions. In addition, the national government meets the regional Government Offices up to six times a year to allow liaison and discussion about the aims and implementation of the scheme. Representatives of the national office go to the regions to shift the focus from London, give insight into the particular regional situation and facilitate discussion.

- *Provision of best practice and support in the strategy development process*

Very broad national concepts which support the strategy development process at regional level – such as the RITTS/RIS approach for example – are not currently the right way forward in Austria. The evolution of endogenous innovation policies by the *Länder* is too advanced for this to be the case. However, other types of know-how provision in the context of the above mentioned coordination fora would have potential benefits. This could include, for example, the organisation of ‘good practice’ workshops, the joint commissioning of strategic conceptions or evaluations of similar programmes or the monitoring of relevant international programmes. A further component could comprise closer operational cooperation at the level of the funds – national funds have the best access to assessment and control mechanisms, particularly in the case of specific technical issues or projects. Cooperation between regional and national authorities – a form of technical assistance - could be beneficial in this context.

Best Practice Provision: Swedish example

A broader role in this field is currently being explored by NUTEK in Sweden. A stronger regional component is emerging in the design and implementation of RTD policy in a formerly centralised country – a trend mirrored in other policy areas including regional policy. In light of this, there is a recognition that the provision of best practice and benchmarking can usefully operate at central level. Current consideration is being given to a new model of operation, at least in some areas, with greater regionally based initiatives and the central provision of experience and support. This would be possible from an organisation with a better overview as well as access to international experience and could help with quality enhancement or with the prevention of regions ‘re-inventing the wheel’.

9. ZUSAMMENFASSUNG UND EMPFEHLUNGEN

Aus den empirischen Untersuchungen in den vier Regionen lassen sich eine Reihe von Ansätzen hervorheben, die für die derzeitige Diskussion über das Design und die Implementierung von regionaler Innovationspolitik in Österreich relevant sind. Dabei sind vor allem zwei Fragestellungen von Bedeutung: Erstens, die Rolle der nationalen Ebene in einem stärker regionalisierten Politikverständnis, zweitens, die Felder von FTEI-Politik, die sich am besten für eine Regionalisierung eignen würden. Die Zusammenfassung beinhaltet auch eine Liste von Empfehlungen und good-practice Beispielen.

9.1 Regionalisieren oder nicht regionalisieren?

9.1.1 Regionalisierungsansätze

Die Technologie- und Innovationspolitik ist in den letzten Jahren zunehmend komplexer und umfassender geworden. Die Maßnahmen reichen von Förderung der Grundlagen- und angewandten Forschung über Technologietransferinitiativen und Infrastrukturunterstützungen bis zu immateriellen Bereichen, wie beispielsweise Förderung von Netzwerken, Weiterbildungsmaßnahmen etc. Insgesamt zeigen sich Trends in Richtung Regionalisierung und Mitwirkung von lokalen bzw. regionalen Akteuren an Design und Implementierung der Politik.

Zwischen diesen beiden Trends gibt es keine automatische Verbindung. FTEI-Politik ist bisher in vielen Ländern traditionell in der Zuständigkeit der zentralen Regierung gelegen. Jedoch zeigt die Zunahme regionaler Strategien und Aktivitäten, daß es offensichtlich stichhaltige Gründe für Regionalisierungsaspekte im Design und der Umsetzung von FTEI-Politik gibt. Dabei bestimmen verschiedene Kombinationen von politischen und institutionellen Faktoren, wie ein sinnvolles Gleichgewicht zwischen „zentral“ und „regional“ in den einzelnen Ländern und Regionen aussehen kann. Weiters umfaßt die FTEI-Politik zahlreiche Elemente mit unterschiedlich weitreichenden Möglichkeiten für die Regionalisierung.

Aus den Fallstudien lassen sich verschiedene Ansätze der Regionalisierung von Design und Umsetzung von FTEI-Politik ableiten. Ein Überblick wird in Tabelle 1 gegeben.

