



RTD/Innovation Policies in Objective 2 Programmes

IQ-Net Thematic Paper 1(2)

Sandra Taylor

***IQ-Net
Improving the Quality of Structural Fund
Programming through Exchange of
Experience***

European Policies Research Centre

University of Strathclyde

Graham Hills Building

40 George Street

Glasgow G1 1QE

Tel: +44-141-548 3339/3955

Fax: +44-141-548 4898

E-mail: j.f.bachtler@strath.ac.uk

sandra.taylor@strath.ac.uk

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Preface

IQ-NET: Networking to improve the quality of Objective 2 programmes

Launched in early 1996 and managed by the *European Policies Research Centre* (EPRC) at the University of Strathclyde in Glasgow, the network *IQ-NET* facilitates exchange of experience in the development, implementation and evaluation of Objective 2 programmes. Funded by a consortium of 13 Objective 2 areas and the European Commission (DG XVI), the network meets twice a year to examine issues of practical relevance to programme-makers and share examples of good, innovative and distinctive practice from across the EU. The first two meetings were held in Glasgow, in association with Strathclyde European Partnership (February 1996), and in Cardiff, hosted by the Welsh Office and Welsh Development Agency (September 1996). Meetings provide the opportunity to discuss the results of a structured programme of applied research and debate, steered by the network's partner regions:

- Steiermark and Niederösterreich, Austria
- Nordjylland, Denmark
- Päijät-Häme and South Karelia, Finland
- Aquitaine and Rhône Alpes, France
- Nordrhein Westfalen and Saarland, Germany
- Ångermanlandskusten and Fyrstad, Sweden
- Industrial South Wales and Western Scotland, UK

IQ-NET Thematic Papers

This document contains the first series of thematic papers produced by EPRC in autumn 1996 as part of *IQ-NET*'s applied research programme:

- Series 1, No 1: Managing the Structural Funds.
- Series 1, No 2: RTD/Innovation policies in Objective 2 programmes.
- Series 1, No 3: Generating Good Projects.
- Series 1, No 4: Monitoring and Evaluation.

Focusing on topics selected by the network's partner regions, each paper places issues in their international context, raises questions for debate and highlights distinctive and innovative practices. For the convenience of readers, executive summaries are included in French, German and English.

Papers are first drafted on the basis of field research (encompassing interviews with Objective 2 programme managers and partners at regional, Member State and Commission levels) and substantial desk research. They are then modified to reflect the discussions of the *IQ-NET* meeting and the comments of network sponsors. The papers are distributed to a wide group of people nominated by the sponsors. The EPRC welcomes comment and feedback on them.

Readers are reminded that the content of the papers does not necessarily represent the official position of either the partner regions or the Commission, and that errors of fact or interpretation are the responsibility of the authors alone.

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John Bachtler
Ross Brown
Ruth Downes
Christelle Promé

Rona Fitzgerald
Henrik Halkier
Conor Kearney
Sandra Taylor

Geraldine McBride
Rona Michie
Patricia Noble
Douglas Yuill

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Further Information

Additional copies of the papers and further information on *IQ-NET* can be obtained from John Bachtler and Sandra Taylor, managers of the network, at the EPRC. The December 1996 and edition of '*IQ-NET Bulletin*', a newsletter co-financed by DG XVI and available from EPRC, contains synopses of the papers.

RTD/Innovation Policies in Objective 2 Programmes

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Executive Summaries

RTD/Innovation Policies in Objective 2 Programmes

*Les Mesures de RTD et d'Innovation dans les
Programmes d'Objectif 2*

FTE/Innovationspolitik in Ziel 2 Programmen

1. RTD/INNOVATION POLICIES IN OBJECTIVE 2 PROGRAMMES

1.1 Introduction

Raising the technology and innovation levels of Europe's old industrial regions may be the key to their sustainable conversion, helping to replace current vicious circles of decline with virtuous circles of self-perpetuating development. Without action on this front, the economic disparity between these regions and Europe's most dynamic 'islands of innovation' can only continue to increase. For this reason, Research and Technological Development (RTD) and innovation are forming an increasingly prominent part of programmes supported by the Structural Funds.

Promoting RTD and innovation promises great rewards, but the policy field at the same time presents formidable challenges. This paper explores some of the problems faced by Objective 2 programme-makers in both developing and implementing successful RTD/innovation policies and goes on to consider some of the ways in which these problems have been addressed. To set the context, RTD policy types in current Objective 2 programmes are first summarised.

1.2 RTD/Innovation in current Objective 2 Strategies

RTD/innovation appears in nine tenths of current Objective 2 strategies, accounting for c.14 percent of the total annual Structural Funds allocation. Regions involved usually propose a range of complementary policy initiatives which the paper describes in more detail, and which include :

- Infrastructure, such as advanced research and teaching facilities and technology or science parks.
- Technology advice and consultancy support services.
- Human resource development, including training SME employees in new technologies, tailoring courses to better suit commercial requirements and introducing graduates into firms.
- Enabling the wider exploitation of existing environmental technologies and/or the development of new eco-friendly products and processes.
- Network building between firms and a variety of research facilities.
- Raising awareness about RTD opportunities and encouraging greater participation by SMEs in national and international RTD projects.

1.3 The Challenge of effective Policy Development and Implementation

RTD/innovation is arguably the 'most difficult policy field anywhere in any region'. Relevant RTD policies may be included in SPDs/OPs, but there are frequently insufficient good-quality applications relative to resources, leading to underspend and pressure to vire funds into other fields. The difficulties stem from the complexity of the field: innovation is not *linear*, but instead involves iterative interaction between support providers, recipients, policy organisations and the market. This means that support needs to enable focused

interactions among a large number and range of actors. Many Objective 2 areas face special difficulties in achieving this for the following reasons:

- Firms are followers not leaders. They lack a culture of innovation and the *resources* to innovate in-house or to investigate external opportunities.
- Political and business communities may lack dynamism and self-belief.
- Few firms have collaborated on innovation projects, and their structure or outlook may limit their ability to do so.
- Technology agencies struggle to engage with firms on the required one-to-one basis, as this is resource-intensive and demands multi-skilled advisors.
- Old industrial areas are often unattractive to ‘footloose’ firms with RTD facilities.
- Universities avoid collaboration with small, backward firms, and their capacity for collaboration is limited by their need to fulfil their own core functions.
- Objective 2 programmes are short and their resources are limited, especially compared with allocations to RTD ‘excellence’ programmes.

At the same time, Objective 2 areas are better placed to develop their technology and innovation levels than many lagging rural and remote regions, benefiting perhaps from university research facilities, existing competitive high-tech clusters or proximity to one of the European islands of innovation.

1.4 The Implications of ‘Objective 2 Characteristics’ for Policy

Given the complexities of developing RTD policies for Objective 2 areas, two main principles emerge. First, it is imperative to have a detailed understanding of the current regional situation in order to determine what policies might be most appropriate and for whom. A region-specific analysis enables current innovation and technology levels to be assessed in the various sub-groups of potential beneficiaries and gaps to be identified in the policy and infrastructure framework.

The second principle is the need to pitch policies appropriately. On the one hand, there may be a need for ambitious ‘excellence oriented’ policies shaped for firms which already have a good technical level and strong innovation record. There may also be a need for others which ‘prepare the ground’ in firms working from a lower base, meeting them where they stand and accompanying them towards a more innovation-oriented culture. Further policies may be required for firms which, whilst open to raising their technology levels, may benefit most from simple application of ‘off-the-shelf’ technologies. Given the complexity involved in setting up some RTD projects, further policies might be valuable which co-finance not only the implementation of mature projects but also the development of operating concepts and feasibility studies for projects in their formative stages.

One way to ensure the appropriateness and continuity of RTD policies is to develop regional innovation or technology strategies which are broader and longer term than the SPD/OP timescales allow. Among the most prominent

are those encouraged by the EC under Article 10 of the ERDF, including that now in place in Wales. Possible benefits of these strategies are as follows.

- The EC facilitates strategy development through its financial contribution and specialised advice.
- The task is given momentum by working to a timetable and is strengthened by the application of a tried and tested methodology.
- The final strategy is the fruit of combined regional expertise, is region-specific and has the commitment of the key regional actors. This ensures policies are appropriate and that there is commitment to implementing them.
- The strategy provides a robust framework from which many other relevant initiatives benefit - eg. Objective 2, Community Initiatives and non-EU related action. Duplication of effort is reduced and coherence increased.
- Regions become associated with a positive, co-ordinated approach to RTD/innovation which enhances their prestige and credibility. This same process improves the self-image of regional actors.

Even without a *formal* strategy, however, a region can still benefit from undertaking detailed regional analysis and consultation on its technology capacity and requirements.

1.5 The Challenge of Objective 2 Characteristics for Implementation

Some Objective 2 RTD/innovation policies may be straightforward to implement such as infrastructure or co-financing of existing national or regional RTD schemes. Other policies, such as those addressing less responsive firms or promoting networking, tend to be more difficult. The next sections summarise some of the problems highlighted and recount how various Objective 2 programmes have addressed them. Among the key questions are:

- how programme management approaches can enhance implementation,
- how project selection can best be managed,
- how opportunities can be built on,
- how the participation of SMEs can be assured, and
- how networking can be promoted.

1.5.1 *Enhancing Implementation through effective Programme Management*

To implement Objective 2 RTD/innovation elements successfully in just three years requires a pro-active approach to monitoring project applications and progress in implementing approved projects.

The critical monitoring of project applications enables under-performance (in the form of too few or low quality proposals) to be noted in good time and the reasons identified. Measures may under-perform for many reasons, some of which will demand action, such as lack of awareness of RTD-related measures or a mismatch between policies and needs. If problems are identified, the *Technical Assistance budget* can be used both to investigate the reasons for them and to enable remedial action to be taken. Involving *specialists* in the appraisal of relevant project applications - as with the Scottish advisory committees - can also help in the interpretation of patterns. Monitoring project

implementation also helps programme managers to identify opportunities for additional, support initiatives which might help to maximise the impact of projects eg. training in the use of new equipment installed.

1.5.2 *Managing Project Selection*

The first project selection lesson is that identifying some of the missing pieces in the existing policy and infrastructure framework can be invaluable, because it enables those projects to be prioritised which are most likely to make the most difference. This insight was generated in North East England through a series of focused discussion sessions involving a wide range of relevant partners. Where it is clear which types of project will contribute most to achieving the programme's core objectives, programme managers can benefit from adhering strictly to this strategic direction, even if fewer applications are forthcoming than was hoped. In so doing, they send out a clear message to potential applicants which may improve the quality and relevance of future projects.

A second, related lesson is that projects should not only be assessed in relation to *overall* strategic aims, but also their specific context. An automation project which would add little to an advanced firm, for example, may represent a significant and ambitious development for a less dynamic one. Single policies can be applied flexibly to take this into account, as in North Jutland.

A final interesting example of approaches to managing project selection is in Strathclyde, where a 'catch-all' policy has been included in the new SPD. The policy aims to ensure that RTD projects which do not fit easily into the main measure descriptions, but may nonetheless be of great value, still come forward for consideration. The applications generated will still be assessed like other projects, on their merits and the degree to which they contribute to the overall objectives.

1.5.3 *Building on existing Opportunities*

Objective 2 programmes can contribute to a self-sustaining 'critical mass' in a given sector or specialism by prioritising projects which *build on existing assets*, such as clusters of specialised firms. In North East England, 'centres of excellence' are being established in three local universities, each building on distinctive and successful aspects of the local company base.

Challenging preconceptions can be advantageous. Rather than assuming the demise of declining sectors is inevitable, for example, investigations can seek ways to resuscitate them. In Scotland, the steep decline in the Ayrshire lace industry has inspired a study identifying why this sector has continued to flourish in Northern Italy.

1.5.4 *Securing the active Participation of SMEs*

The technological level and innovation rate of lagging small firms often needs to be raised, but these are precisely the firms which are least receptive to relevant support. They may see no need for assistance, may be deterred by its expense or may not feel able to identify appropriate sources. At the same time, relevant support agencies have difficulty in forging direct links to engage

firms in a dialogue about technology. This is resource-intensive and requires uniquely skilled personnel - able to see a business in overall terms, but also bringing a thorough understanding of technology and RTD policy.

To increase manpower, Rhône Alpes has trained highly qualified unemployed people in business counselling. They visit firms and identify development opportunities - often involving technology - which other skilled unemployed people then pursue. The region has also addressed the deficit of skilled advisors through the network "Présence Alpes", which co-ordinates the activities of the region's RTD and innovation promotion organisations, and provides continuing professional development for their advisors.

1.5.5 *Promoting Networking*

In Objective 2 areas, the networks enabling universities and the regional business sector to co-operate effectively frequently do not exist. The impetus for such networks is limited when small businesses feel universities have nothing to offer them, and universities likewise focus their co-operation efforts elsewhere. In this context, Objective 2 programmes can usefully prioritise network building initiatives.

Among the approaches explored by the paper are those in which intermediary agencies or 'brokers' are set up, linking firms and RTD service providers. The 'one door approach' and accessible fee rates of one such agency in Limburg encourage firms to seek support they might otherwise not have considered. Other cases include outreach efforts by universities. Sunderland University in North East England was funded to diagnose small firms' information technology (IT) needs and help them choose solutions. This provided SMEs with valuable non-supplier dependent advice and at the same time changed their preconceptions about what universities can do for business.

An initiative drawing together a wider range of actors are the *interest groups* being established in Nordrhein Westfalen to promote networking and technology transfer. The groups unite a wide range of organisations in a given field to exchange information on recent developments through workshops, bulletins, etc, and to launch joint projects.

Training is a further route to network building. In North Jutland, graduates are placed into SMEs to work on specific technology projects, and in so doing increase the likelihood of the firm seeking further technology support. In other cases, employees from *within* firms undergo advanced training which not only enhances their skills but also forges a direct and personal link between the training establishment and the company.

1.6 **Conclusion**

Given the difficulties in developing and implementing RTD policies in Objective 2 areas, three overall principles appear imperative: that policy responses should be tailored carefully to specific needs and opportunities, that they should engage wide grass roots commitment and participation and that they should be implemented pro-actively. The challenge is to translate these principles into practice. This paper provides a starting point for addressing that challenge.

2. LES MESURES DE RTD ET D'INNOVATION DANS LES PROGRAMMES D'OBJECTIF 2

2.1 Introduction

Améliorer le niveau technologique et le degré d'innovation des vieilles régions industrielles d'Europe est peut-être la clé de leurs conversions à long terme parce que cela favoriserait le remplacement des actuels cercles vicieux du déclin par des cycles de développement perpétuel. Sans intervention sur ce front, la disparité économique entre ces régions et les "îlots d'innovation" les plus dynamiques d'Europe ne peut que continuer à s'amplifier. C'est la raison pour laquelle les mesures relatives à la Recherche et Développement Technologique (RDT) et à l'innovation forment une part importante et croissante des programmes supportés par les Fonds Structurels.