Tabelle 1 Ansätze der Regionalisierung von FTEI-Politik

Ansatz der Regionalisierung	Nationale Rolle	Regionale Rolle	Fallstudien Beispiel
Vollständige Dezentralisierung von Design und Umsetzung	↳ Bereitstellung des grundlegenden gesetzlichen Rahmens	↳ Strategisches Design und Finanzierung von Maßnahmen und Initiativen ↳ Schaffung eines institutionellen Rahmens für die Ausführung und Implementierung von Politik	Flandern
Teilweise Dezentralisierung von Design und Umsetzung	↳ (Bei-) Behalten von bestimmten Finanzierungsmaßnahmen z.B. für Großprojekte in nationalen Schwerpunkten	↳ Strategisches Design und Finanzierung von regional orientierten Maßnahmen und Verfahren ↳ Schaffung eines regionalspezifischen, institutionellen Rahmens und Implementierung von Politik	Bremen
Gemeinsamer Ansatz von Design und Umsetzung, hauptsächlich bei Infrastruktur	↳ Gemeinsames Design und Finanzierung von Maßnahmen, besonders im Infrastrukturbereich ↳ Gemeinsame Implementierung	↳ Gemeinsames Design und Finanzierung von Infrastruktur-Einrichtungen ↳ Formulierung von Vorschlägen für Infrastruktur-Projekte ↳ Gemeinsame Implementierung	↳ Deutschland: Hochschulen und Forschungseinrichtungen von überregionaler Bedeutung und gesamtstaatlichem Interesse ↳ Schwedische Kompetenzzentren, auch mit Beteiligung des privaten Sektors und von Universitäten
Dezentralisierung der Umsetzung: ↳ Vollständig ↳ Teilweise ↳ Beschränkt	↳ Design und Kofinanzierung von Fördermaßnahmen, Erstellen von Rahmenrichtlinien – Hauptrolle als Finanzier ↳ Design und Finanzierung von Fördermaßnahmen und Erstellung von Förderkriterien ↳ Design und Finanzierung von Förderschemata und Erstellung von Förderkriterien ↳ Implementierung über bestimmte finanziellen Höchstgrenzen	↳ Implementierungsautonomie ↳ Implementierung gemäß der national gültigen Förderkriterien ↳ Implementierung bis zu einem bestimmten Förderbetrag	↳ Förderung von Strategie- und Technologieberatern für SMEs durch ALMI ↳ UK SMART Programm ↳ Beteiligung der schwedischen CABs bei einigen NUTEK Programmen
↳ Keine Dezentralisierung von Design und Umsetzung	↳ Nationales Design, Finanzierung und Implementierung von politischen Maßnahmen	↳ Keine Beteiligung ↳ Awareness Maßnahmen, Unterstützung der Umsetzung	↳ UK LINK Schema ↳ Schwedisches SNITS Schema

9.1.2 *Einflussfaktoren der Regionalisierung*

Während hauptsächlich länderspezifische Faktoren bestimmen, welche Zuständigkeiten und Rollen der regionalen und der nationalen Ebene zukommen, gibt es einige übergreifende Kriterien, die die Verteilung der Verantwortlichkeit für Design, Umsetzung und Management der FTEI-Politik beeinflussen. Die Anwendung dieser Kriterien in den einzelnen Politikbereichen führt zu dem jeweiligen Verfahrensmix, der in den einzelnen Ländern besteht. Diese Kriterien umfassen die Bereiche: Strategische Orientierung, Überregionale Bedeutung, Lokaler Wissensinput und Relevante Zielgruppen.

- *Strategische Orientierung*: Maßnahmen, mit strategischer Bedeutung für das gesamte nationale Innovationssystem sollten auch auf nationaler Ebene angesiedelt sein. Das betrifft z.B. Initiativen zur Erfassung, Diffusion und Adoption umfassender Technologietrends oder die Identifikation zentraler Determinanten der technologischen Wettbewerbsfähigkeit des nationalen Systems.

Strategische Orientierung: Beispiel UK

Das „Foresight“ Programm des Vereinigten Königreichs dient als zentrales Beispiel für diesen Typus von Aktivität. Ziel dieses Programmes ist es, Visionen für das zukünftige Wachstum von nationalem Wohlstand und Lebensqualität zu entwickeln. Dabei soll zum einen an existierenden Bedürfnissen, Chancen und Gefahren angeknüpft werden, zum anderen aber auch neue Verbindungen zwischen Unternehmen, Wissenschaft und Regierung geknüpft werden. Umgesetzt wird dieses Vorhaben mithilfe thematischer und sektoraler Panels, in denen Unternehmen, Wissenschaft, nichtstaatliche Hilfsorganisationen und Regierung zusammenarbeiten. Die Ergebnisse werden von Firmen bei der Formulierung von Unternehmensstrategien genutzt, sie stimulieren Kooperationen zwischen Sektoren und akademischen Disziplinen, darüber hinaus unterstützen sie die Regierung bei der Formulierung politischer Strategien und Budgetentscheidungen. Über die Programme „Foresight LINK“ und „Foresight SMART“ erfolgt eine Verbindung zu Maßnahmen, welche innovative Unternehmen adressieren. Das LINK Programm ist eines der zentralen nationalen Programme zur Förderung von Partnerschaften zwischen Industrie und Forschungseinrichtungen im vorwettbewerblichen Bereich (mit einer Option auf kommerzielle Nutzung). Alle neuen LINK Programme richten sich nach den Prioritäten, die im „Foresight“ gesetzt wurden. Ähnlich dazu wurde eine explizite Verbindung zu dem SMART Programm geschaffen: SMART Projekte, die am besten zu den „Foresight“ Zielen passen und sich durch besonderen Innovationsgehalt auszeichnen werden entsprechend prämiert. Diese Verbindungen ermöglichen Synergien zwischen der Strategieentwicklung auf nationaler Ebene und der konkreten Förderpolitik im FTEI-Bereich. Eingeschlossen sind auch jene Programme, bei denen die Implementierung überwiegend auf regionaler Ebene stattfindet.

- *Überregionale Bedeutung*: Der Umfang, die Spezialisierung und die Wirkungsweise von FTEI-Programmen sind jene Faktoren, die darüber bestimmen, auf welcher Ebene sie entworfen, implementiert und gemanagt werden sollen. Das zeigt sich besonders deutlich bei hochwertigen Infrastruktureinrichtungen: Einzelne Regionen haben alle ein Interesse an der Ansiedlung von Forschungsinstitutionen, Kompetenzzentren etc., jedoch ist meist ein nationaler Rahmen notwendig, um unnötige Doppelgleisigkeiten zu vermeiden und eine tragfähige Basis sowie kritische Massen zu erhalten. Das Design solcher Maßnahmen kann innerhalb des nationalen Kontextes auch regionale Elemente miteinschließen.

Überregionale Bedeutung: Beispiel Schweden

Die Erneuerung des schwedischen nationalen Technologietransfersystem - Programms in den Jahren 1996-98 ist ein gutes Beispiel für eine Maßnahme, die nationale Initiative und regionale Elemente miteinander verbindet. Das Programm hatte zum Ziel, ein System zu entwickeln und zu verbessern, welches KMUs Zugang und Nutzung von Technologien erleichtert. Dabei sollten keine neuen Strukturen oder Systeme geschaffen, sondern die Präsenz und Effizienz bestehender verbessert werden. Angebotsseitige Projekte konzentrierten sich auf Themenstellungen wie Kooperationen, Qualitätsstandards und kürzere Transaktionszeiten. Auf der Nachfrageseite bot NUTEK Start-up Finanzierungen für 100 lokale KMU Gruppen an. Im Rahmen dieser Gruppen sollte KMUs ermöglicht werden, ihre Technologiebedürfnisse besser zu identifizieren und die Kooperationsbeziehungen mit geeigneten Lieferanten auszubauen. NUTEK förderte im Sinne einer start-up Finanzierung die Entwicklung von Kooperationen und lebensfähigen Projekten, auch in Verbindung mit Universitäten oder Kompetenzzentren. Die KMU-Gruppen bildeten sich lokal, unter Mithilfe lokaler Akteure, so wie beispielsweise ALMI. 30 dieser Gruppen erhielten nach der Start-up Finanzierung zusätzliche Förderungen für die Weiterentwicklung erfolgversprechender Projekte.

- *Lokaler Wissensinput*: Maßnahmen wie aktive Beratung, Förderung lokaler KMU Netzwerke oder Unterstützung von Technologietransfer durch lokale Brokeragenturen sind sinnvollerweise auf regionaler Ebene verankert. Regionale Akteure haben eine tiefere Kenntnis des relevanten Umfelds, der Struktur und Bedürfnisse ansässiger Unternehmen und Forschungseinrichtungen. Überall dort, wo dieses spezifische Wissen von großer Bedeutung für das Design von Maßnahmen ist, verlieren nationale Initiativen an Zielwirkung, weil sie regionale Eigenheiten nur unzureichend berücksichtigen können (Phänomen des averaging)