Promouvoir la RDT et de l'innovation promet une grande satisfaction, mais cette politique sectorielle présente en même temps d'énormes défis. Cet article expose d'abord certains problèmes auxquels sont confrontés les responsables des programmes à la fois au niveau de la *formulation* des mesures de RDT et d'innovation et au niveau de leurs *mises en oeuvre*. Il considère ensuite certaines solutions adoptées face à ces problèmes. Toutefois afin de situer le contexte, les différents types de mesures de RTD rencontrés dans les programmes en cours d'Objectif 2 sont d'abord résumés.

2.2 RDT et Innovation dans les Programmes en cours d'Objectif 2.

Les thèmes de la RDT et de l'innovation sont présents dans neuf stratégies d'Objectif 2 sur dix, représentant quelques 14 pour cent du budget annuel total des Fonds Structurels. Les régions concernées offrent, en général, une série de mesures complémentaires qui couvre:

- les infrastructures telles que des équipements de pointe pour la recherche et l'enseignement ou des parcs technologiques et scientifiques;
- les services d'aides au conseil en matière technologique;
- le développement des ressources humaines, y compris la formation aux technologies nouvelles des employés de PME, l'adaptation des formations aux besoins industriels et le placement des jeunes diplômés en entreprise;
- l'exploitation plus large des techniques de protection de l'environnement et/ou le développement de nouveaux produits ou processus "verts";
- le développement de réseaux de collaboration entre entreprises et un ensemble des centres de recherche;
- l'amélioration de la sensibilisation des entreprises aux opportunités qu'offre la RDT et encourager les PME à participer plus largement aux projets nationaux et internationaux de RDT.

2.3 Le défi de la Formulation et de la Mise en Oeuvre de Politiques effectives

Les mesures relatives à la RDT et à l'innovation sont certainement 'les mesures qui présentent le plus de difficultés pour les régions'. Des mesures de RDT peuvent être inscrites dans les DOCUP ou les Programmes Opérationnels, mais fréquemment trop peu de bons projets sont déposés pour le niveau de ressources disponibles. Il en résulte des sous-consommations de crédits qui forment le prétexte pour virer les fonds sur d'autres mesures. Les

difficultés proviennent de la complexité de ce domaine: l'innovation n'est pas *linéaire* mais, au contraire, implique des interactions fréquentes entre les prestataires, les bénéficiaires, les organisations en charge des politiques de RDT et le marché en général. L'assistance apportée doit permettre des interactions convergentes entre de nombreux intervenants. Beaucoup de zones d'Objectif 2 font face à des difficultés particulières pour arriver à cela et ce pour les raisons suivantes:

- les entreprises ne sont pas des leaders de premier rang dans ce domaine. Il leur manque une "culture d'innovation" et les ressources nécessaires pour innover elles-mêmes ou pour rechercher des opportunités de développement extérieures;
- le cadre politique et des entreprises peut manquer de dynamisme et de confiance en lui;
- peu d'entreprises ont collaboré à des projets d'innovation et leurs structures ou leurs conceptions peuvent limiter leur capacité à collaborer;
- les organisations chargées de la recherche technologique ont du mal à s'engager avec les entreprises sur une base individuelle parce que cela demande une mobilisation de ressources importante et des conseillers à compétences multiples;
- les vieilles régions industrielles ne sont pas souvent attrayantes pour les entreprises "libres de toute attache" ayant des équipements de RDT;
- les universités évitent de collaborer avec des petites entreprises arriérées; de plus leur capacité à collaborer est limitée par le besoin de remplir leur propre fonction première;
- les programmes d'Objectif 2 sont très courts et leurs ressources sont limitées tout particulièrement si elles sont comparées aux ressources allouées aux programmes de RDT de pointe.

Parallèlement, les zones d'Objectif 2 sont mieux placées, pour améliorer leurs niveaux technologiques et leurs degrés d'innovation, que beaucoup de régions isolées en retard de développement. Elles bénéficient des facilités de recherche universitaires, de l'existence de groupes de haute technologie compétitifs ou encore de la proximité d'un des îlots européens d'innovation.

2.4 Les Implications de ce Profil de l'Objectif 2 pour la RDT

Etant donnée la complexité qui existe à développer les politiques de RDT dans les zones d'Objectif 2, deux principes clés émergent. Premièrement, il est impératif d'avoir une compréhension approfondie de la situation régionale actuelle afin de pouvoir déterminer quelles mesures seraient les plus appropriées, et pour quel public. Une analyse spécifique à chaque région permet d'évaluer, dans les divers sous-groupes de bénéficiaires potentiels, le niveau technologique et le degré d'innovation actuels. Une telle analyse permet également d'identifier les lacunes dans la politique menée et les manques au niveau infrastructurel.

Le deuxième principe est le besoin d'adapter les mesures de façon appropriée. D'un côté il se peut que les entreprises qui ont déjà un bon niveau technologique et une forte expérience de l'innovation aient besoin de politiques de pointe adaptées. Par ailleurs, des entreprises, ayant un niveau technologique et un degré d'innovation plus restreints, peuvent avoir besoin de

mesures qui “préparent le terrain”, qui soient adaptées à leurs niveaux et qui leur permettent d’avancer sur le chemin de l’innovation. D’autres mesures peuvent être requises pour des entreprises qui, bien que prêtes à améliorer leur niveau technologique, bénéficieraient tout autant d’une simple application de technologies courantes. Etant donnée la difficulté rencontrée au stade de la conceptualisation de certains projets de RDT, d’autres mesures co-finançant non seulement la mise en oeuvre de projets “mûrs” mais également le développement de concepts d’exploitation et des études de faisabilité pour des projets au stade de leurs conceptualisations, peuvent se révéler indispensables.

Une façon d’assurer que les mesures de RDT sont adéquates et continues est de développer des stratégies régionales de développement technologique et d’innovation qui soient vastes et conçues à plus long terme que ne le permet la durée du DOCUP ou du Programme Opérationnel. Les stratégies encouragées par la Communauté européenne sous l’Article 10 du FEDER telle celle mise en place à l’heure actuelle au Pays de Galles, figurent parmi les plus importantes. Les bénéfices potentiels de ces stratégies sont les suivants:

- la Communauté Européenne facilite le développement de stratégies à travers sa contribution financière et conseils spécialisés;
- le développement de ces stratégies est dynamisé par un programme de travail à suivre et est renforcée par la mise en place d’une méthodologie testée;
- la stratégie finale est le fruit de la combinaison de l’expertise régionale. Elle est spécifique à la région et bénéficie de l’engagement des acteurs clés de la région. Cela permet aux mesures d’être vraiment appropriées et il en résulte un véritable engagement à les mettre en oeuvre;
- la stratégie fournit un cadre solide dont d’autres initiatives bénéficient: par exemple l’Objectif 2, les Initiatives Communautaires et les actions non liées à l’Union Européenne. La reproduction des mêmes efforts est limitée et la cohérence améliorée;
- les régions sont associées à une approche positive et coordonnée de la RDT et de l’innovation ce qui améliore leur prestige et leur crédibilité. Ceci améliore, à son tour, l’image des acteurs régionaux.

Même sans une stratégie officielle, une région bénéficie toujours de la mise en place d’une analyse régionale détaillée et de conseils sur ses capacités et besoins en matière de technologie.

2.5 Le Défi des Caractéristiques de l’Objectif 2 pour la Mise en Oeuvre des Mesures

Certaines mesures relatives à la RDT et à l’innovation dans les programmes d’Objectif 2 se révèlent simples à mettre en oeuvre comme par exemple celles relatives aux infrastructures ou celles liées au cofinancement des politiques de RDT existantes au plan national ou régional.

D’autres politiques, telles que celles adressées à des entreprises peu dynamiques ou celles faisant la promotion du développement de réseaux de

collaboration ont tendance à se révéler plus difficiles. Les paragraphes suivants résument quelques uns des problèmes rencontrés et indiquent les solutions apportées par divers programmes d'Objectif 2 pour y remédier. Parmi les questions principales se distinguent celles relatives à la façon dont:

- les approches retenues pour l'administration du programme peuvent influencer la mise en oeuvre de ce programme;
- la sélection des projets peut être mieux gérée;
- les opportunités de développement existantes peuvent être développées;
- la participation des PME peut être garantie; et
- les réseaux de collaboration peuvent être promus.

2.5.1 *Améliorer la Mise en Oeuvre à travers une Administration efficace du Programme*

Afin que les éléments de RDT et d'innovation dans les zones d'Objectif 2 soient mis en oeuvre avec succès, en trois ans, une approche proactive pour le suivi des candidatures et les progrès de la mise en oeuvre des projets approuvés est nécessaire.

Le suivi des projets, tâche essentielle, permet de déceler, à temps voulu, des contre-performances (sous la forme d'un manque de candidatures ou d'une trop pauvre qualité des dossiers) et d'en identifier les raisons. Les mesures peuvent ne pas rencontrer le succès espéré pour des raisons diverses. Certaines exigent une intervention, comme c'est le cas d'une trop faible sensibilisation aux mesures liées à la RDT ou d'une disparité entre les mesures et les besoins. Lorsque les problèmes sont identifiés, le *budget de l'Assistance Technique* peut être utilisé pour, à la fois, rechercher les raisons à ces problèmes et pour y remédier. Impliquer des *spécialistes* dans la phase d'appréciation des projets - comme c'est le cas dans les comités consultatifs écossais - permet également d'interpréter les tendances qui se dessinent dans les candidatures. Le suivi de la mise en oeuvre des projets peut également permettre aux responsables des programmes d'identifier d'autres projets potentiels qui pourraient favoriser la maximalisation de l'impact des projets déjà financés, comme par exemple la formation à de nouveaux équipements installés.

2.5.2 *Gérer la Sélection des Projets*

La première leçon à tirer de la sélection des projets est qu'il est primordial d'identifier les lacunes existantes aux niveaux des mesures existantes et des infrastructures afin de pouvoir donner la priorité aux projets qui sont les plus à même de faire une différence à ces niveaux. Cette idée fut générée dans le Nord Est de l'Angleterre à travers une série de discussions à laquelle participait un grand nombre des partenaires concernés. Lorsque les types de projets qui contribuent le plus à l'achèvement des objectifs clés du programme sont clairement identifiés et définis, les responsables du programme ne peuvent que tirer des bénéfices à adhérer à cette direction stratégique, et ce, même si moins de candidatures qu'il n'en était espéré sont posées. Ce faisant, ils délivrent un message clair aux candidats potentiels qui peut permettre l'amélioration de la qualité et de la pertinence des projets à venir.

Une deuxième leçon, liée à la première, est que les projets ne devraient pas être évalués seulement par rapport à des buts stratégiques généraux mais

également par rapport à leurs contextes spécifiques. Un projet d'automatisation qui n'apporterait que très peu à une entreprise technologiquement avancée peut, par exemple, représenter un développement ambitieux et significatif pour une entreprise moins dynamique. Une mesure peut être appliquée avec flexibilité afin de prendre ceci en considération, comme ce fût le cas dans le Jylland du Nord (Danemark).

Un dernier exemple intéressant se trouve en Strathclyde où une mesure "fourre-tout" a été inscrite au nouveau DOCUP. Cette mesure a pour but de garantir que des projets de RDT qui ne correspondraient pas exactement à la description de la mesure, mais qui se révéleraient néanmoins prometteurs, puissent être considérés. Les candidatures générées sont évaluées comme tout autre projet, sur leurs mérites et le degré auquel elles contribuent aux objectifs généraux du programme.

2.5.3 Développer les Opportunités existantes

Les programmes d'Objectif 2 peuvent contribuer à l'émergence d'un pôle indépendant dans un secteur ou une spécialité donnée, tels que des groupes d'entreprises spécialisées, en privilégiant des projets qui se fondent sur des atouts existants. Dans le Nord Est de l'Angleterre, des "Centres d'Excellence" sont mis en place dans trois universités locales, chacune se fondant sur des atouts distincts du tissu local d'entreprises.

Remettre en cause des idées reçues peut se révéler bénéfique. Plutôt que d'assumer par exemple que la disparition de secteurs en déclin est inévitable, des études peuvent rechercher les moyens de les ressusciter. En Ecosse, le fort déclin de l'industrie de la dentelle a inspiré une étude qui a permis d'identifier pourquoi ce secteur a continué de prospérer en Italie du Nord.

2.5.4 Assurer la Participation active des PME

Le niveau technologique et le degré d'innovation des petites entreprises en retard de développement ont souvent besoin d'être redressés mais ces entreprises sont celles qui sont le moins réceptive aux aides. Il se peut qu'elles ne perçoivent pas le besoin d'aides, qu'elles soient dissuadées par les coûts ou qu'elles ne se sentent pas capables d'identifier des sources d'assistance appropriées. En même temps, les organisations qui offrent une aide font face à des difficultés pour forger des liens directs avec les entreprises afin de les engager dans un dialogue sur la technologie. Cela demande une grande concentration de moyens et un personnel exceptionnellement qualifié qui soit capable d'avoir une conception globale de l'entreprise mais également capable d'apporter une connaissance approfondie des technologies et des politiques de RDT existantes.

Pour améliorer leurs niveaux, Rhône-Alpes a formé des personnes au chômage diplômées de haut niveau au conseil aux entreprises. Ces personnes rendent visite aux entreprises et identifient d'éventuelles opportunités de développement - qui souvent impliquent un aspect technologique. Une fois identifiées, ces opportunités sont ensuite prises en main par d'autres personnes qualifiées au chômage capables de les développer. La région s'est également attaquée au problème du déficit en conseillers qualifiés à travers le réseau "Présence Alpes" qui coordonne les activités des organisations chargée de la

RDT et de la promotion de l'innovation de la région et propose un programme de formation professionnelle continue aux conseillers.

2.5.5 *Promouvoir le Développement de Réseaux de Collaboration*

Dans les zones d'Objectif 2, il est fréquent que les réseaux de collaboration permettant aux universités et au secteur des entreprises régionales de coopérer efficacement n'existent pas. La génération de tels réseaux est limitée lorsque les petites entreprises pensent que les universités ont peu à leur offrir et que les universités, de leur côté, concentrent leurs efforts de coopération ailleurs. Dans ce contexte, les programmes d'Objectif 2 peuvent utilement donner la priorité aux initiatives de développement de réseaux de collaboration.