Lokaler Wissensinput: Beispiel Bremen

Die meisten Maßnahmen des RITTS Programms in Bremen stellen Beispiele für lokalen Wissensinput dar. RITTS nahm die Bedürfnisse der lokalen Unternehmen zum Ausgangspunkt, um das bestehende, angebotsseitige und hauptsächlich infrastrukturorientierte Leistungsspektrum zu ergänzen. Dieser nachfragegetriebene Technologietransferansatz führte zu einer Vielzahl von Maßnahmen, die darauf zielten, die Innovations- und Kooperationsfähigkeit von einzelnen Unternehmen und Unternehmensverbänden zu verbessern. Darüber hinaus sollte die Akzeptanz und Inanspruchnahme des FTEI-Leistungsangebots verstärkt werden.

- *Relevante Zielgruppen*: Ob bestimmte Maßnahmen eher auf der regionalen oder der nationalen Ebene angesiedelt werden sollten, hängt unter anderem auch von der Beschaffenheit der jeweiligen Zielgruppe ab. Fördermaßnahmen, die auf hochtechnologie- und wachstumsorientierte Unternehmen zielen, können leichter auf nationaler Ebene betreut werden, da diese Firmen eher den Zugang zu den zentralen

Finanzierungsquellen finden. Umfaßt die Zielgruppe Unternehmen, die zwar Innovationspotentiale aufweisen aber Unterstützung benötigen, um sie auch ausschöpfen zu können, ist eine Beteiligung regionaler Akteure zu empfehlen.

Zielgruppe: Beispiel Vereinigtes Königreich

Ein Beispiel für die Differenzierung nach Zielgruppen sind die Initiativen im Bereich der Innovationsfinanzierung eines geförderten Enterprise Fund, die in Kooperation mit dem privaten Sektors gesetzt werden:

- ↪ Einrichtung eines nationalen Venture Capital Fonds zur Unterstützung der Frühphasen von Hochtechnologie-Unternehmen (wird aktuell mit den führenden Finanzierungseinrichtungen diskutiert)*
- ↪ Einrichtung neuer regionaler Venture Capital Fonds, die darauf spezialisiert sind, Kapital in geringerem Umfang an Unternehmen mit Wachstumspotential zur Verfügung zu stellen. Diese nutzen lokales Expertenwissen und arbeiten eng mit den RDAs zusammen.*
- ↪ Zusätzliche Unterstützung für das „Small Firms Loan Guarantee Scheme“*
- ↪ Beratungen mit der Finanzindustrie um gemeinsam innovative Finanzierungskonzepte für Unternehmenswachstum zu entwickeln*

9.1.3 Management von regionalisierter FTE-Politik in der Praxis

Das Management regionalisierter FTE-Politik erweist sich in der Praxis als komplexe Angelegenheit, die in den einzelnen Ländern zu verschiedenen Lösungen geführt hat. Zur Illustration werden drei interessante Ansätze beispielhaft herausgegriffen: Die Rolle eines nationalen strategischen Rahmens; die Anwendung von „Block Funding“; und gemeinsame regionale strategische Pläne.

- ***Setzen nationaler Rahmenbedingungen***

Durch nationale Rahmenbedingungen werden die Spielregeln und Stoßrichtungen für das Design, die Implementierung und das Management von Initiativen und Maßnahmen auf regionaler Ebene festgelegt. Solche Rahmenbedingungen können sehr weit gefaßt sein und z.B. Grundsatzentscheidungen im Bildungs- und Forschungsbereich oder bestimmte makroökonomische Maßnahmen umfassen.. In einem etwas engeren Verständnis ermöglichen nationale Rahmenbedingungen innerhalb bestimmter FTEI-Initiativen die Berücksichtigung nationaler Prioritäten in Übereinstimmung mit anderen Regierungsaktivitäten. Die Erfordernisse der regionalen Ebene fließen dann bei der Spezifikation des Detail-Designs sowie bei der Implementierung ein.