Lier les entreprises et les prestataires de services de RDT par des organisations intermédiaires ou "médiateur" est une des approches étudiées dans cet exposé. L'approche du "guichet unique" et de coûts modérés d'une de ces organisations, en Limbourg, encourage les entreprises à rechercher une aide qu'elles ne considèreraient pas autrement. D'autres exemples comprennent les efforts que font les universités. L'université de Sunderland dans le Nord Est de l'Angleterre a reçu des financements pour identifier les besoins en informatique de petites entreprises et les aider à choisir des solutions. Cela a permis aux PME de recevoir un conseil inestimable de la part d'un conseiller indépendant des fournisseurs et des prestataires de services et par le même occasion a changé leurs conceptions sur ce que les universités peuvent faire pour les entreprises.

Une initiative qui a regroupé un large éventail d'intervenants est les *groupes d'intérêt* qui ont été établis en Rhénanie du Nord pour promouvoir la mise en réseaux et les transferts de technologie. Les groupes réunissent un large éventail d'organisations dans un domaine donné afin d'échanger des informations sur les développements récents (grâce à des ateliers, des bulletins, etc) et de lancer des projets communs.

La formation est un autre moyen pour développer des réseaux. En Jylland du Nord, des diplômés sont placés dans des PME pour travailler sur des projets technologiques particuliers et ce faisant augmentent la probabilité des entreprises à rechercher d'autres formes d'aides dans le domaine technologique. Dans d'autres cas, les employés des entreprises poursuivent des formations poussées qui, non seulement améliorent leurs formations, mais forgent également un lien direct et personnel entre l'établissement dispensant la formation et l'entreprise.

2.6 **Conclusion**

Etant donné les difficultés qui existent à développer et à mettre en oeuvre les mesures de RDT dans les zones d'Objectif 2, trois principes généraux se révèlent impératifs: les réponses des mesures doivent être conçues avec une attention particulière portée aux besoins et opportunités individuelles, elles doivent assurer le soutien et la participation de tous et elles doivent être mises en oeuvre de façon proactive. La difficulté est de traduire ces principes en pratique. Cet exposé fournit un point de départ pour relever le défi.

3. FTE/INNOVATIONSPOLITIK IN ZIEL 2 PROGRAMMEN

3.1 Einführung

Eine Anhebung des Technologie- und Innovationsniveaus in Europas altindustriellen Regionen könnte der Schlüssel zu ihrer dauerhaften Umstellung sein, wobei die derzeitige unaufhaltbare Abwärtsspirale durch eine positive Aufwärtskurve perpetuierender Entwicklung ersetzt werden könnte. Ohne eine derartige Aktion kann sich die wirtschaftliche Disparität zwischen diesen Regionen und Europas dynamischsten Innovationsinseln nur weiter vergrößern. Daher stehen Forschung und Technologische Entwicklung (FTE) und Innovation immer mehr im Vordergrund der von den Strukturfonds unterstützten Programme.

Die Förderung von FTE und Innovation ist recht vielversprechend, doch bringt das politische Feld gleichzeitig schwere Herausforderungen. Diese Arbeit erforscht einige der Probleme, denen Programmpolitiker für Ziel 2 sowohl bezüglich der *Entwicklung* als auch der *Umsetzung* erfolgreicher FTE/Innovationspolitik gegenüberstehen, und betrachtet darüber hinaus einige der Methoden, wie diese Probleme angegangen wurden. Zur Erklärung des Kontexts werden zunächst verschiedene Arten der FTE-Politik in derzeitigen Ziel-2-Programmen zusammengefaßt.

3.2 FTE/Innovation in derzeitiger Ziel-2-Strategie

FTE/Innovation erscheinen in neun Zehntel der derzeitigen Ziel-2-Strategien, und macht etwa 14 Prozent der gesamten Jahreszuweisung der Strukturfonds aus. Die dabei betroffenen Regionen schlagen gewöhnlich eine Reihe ergänzender politischer Initiativen vor, die hier ausführlicher beschrieben werden. Dazu gehören:

- Infrastruktur, wie fortschrittliche Forschungs- und Lehrinrichtungen und Technologie- oder Science Parks
- Hilfsdienste für technologische und Unternehmensberatung
- Entwicklung von Humanressourcen, u.a. Ausbildung von KMU-Angestellten in neuer Technologie, Abstimmung von Kursen auf kommerzielle Erfordernisse und Einführung von Universitätsabsolventen in Betrieben.
- Ermöglichung einer größeren Nutzung vorhandener Umwelttechnologien und/oder die Entwicklung neuer umweltfreundlicher Produkte und Verfahren.
- Schaffung eines Verbindungsnetzes zwischen Unternehmen und verschiedenen Forschungseinrichtungen.
- Schärfung des Bewußtseins über FTE-Möglichkeiten und Förderung größerer Beteiligung von KMU an nationalen und internationalen FTE-Projekten.

3.3 Die Herausforderung effektiver maßnahmepolitischer Entwicklung und Umsetzung

FTE/Innovation dürfte wohl ‘in jeder Region das schwierigste politische Gebiet überhaupt’ sein. Relevante FTE-Politik kann in DPP/EPPD¹ enthalten sein, doch häufig gibt es im Vergleich zu den Ressourcen zu wenig qualitativ gute Anträge, so daß nicht genügend Ausgaben getätigt werden und darauf gedrängt wird, Mittel in andere Gebiete zu lenken. Die Schwierigkeiten ergeben sich aus der Komplexität des Feldes: Innovation ist nicht *linear*, sondern beinhaltet statt dessen wiederholte Interaktion zwischen den Gewähren und Empfängern der Unterstützung, maßnahmepolitischen Organisationen und dem Markt. Eine Förderung muß sich also auf Interaktionen zwischen einer großen Anzahl verschiedener Teilnehmer konzentrieren können. Viele Gebiete des Ziels 2 haben diesbezüglich besondere Schwierigkeiten, was auf folgende Gründe zurückzuführen ist:

- Betriebe sind eher Mitläufer als Anführer. Es fehlt ihnen an einer Innovationskultur und den notwendigen Ressourcen, um innerbetriebliche Innovationen vorzunehmen oder externe Möglichkeiten zu erforschen.
- Politischen und wirtschaftlichen Gemeinden fehlt oft die Dynamik und das nötige Selbstvertrauen.
- Wenige Unternehmen arbeiten an Innovationsprojekten zusammen, und ihre Struktur oder ihre Einstellung beschränken eventuell ihre diesbezügliche Fähigkeit.
- Technologische Dienststellen können sich oft nur schlecht einzeln um Unternehmen kümmern, da dies mittellintensiv ist und sehr vielseitige Berater benötigt.
- Altindustrielle Gebiete sind für standortunabhängige Unternehmen mit FTE-Einrichtungen oft wenig attraktiv.
- Universitäten vermeiden Zusammenarbeit mit kleinen, rückständigen Betrieben; außerdem ist ihre Kapazität für Zusammenarbeit durch die Notwendigkeit begrenzt, ihr eigenen Kernfunktionen zu erfüllen.
- Ziel-2-Programme sind kurz und ihre Ressourcen beschränkt, besonders verglichen mit Zuweisungen für FTE "Exzellenz"-Programme.

Gleichzeitig sind Ziel-2-Gebiete besser in der Lage, ihr Technologie- oder Innovationsniveau zu entwickeln als viele rückständige ländliche oder entlegene Regionen, indem sie vielleicht von den Forschungseinrichtungen der Universitäten, von vorhandenen wettbewerbsfähigen hochtechnischen Gruppen oder der Nähe zu einer der europäischen Innovationsinseln profitieren können.

3.4 Die maßnahmepolitischen Implikationen von ‘Ziel-2-Charakteristiken’

Angesichts der Komplexität der Entwicklung einer FTE-Politik für Ziel-2-Gebiete ergeben sich zwei Hauptprinzipien. Erstens ist unbedingt ein genaues Verständnis der derzeitigen regionalen Situation erforderlich, um bestimmen zu können, welche Maßnahmen wohl die geeignetsten sind und für wen. Eine

¹ DPP in Deutschland, EPPD in Österreich.

regionspezifische Analyse ermöglicht die Bewertung der derzeitigen Innovations- und Technologieniveaus in den verschiedenen Untergruppen potentieller Nutznießer und die Identifizierung von Lücken in der Politik und dem infrastrukturellen Rahmen.

Das zweite Prinzip ist die Notwendigkeit einer genauen Abstimmung der Maßnahmen. Auf der einen Seite besteht eventuell ein Bedarf nach ehrgeizigen, auf 'Perfektion ausgerichteten' Maßnahmen für Betriebe, die bereits ein gutes technisches Niveau und erhebliche Innovationsleistungen zeigen. Es können auch andere Maßnahmen notwendig sein, die bei Unternehmen auf einer niedrigeren Basis 'Vorarbeit leisten', sie auf ihrer Stufe treffen und zu einer mehr innovationsorientierten Kultur führen. Weitere Maßnahmen sind eventuell für Betriebe erforderlich, die zwar dazu bereit sind, ihr technologisches Niveau anzuheben, am meisten aber von einer einfachen Anwendung 'einmaliger' Technologien profitieren können. Angesichts der komplizierten Vorbereitung gewisser FTE-Projekte sind eventuell andere Maßnahmen wertvoll, die nicht nur die Umsetzung ausgereifter Projekte sondern auch die Entwicklung von Betriebskonzepten und Machbarkeitsstudien für Projekte in ihrer formativen Phase mitfinanzieren.

Eine Methode, um die Eignung und Kontinuität der FTE-Politik zu gewährleisten, ist die Entwicklung regionaler Innovations- oder Technologiestrategien, die umfassender und langfristiger als die DPP/EPPD Zeitpläne sind. Zu den wichtigsten gehören diejenigen, die durch die EG nach Artikel 10 des EFRE befürwortet werden, wie u.a. die Strategie, die nun in Wales angewandt wird. Die eventuellen Vorteile dieser Strategien sind, wie folgt:

- Die EG erleichtert die Strategieförderung durch ihren finanziellen Beitrag und Sonderberatung.
- Die Aufgabe wird durch einen Zeitplan vorangetrieben und durch die Anwendung einer bewährten und erprobten Methodologie verstärkt.
- Die endgültige Strategie ist das Ergebnis kombinierter regionaler Expertise, sie ist regionspezifisch und beruht auf dem Engagement der wichtigsten regionalen Akteure. Dadurch wird gewährleistet, daß die Maßnahmen geeignet sind und eine Verpflichtung zu ihrer Umsetzung besteht.
- Die Strategie bildet einen robusten Rahmen, von dem andere relevante Initiativen profitieren - z.B. Ziel 2, Gemeinschaftsinitiativen sowie Aktionen außerhalb der EU. Es kommt weniger häufig zu einer Verdoppelung der Anstrengungen, und die Kohärenz wird verstärkt.
- Die Regionen werden mit einem positiven koordinierten Ansatz zu FTE/Innovation vertraut, was ihr Prestige und ihre Glaubwürdigkeit vergrößert. Derselbe Prozeß stärkt auch das Selbstbewußtsein regionaler Akteure.
- Doch selbst ohne *formelle* Strategie kann eine Region von einer ausführlichen regionalen Analyse und Beratung bezüglich seiner technologischen Kapazität und Erfordernisse profitieren.

3.5 Die Herausforderung von Ziel-2-Merkmale für die Umsetzung

Manche FTE/Innovationsmaßnahmen für Ziel 2 sind eventuell einfach umzusetzen, wie Infrastruktur oder Mitfinanzierung bestehender nationaler oder regionaler FTE-Systeme. Andere Maßnahmen, die vielleicht weniger interessierte Unternehmen ansprechen oder Verbindungsnetze fördern, sind im allgemeinen viel schwieriger zu handhaben. Die nächsten Abschnitte fassen einige der Probleme zusammen und zeigen, wie sie durch verschiedene Ziel-2-Programme angegangen wurden. Dabei handelt es sich u.a. um folgende wichtige Fragen:

- wie Ansätze der Programmverwaltung die Umsetzung verstärken können,
- wie Projektauswahl am besten gehandhabt wird,
- wie man auf Gelegenheiten aufbauen kann,
- wie man sich die Teilnahme der KMU sichern kann, und
- wie Verbindungsnetze gefördert werden können.

3.5.1 Verstärkung der Umsetzung durch effektive Programmverwaltung

Um FTE/Innovationselemente für Ziel 2 in nur drei Jahren erfolgreich umzusetzen, bedarf es eines pro-aktiven Ansatzes zur Überwachung von Projektanträgen und Fortschritten bei der Umsetzung gebilligter Projekte.

Durch die kritische Überwachung von Projektanträgen können mangelnde Leistung (durch zu wenige oder qualitativ minderwertige Anträge) rechtzeitig erkannt und die entsprechenden Gründe identifiziert werden. Die mangelnde Effektivität der Maßnahmen kann eine ganze Anzahl von Gründen haben, wobei in einigen Fällen eingeschritten werden muß, wie bei einem Mangel an Informationen über FTE-bezogene Maßnahmen oder mangelnder Übereinstimmung von Maßnahmen und Bedürfnissen. Wenn Probleme identifiziert werden, kann die *Technische Hilfe* dazu verwendet werden, um sowohl die Gründe zu erforschen als auch um Abhilfe zu schaffen. Die Beteiligung von *Spezialisten* an der Bewertung der relevanten Projektanträge - wie bei den schottischen Beratungskomitees (*Advisory Committees*) - kann ebenfalls bei der Interpretation der Muster helfen. Die Überwachung der Projektumsetzung hilft Programmverwaltern auch dabei, Möglichkeiten für zusätzliche Unterstützungsinitiativen zu finden, um eine maximale Wirkung der Projekte zu erzielen, wie z.B. durch Lehrgänge für die Verwendung neu-installierter Anlagen.

3.5.2 Handhabung der Projektauswahl

Die erste Lektion bei der Projektauswahl ist, daß die Identifizierung einiger der fehlenden Stücke in dem vorhandenen Maßnahme- und Infrastrukturrahmen unschätzbar sein kann, da dadurch die Projekte Priorität erhalten können, die am ehestens eine Wirkung erzielen. Zu dieser Erkenntnis kam man in Nordost-England durch eine Reihe gezielter Diskussionssitzungen mit einer ganzen Anzahl verschiedener relevanter Partner. Wenn *feststeht*, welche Projektarten am meisten dazu beitragen, die Kernziele des Programms zu erzielen, kann es Programmverwaltern nur nützen, wenn sie sich streng an diese strategische Richtung halten, selbst wenn dadurch weniger Anträge als erhofft eingehen. Dadurch geben sie potentiellen Antragsteller eine eindeutige

Botschaft, die vielleicht die Qualität und Relevanz zukünftiger Projekte verbessern wird.

Eine zweite, damit verbundene Lektion ist, daß Projekte nicht nur in bezug auf die strategischen Ziele *insgesamt*, sondern auch bezüglich ihres spezifischen Kontexts beurteilt werden sollten. Ein Automationsprojekt, das in einer fortschrittlichen Firma nur wenig beisteuern würde, könnte z.B. in einem weniger dynamischen Betrieb eine bedeutende, zielstrebige Entwicklung bedeuten. Einzelne Maßnahmen können daher flexibel angewandt werden, wie in Nordjütland.