Nationale Rahmenbedingungen: Beispiel Vereinigtes Königreich

Das 1998 erschienene britische Weißbuch über Wettbewerbsfähigkeit enthält eine Reihe von Empfehlungen, bei denen nationale Rahmenbedingungen gesetzt werden, die regionalen Ebene aber Freiheitsgrade in Design und Umsetzung hat. Mit „Business Links“ beispielsweise werden auf nationaler Ebene Mittel bereitgestellt sowie Ziele und Strategien formuliert: Das nationale Ziel beinhaltet die Schaffung von mindestens 10.000 Start-ups jährlich bis 2001 und regionale Strategien für seine Erreichung, die sowohl qualitative als auch quantitative Kriterien miteinschließen. Gleichzeitig werden die neuen RDAs mit Geldmitteln ausgestattet, um die wichtigsten Faktoren zu identifizieren, welche die regionale Wirtschaftsentwicklung behindern. Auf dieser Basis werden regionale Entwicklungspläne erarbeitet, wobei die nationale Ebene beratend hinzugezogen wird.

- **Block Funding**

Die Bereitstellung von „block funding“ durch die nationale Regierung an regionale (sub-nationale) Institutionen ist eine weitere Möglichkeit geteilter Verantwortlichkeiten in der FTE-Politik. Von nationaler Seite können bestimmte Bedingungen oder Prioritäten bei der Vergabe der Geldmittel formuliert werden, oft aber handelt es sich beim „block funding“ um einen Regionalisierungsansatz, bei dem die nationale Beteiligung sich auf die Bereitstellung von Finanzierungsmittel beschränkt. In letzterem Fall müssen regionale Strukturen stark genug sein um die Mittel des „block funding“ regional sinnvoll, effektiv und zielgenau einsetzen zu können.

Block Funding: Beispiele aus Schweden und Deutschland

In Schweden wird den regionalen CABs „block funding“ von der zentralen Regierung gewährt, mit der sie auf regionaler Ebene Initiativen zur Wirtschaftsentwicklung setzen können. Die Mittel können für vielfältige Zwecke verwendet werden, so z.B. für die Unterstützung von regionalen Entwicklungsprogrammen und die Kofinanzierung von Strukturfonds Programmen. Auch wenn es keinen expliziten FTE-Bezug gibt, haben die CABs doch die Möglichkeit, Mittel auch für FTE Programme auszugeben. Im Fallbeispiel Västernorrland wurden Gelder beispielsweise genauso für die Förderung von Wissenszentren eingesetzt wie zur Unterstützung von Awareness Aktivitäten der lokalen Bevölkerung. Es handelt sich hierbei nur um einen kleinen Teil der nationalen und regionalen Förderung von FTE Aktivitäten, welcher dort zum Tragen kommt, wo die CABs die nationale Regierung auf lokaler Ebene vertreten.

Die deutsche Regionalförderung kann als eine Kombination von nationalen Rahmenbedingungen und einem „block funding“ Ansatz interpretiert werden: Jährliche Rahmenpläne für die „Gemeinschaftsaufgabe: Verbesserung der regionalen Wirtschaftsstruktur“ beinhalten sowohl die Förderkulisse als auch die damit verbundenen nationalen Mittel. Die Pläne sind das Ergebnis eines Abstimmungsprozesses zwischen Bund und Ländern, jedoch liegt die gesamte Verantwortlichkeit für Projektentscheidungen, Einsatz und Verwaltung der Geldmittel bei den Ländern.

- *Zusammenarbeit im Kontext der regionalen Strategieentwicklung.*

Regionale Strategieentwicklung hat in den letzten Jahren stark an Bedeutung gewonnen. Den Hintergrund dafür bilden die Erfordernisse der EU Strukturpolitik (die Programmplanungsdokumente aber auch andere EU Initiativen wie die RITTS/RIS Programme) sowie regionale und lokale Planungsforen in den einzelnen Staaten. Die Strukturfonds Programme, die zunehmend wichtige FTEI Elemente miteinschließen, haben ihre eigenen Foren der Zusammenarbeit zwischen regionaler, nationaler und internationaler Ebene. In einigen Ländern haben diese eine wichtige Rolle gespielt, um eine vertikale Diskussionen zu initiieren. Doch auch in anderen Bereichen ist die vertikale Zusammenarbeit im Kontext regionaler Strategieentwicklung evident.

Strategische Zusammenarbeit: Beispiele aus dem Vereinigten Königreich und Schweden

Ein britisches Beispiel für regionale Strategieentwicklung außerhalb der Strukturfonds ist die vorgeschlagene Zusammenarbeit zwischen den neuen englischen RDAs und den nationalen Behörden. Das nationale Weißbuch fordert von den RDAs, die Kohärenz und Qualität von Unternehmensförderungen in ihrem Gebiet zu überprüfen und sie in Bezug zu den lokalen und regionalen Prioritäten zu setzen, welche in den Strategien formuliert wurden (inklusive FTEI-relevante Elemente). Der Prozess schließt mit einer Konferenz ab, auf der Ergebnisse und politischen Auswirkungen diskutiert werden. Ein weiteres Beispiel stellen die zusätzlichen 10 Mio. brit Pfund dar, welche die RDAs im Lauf von 3 Jahren für Maßnahmen zur Hebung der Wettbewerbsfähigkeit verwenden können, wie z.B. die Förderung von Innovation, Netzwerken und Unternehmensclustern.