Ein letztes interessantes Beispiel für Ansätze zu Handhabung der Projektauswahl gibt es in Strathclyde, wo eine "allumfassende" Maßnahme in die neuen DPP/EPPD eingebaut wurde. Die Maßnahme soll dafür sorgen, daß FTE-Projekte, die nicht so ohne weiteres den Beschreibungen der Hauptmaßnahmen betreffenden Anträge werden wie bei anderen Projekten beurteilt - nach ihren Verdiensten und inwieweit sie zu den Gesamtzielen beitragen.

3.5.3 *Aufbau auf bestehenden Möglichkeiten*

Ziel-2-Programme können zu einer selbsterhaltenden 'kritischen Masse' in jedem beliebigen Sektor oder Spezialgebiet beitragen, indem sie Projekte priorisieren, die *auf vorhandenen Wirtschaftsgütern aufbauen*, wie Gruppen spezialisierter Unternehmen. In Nordost-England wurden an drei lokalen Universitäten 'Zentren der Exzellenz' eingerichtet, die alle auf unterschiedlichen und erfolgreichen Aspekten der lokalen Unternehmensbasis aufbauen.

Die Infragestellung vorgefaßter Meinungen kann von Vorteil sein. Statt davon auszugehen, daß der Untergang abbauender Sektoren unvermeidlich ist, kann durch Untersuchungen versucht werden, sie wiederzubeleben. In Schottland hat der starke Rückgang der Spitzenindustrie in Ayrshire eine Studie inspiriert, die identifizierte, warum dieser Sektor in Norditalien auch weiterhin floriert.

3.5.4 *Sicherung einer aktiven Teilnahme der KMU*

Das technologische Niveau und die Innovationsquote rückständiger Kleinbetriebe muß oft angehoben werden, doch sind es genau diese Betriebe, die am wenigsten für eine entsprechende Förderung empfänglich sind. Sie sehen vielleicht keine Notwendigkeit für eine Förderung, werden vielleicht von den Kosten abgeschreckt oder fühlen sich vielleicht nicht dazu in der Lage, geeignete Quellen zu identifizieren. Gleichzeitig haben relevante Förderstellen Schwierigkeiten, direkte Verbindungen zu schmieden, um Betriebe in einen Dialog über Technologie zu verwickeln. Dies ist mittelintensiv und erfordert einmalig qualifiziertes Personal - die ein Unternehmen insgesamt betrachten können, aber auch ein gründliches Verständnis für Technologie und FTE-Politik mitbringen.

Um das Arbeitspotential zu verstärken, hat Rhône Alpes arbeitslose hochqualifizierte Fachleute in der Geschäftsberatung ausgebildet. Sie besuchen Betriebe und identifizieren Entwicklungsmöglichkeiten - oft mit Technologie - die andere arbeitslose Fachkräfte dann verfolgen. Die Region hat auch das Defizit von Fachberatern durch das Netz "Présence Alpes"

angepackt, das die Aktivitäten der für die Förderung von FTE und Innovationen zuständigen Organisationen koordiniert, und ständige berufliche Entwicklung für ihre Berater bietet.

3.5.5 Förderung von Verbindungsnetzen

In Ziel-2-Gebieten bestehen oft nicht die notwendigen Verbindungsnetze, durch die Universitäten und die regionalen Unternehmen effektiv zusammenarbeiten könnten. Der Impuls für solche Verbindungsnetze ist beschränkt, wenn kleine Unternehmen das Gefühl haben, daß Universitäten ihnen nichts bieten können und Universitäten ihrerseits ihre Kooperationsbestrebungen anderweitig ausrichten. In diesem Zusammenhang können Ziel-2-Programme Initiativen für Verbindungsnetze zweckmäßig priorisieren.

In dieser Arbeit werden u.a. Ansätze erforscht, bei denen Zwischenstellen oder "Vermittler" eingesetzt werden, um Unternehmen und die Bereitsteller des FTE-Dienstes in Verbindung zu bringen. Die Tatsache, daß sie nur "an eine Tür klopfen müssen" und die Gebührensätze einer solchen Dienststelle wie in Limburg annehmbar sind, ermutigen Betriebe dazu, Unterstützung zu suchen, die sie sonst vielleicht nicht in Erwägung gezogen hätten. Andere Fälle beinhalten Anstrengungen der Universitäten. Die Universität Sunderland in Nordost-England wurde gegründet, um die informationstechnischen Bedürfnisse kleiner Betriebe zu diagnostizieren und ihnen dabei zu helfen, Lösungen zu finden. Dies gab den KMU wertvolle, nicht versorgungsabhängige Ratschläge und änderte gleichzeitig ihre vorgefaßte Meinung darüber, was Universitäten für die Wirtschaft tun können.

Eine Initiative, die ein breiteres Spektrum von Teilnehmern zusammenzieht, sind die *Interessensgruppen*, die in Nordrhein Westfalen eingerichtet wurden, um Verbindungsnetze und Technologietransfer zu fördern. Die Gruppen vereinigen ein breites Spektrum von Organisationen in einem gegebenen Bereich, um Informationen über jüngste Entwicklungen durch Kurse, Bulletins usw. auszutauschen und gemeinsame Projekte zu starten.

Ausbildung ist eine weitere Art der Netzbildung. In Nordjütland werden Universitäts-absolventen in KMU angestellt, um an spezifischen technologischen Projekten zu arbeiten und damit die Wahrscheinlichkeit zu erhöhen, daß der Betrieb weitere technologische Unterstützung suchen wird. In anderen Fällen nehmen Angestellte von *innerhalb* der Betriebe an fortgeschrittener Ausbildung teil, was nicht nur ihre Fachkenntnisse vergrößert, sondern auch eine direkte persönliche Verbindung zwischen dem Ausbildungsinstitut und dem Unternehmen schmiedet.

3.6 Schlußfolgerung

Angeichts der Schwierigkeiten bei der Entwicklung und Umsetzung von FTE-Maßnahmen in Ziel-2-Gebieten scheinen drei allgemeine Prinzipien imperativ zu sein: daß die Maßnahmepolitik sorgfältig den spezifischen Bedürfnissen und Möglichkeiten angepaßt werden sollte, daß sie ein breites Engagement und eine Teilnahme von unten sichern sollt und daß sie pro-aktiv umgesetzt werden sollte. Die Herausforderung besteht darin, diese Prinzipien

in die Praxis umzusetzen. Die vorliegende Studie gibt einen Ausgangspunkt für die Aufnahme dieser Herausforderung.

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Thematic Paper

RTD/Innovation Policies in Objective 2 Programmes

RTD/Innovation Policies in Objective 2 Programmes

1. INTRODUCTION

As technology and innovation come to be seen not only as driving forces for business growth and competitiveness generally, but also as aids to the sustainable conversion of declining industries and regions, policies to promote RTD and innovation are becoming an increasingly prominent element of Objective 2 strategies. The emphasis placed on this theme in the Commission's guidelines for the 1997-99 programming period indicates this is certain to continue.

Raising the technological level and innovative capacity of the old industrial regions could bring great rewards, but at the same time, achieving this presents formidable challenges. This paper aims to explore practice to date in RTD and innovation policies in Objective 2 programmes. It highlights some of the issues raised by the development and implementation of such policies in Objective 2 areas, and considers examples of approaches taken. The paper has four sections: the first consists of a brief review of the rationale behind RTD policy as an element of regional policy, and its origins in EC structural or cohesion policy. The second section describes current Objective 2 RTD and innovation policies. The third and fourth parts of the paper, finally, focus on policy *development* and then *implementation* in Objective 2 areas, considering the key challenges and some of the ways in which they have been addressed.