Die neuen regionalen „growth-agreements“ in Schweden, die von den CABs in Zusammenarbeit mit lokalen Partnern entwickelt wurden, zielen auf einen integrierten, regionalen Entwicklungsansatz. Diese „growth-agreements“, die auch mit der nationalen Ebene diskutiert werden, um Kohärenz zu erreichen, enthalten voraussichtlich zentrale Überlegungen zum Bereich FTE.

9.2 Empfehlungen für Österreich

Die Fallbeispiele haben gezeigt, daß es nicht einen Königsweg der Regionalisierung geben kann, verschiedene Modelle erweisen sich je nach strategischer Ausrichtung der Technologiepolitik, nationalem Hintergrund und auch föderaler Tradition als mehr oder weniger erfolgreich.

9.2.1.1 *Gestiegene Komplexität*

Dennoch läßt sich eine gewisse gemeinsame inhaltliche Orientierung ausmachen: Die Konzentration auf „weiche“, nachfrageorientierte und netzwerkbezogene Maßnahmen, die strategische Orientierung von Maßnahmen und Maßnahmenbündeln im Kontext von Innovationssystemen und die Fokussierung auf sozio-ökonomische Zielsetzungen.

Dies hat im wesentlichen zwei zentrale Konsequenzen: Erstens eine Aufwertung der regionalen Ebene, da alle im Kontext von Innovationssystemen diskutierten Determinanten der Wettbewerbsfähigkeit nicht abstrakt in den globalen Funktionsräumen der Weltwirtschaft entstehen, sondern territorial an eine Nation oder Region gebunden sind. Ein Großteil der stark kommunikations- und netzwerkbezogenen Maßnahmen lassen sich am besten auf regionaler Ebene implementieren: Dafür sprechen die Nähe zu den relevanten Akteuren und die Möglichkeit, nach verschiedenen Regionstypen differenzieren zu können. Zweitens eine gestiegene Komplexität von Zielsystemen und Zielgruppen der Innovations- und Technologiepolitik: Wenn die Politik nicht nur innovierende Akteure selbst sondern auch Umfeldbedingungen adressieren soll, wenn sie zur Lösung gesellschaftspolitischer Probleme in Bereichen wie Beschäftigung, Ökologie, Gesundheit, Chancengleichheit Beiträge liefern soll, dann erhöht sich die Zahl der betroffenen Politikfelder, Interessensgruppen und auch benötigten wissenschaftlichen Disziplinen enorm.

Um diesen Anforderungen gerecht zu werden, braucht es neue Formen der Arbeitsteilung zwischen nationaler und regionaler Ebene aber auch neue Formen der Moderation, Strategieentwicklung und Kommunikation in der Politik und zwischen verschiedenen Politikbereichen.

9.2.2 *Regionalisierung von oben oder von unten?*

In den weniger föderalen Staaten unserer Untersuchung, Schweden und Großbritannien war eine Regionalisierung von oben beobachtbar: Für nationale Programme wurden nur grobe Eckpunkte vorgegeben, dann wurden sie an die Regionen zur Konkretisierung und Abwicklung übergeben. Oft sind solche Regionalisierungsmaßnahmen auch mit der Bildung regionaler Foren und Konferenzen verbunden⁴.

⁴ Ähnlich sind auch die Regionalisierungstendenzen der großen deutschen Bundesländer Nordrhein-Westfalen und Niedersachsen zu sehen.

In den stark föderal strukturierten Staaten Deutschland und Belgien sind Kompetenzen und Verantwortungen für Innovations-, Wirtschafts- und Regionalpolitik auf der nationalen Ebene kaum zu finden. Gemeinsame Programme von Bund und Land lassen sich – wenn überhaupt – beim Aufbau von Forschungsinfrastruktur finden, ansonsten fällt dem Bund vielfach die Rolle des Kofinanciers regionaler Programme zu.

In Österreich ist eher eine Regionalisierung von unten zu beobachten: Wie in Kapitel 7 ausgeführt, haben die österreichischen Bundesländer in den letzten Jahren nicht nur ihre Mittel für Forschung, Technologie und Innovation ausgeweitet, sondern ihre Politik auch stärker strategisch verankert. Auch finden sich organisatorische Änderungen: Die Bundesländer übertragen ihre Forschungs- und Wirtschaftspolitik mehr und mehr ausgegliederten Einheiten, welche in der Regel zielgenauer und effizienter agieren können als die Landesverwaltungen selbst und eher in der Lage sind, auch komplexe, strategische Programme zu entwerfen und abzuwickeln.

9.2.3 Handlungsspielraum für die nationale Ebene

Vor diesem Hintergrund können folgende Empfehlungen gemacht werden:

- *Strategische Kohärenz und die Schaffung eines gemeinsamen Rahmens*

Unkoordinierte Regionalisierung kann dazu führen, daß viele kleine, voneinander isolierte Strategie-Dokumente verfaßt werden, die versucht werden mit einer unüberblickbaren Landschaft gering dotierter Fonds umzusetzen. Es bedarf hier Koordinationsstrukturen auf nationaler Ebene, um größere Vorhaben gemeinsam bewältigen zu können, um besser voneinander zu lernen und sich besser abzustimmen. Die Rolle des Bundes sollte hier sein, strategische Kohärenz zu sichern und Aktionsfelder von überregionaler Bedeutung abzustecken. Die Fragmentierung der technologiepolitischen Kompetenz auf Bundesebene macht diese Aufgabe nicht gerade einfacher. Zusammenarbeit und Abstimmung zwischen Bund und Ländern ist hier in einem Forum ähnlich der ÖROK denkbar. Allerdings ist zu beachten, daß der Weg der Konsensfindung in solchen Foren häufig steinig, mühsam und zeitaufwendig ist. Es empfiehlt sich daher, die inhaltlichen Felder der Abstimmung genau zu definieren und zu limitieren.

- *Horizontale und vertikale Koordination und Moderation*

Eine leistungsfähige, aktive Innovationspolitik kann weder Bund noch Land im Alleingang und am grünen Tisch entwerfen. Beide sind auf Kooperation, Informationsaustausch und gemeinsame Such- und Lernprozesse mit einer Vielzahl von gesellschaftlichen Akteuren angewiesen. Neben und zum Teil auch statt der traditionellen „hierarchischen Steuerung“ müssen sich auch in der Politik netzwerkartige Steuerungsmuster herauskristallisieren.

Koordination und Moderation: Beispiel UK

In Großbritannien wurde innerhalb des für Technologiepolitik zuständigen Departments of Trade and Industry (DTI) eine „Knowledge Management Unit“ (KMU) eingerichtet. Ziel dieser Einheit ist, Systeme und Prozesse aufzubauen, die den Kommunikation und Austausch von Wissen innerhalb des Departments, zwischen den Departments und auch mit den Kunden des Departments intensivieren. Ein kürzlich veranstaltetes Seminar zum Thema Wissensmanagement behandelte Themen wie die Wichtigkeit gemeinsamer Werte und die Notwendigkeit auf Vertrauen basierende Beziehungen mit Kollegen auf allen Ebenen zu unterhalten. In enger Zusammenarbeit mit anderen Gruppen in der Regierung wie der Wettbewerbs Einheit, der Innovations Einheit, dem Informations Management und Process Engineering Direktorat entwickelt KMU kurz- und längerfristige Projekte zur besseren gemeinsamen Nutzung von Wissen.

- *Vermeiden von Mischfinanzierungen und unklaren Verantwortlichkeiten*

Arbeits- und Kompetenzverteilung zwischen Bund und Ländern müssen klar definiert sein, sonst wird aus Koordination und Abstimmung ein sich gegenseitiges Blockieren. Mischfinanzierte Programme sollen nur dort Anwendung finden, wo es klare inhaltliche Argumente für ein gemeinsames Engagement gibt und die Verantwortlichkeiten eindeutig geregelt sind.

Finanzierung: Beispiel Deutschland

Der Bericht zur technologischen Leistungsfähigkeit Deutschlands 1998⁵ spricht sich deutlich für den Abbau von Mischfinanzierungen aus, die vor allem die gemeinschaftliche institutionelle Förderung betreffen. So wird argumentiert, diese Finanzierung führe zu einer gegenseitigen Blockade von Bund und Ländern, es komme zu Unklarheiten in der Prioritätensetzung der Vorhaben und andere Formen der Förderung seien effektiv diskriminiert.

- *Nationale Rahmenbedingungen – Regionale Ausgestaltung und Implementierung*

Für einige nationale Programme, und zwar insbesondere solche, die auf Diffusion, auf die Bildung von KMU Netzwerken und auf die Stärkung der Innovationsfähigkeit von KMUs abzielen, empfiehlt sich eine Teilregionalisierung bei welcher von Bundesseite grobe Rahmenbedingungen formuliert werden, die konkrete Ausgestaltung und Implementierung jedoch bei den Ländern liegt. Dies bietet sich insbesondere deswegen an, da solche Programme auf regionaler Ebene nahezu überall existieren, diese könnten eine entsprechende Verstärkung und Fokussierung erfahren.

⁵ Bundesministerium für Bildung und Forschung, Zur technologischen Leistungsfähigkeit Deutschlands, zusammenfassender Endbericht 1998, Bonn 1999.

Nationale Rahmenbedingungen: UK SMART

UK SMART ist ein nationales Programm, welches auf regionaler Ebene nach nationalen Richtlinien implementiert wird. Damit soll die Gleichbehandlung von Projekten verschiedener regionaler Herkunft gewährleistet werden. Das Programmbudget wird unter den Regionen auf der Basis verschiedener regionaler Performace Indikatoren wie Bevölkerung, BIP, wirtschaftliche Entwicklung, industrielle Prägung usw. aufgeteilt. Die Implementierung auf regionaler Ebene soll die Abwicklung vereinfachen, aber auch regionale und lokale Mitbestimmung bei der Förderentscheidung ermöglichen. Weiterhin gibt es einen ständigen Austausch zwischen nationaler und regionaler Regierung über Ziele und Implementierung des Programms. Vertreter der nationalen Büros fahren zu diesem Zweck in die Regionen, um die Bedeutung Londons etwas zu mindern, Einblicke in die spezifische regionale Situation zu gewinnen und die Diskussion zu erleichtern.

- **Bereitstellen von Best Practice, Hilfe bei der Strategieentwicklung**

Breit angelegte nationale Konzepte, die einen Strategiefindungsprozeß in den Regionen unterstützen – wie beispielsweise RITTS /RIS dies tun – sind aktuell in Österreich nicht der richtige Weg. Dazu ist der Prozeß der Ausgestaltung eigenständiger Innovationspolitik in den Ländern bereits zu weit fortgeschritten. Andere Formen der Bereitstellung von Know-how im Kontext der oben erwähnten Koordinationsforen erscheint allerdings sinnvoll: So können „good example“ Workshops organisiert werden, Strategische Konzeptionen oder auch Evaluierungen ähnlicher Programme gemeinsam in Auftrag gegeben werden, ein Monitoring international ähnlicher Programme eingerichtet werden. Ein weiteres Element kann auch eine engeren operativen Zusammenarbeit auf der Ebene der Fonds sein: Die nationalen Fonds haben gerade dort wo es um spezifische technische Fragestellungen und Projekte geht die weit besseren Prüf- und Kontrollmöglichkeiten. Eine Zusammenarbeit zwischen regionaler und nationaler Ebene kann hier auch – in einer Art technischen Hilfe – sinnvoll sein.

Bereitstellen von Best Practice: Schweden

Sehr umfassende Aufgaben in diesem Bereich nimmt NUTEK in Schweden wahr. Insgesamt zeigt sich in Schweden eine immer stärker werdende regionale Komponente bei Design und Implementierung von FTEI Politik – ein Trend, der sich auch in anderen Politikbereichen wie Regionalpolitik widerspiegelt Vor diesem Hintergrund wurde erkannt, daß die Bereitstellung von Best Practice und Benchmarking sinnvoll auf nationaler Ebene angesiedelt ist. Aktuell gibt es entsprechende Überlegungen bei NUTEK, zumindest für einige Bereiche neue Modelle mit stärker regional basierten Initiativen und zentral bereitgestellten Unterstützungsleistungen einzuführen. Mit entsprechender Erfahrung, Überblick und internationalen Kontakten kann die nationale Organisation den Regionen helfen und sie davor bewahren, das Rad neu zu erfinden.

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