2. THE ORIGINS AND RATIONALE OF RTD REGIONAL DEVELOPMENT POLICY IN THE EU

2.1 The Need for RTD Regional Development Policy in the EU

At present, the technological gap between the Community regions, as measured by such indicators as business expenditure on RTD and RTD employment, "is greater than the economic gap that separates them"². At the same time, the large majority of public and private expenditure at both Member State and European Union level on RTD and innovation is concentrated in the most technologically advanced regions, where it is dedicated to the pursuit of 'excellence' in a national, European or global context. Strong urban nodes of RTD firms and laboratories have emerged displaying a high degree of specialization and expertise, and collaborating within exclusive networks which leave little opportunity for outsiders³. The virtuous circle of self-perpetuating development found in such 'islands' is in stark contrast with the vicious circle which can establish itself in the less dynamic regions.

² CEC, c. 1995 *Research and Regional Development*, Luxembourg.

³ Hilpert, U, 1992, *Archipelago Europe*.

A major review of research on the economic impact of RTD, which was carried out on behalf of the Commission, concluded that, without support for RTD and innovation in the less favoured regions of Europe, they would continue to diverge even further from the core regions in terms of their economic prosperity⁴. In this context, research, technological development and innovation have come to form an increasingly significant element of EC policies enabling the potential of the less competitive regions to be realised.

Commission initiatives to date to promote a rise in the innovation and technology levels of the less prosperous regions have included adding a regional dimension to 'excellence programmes' - or those aiming to improve *European* technological capacity - most notably the Second, Third and Fourth Framework Programmes, and promoting an RTD dimension in regional programmes (those co-financed by the Structural Funds in pursuit of economic and social cohesion). It is perhaps helpful to consider 'RTD regional development policy' in this context as *complementary* to RTD 'excellence' policy rather than identical to it. The Commission's aim in promoting this policy field is not "to level out regional capacity", but rather to strengthen the trailing regions "by appropriate technological support"⁵.

2.2 EU RTD Regional Development Policy to Date

Few RTD-related activities were being funded by the Structural Funds before the 1988 reform, when RTD and innovation appeared among the priority measures to be supported in the less favoured regions. The share of community financing allocated to RTD and innovation has increased steadily since then. Objective 2 regions have been encouraged to give priority to measures of this kind, allocating 9% of resources to them in the 1989-93 CSFs.

In addition to support under the CSFs, RTD co-financing has also been directed to RTD and innovation through the Community Initiatives, most notably STRIDE, under which 90 MECU of Community origin (20% of the total amount for the initiative) was allocated to Objective 2 regions. Designed to complement national initiatives supported by the European Community, STRIDE was intended to address weak points including the lack of integration of RTD into a global development strategy, the lack of international scope of projects, weak links with the productive sector and the inadequacy of measures targeting human resources. Other relevant programmes have been the Community Initiatives TELEMATIC, PRISMA, VALUE, SPRINT, ENVIREG, EUROFORM and SME, and some of the pilot projects funded under Article 10 of the ERDF, most notably for the development of regional technology plans, which will be discussed below.

⁴ Goddard, J, Charles, D, Howells, J, and Thwaites, A (1987), *Research and Technological Development in the Less Favoured Regions of the Community (STRIDE)*, Commission of the European Communities, Brussels.

⁵ CEC, c.1995 op cit

3. CURRENT OBJECTIVE 2 STRATEGIES

In the current Objective 2 programming period of 1994-96, the emphasis on RTD and innovation has increased. The total programmed Objective 2 Structural Funds allocation to research, technological development and innovation is at least 346 MECU per year, or 14 percent of the total (compared with nine per cent from 1989-93). It should also be noted that this figure, compiled by examining measure level detail in the current SPDs⁶, is an underestimate since it is not always possible, in mixed measures, to isolate those aspects relevant to R&D and, especially, innovation. These fields may form just one element of general business support, training or economic infrastructure measures.

The theme of RTD and innovation is included in nine out of ten strategies, and accounts for over ten percent of the Structural Funds allocation in over half of them. Exceptionally high quantifiable percentage allocations to research and development are made in Oberösterreich (52%), Zuidoost Brabant (40%), Norra Norrlandskusten (33%), Nord Pas de Calais (32%), Zuid Limburg (30%), Emilia Romagna (25%), and Saarland (27%).

Research and development measures rarely account for over 20% of any given programme, first because they form a complementary strand of strategies rather than their core and second because of the element of risk involved. Some programmes have been cautious in their inclusion of RTD and innovation elements, such as Strathclyde, where the theme forms one of the components of a mixed priority rather than being prominently presented. Others, such as Päijät Häme, North East England and Aquitaine have been more ambitious, placing greater emphasis on the area.

Usually, the action proposed by any single region combines a range of policy initiatives. The main types are described below⁷.

- **RTD/innovation infrastructure**

Measures dedicated to the development of RTD and innovation infrastructure are often shaped to enable the growth of existing or potential clusters. An average of 84 MECU per year of Structural Funds will be devoted to this area in the current programmes. Actions include the *creation or modernisation of advanced research facilities* (eg. a Mediterranean Institute for Marine Studies in Catalonia, and modernisation of materials analysis equipment in Luxembourg), investment in *advanced teaching facilities* (eg. Aragon), setting up or *enhancing technology or science parks* (in Saarland, Madrid, Haute Normandie and Arnhem Nijmegen), *high tech business units* (West Midlands and Styria), and the establishment of *facilities enabling technology transfer* (eg. in North East England). A key determinant is that the infrastructure must have a genuine impact on economic development and not merely enable research bodies to better fulfil their core functions.

⁶ Bachtler, J, Taylor, S and Kearney, C, 1996, *Extended Synthesis of Agreed Single Programming Documents in Objective 2 Areas*, Draft Final Report to the European Commission, DG XVI, Brussels.

⁷ Thanks are due to Karen Stevenson of the Scottish Office Innovation and Support Services Division and to DG XII for additional qualitative information on the breakdown of RTD policies in current Objective 2 SPDs

- **Advice and support to business**

Many measures propose enhancing the technology and innovation capacity of firms directly through *advice and consultancy support* (eg. Ångermanlandskusten, Nordrhein Westfalen, Centre, Alsace). In Niederösterreich, a regional *technology and innovation office* will assist SMEs in planning RTD-related projects, while in Lazio, relevant *advisors* will be trained to counsel firms on their technology requirements. Such measures account for around 65 MECU of Structural Funds per year in the current round.

- **Training**

Specialised training measures to support innovation and technological advancement include *training SME employees in new technologies* (eg. in Brittany, Lorraine and Greater Manchester), *adapting training courses to better suit the requirements of business* (eg. in Liguria) and *introducing graduates into firms*, including supporting some of the related costs (in North Jutland, South Wales and Aquitaine). These measures account for 65 million ECU of Structural Funds per year in the current round.

- **Environmental Technologies**

Activities to promote environmental technologies are found in at least a quarter of the SPDs, and account for a total of some 22 million ECU per year of Structural Funds in the current Objective 2 programmes. These measures involve enabling the *wider exploitation of existing clean technologies* through support for appropriate investment, and the *development of new environmentally friendly techniques*, products and processes.

- **Network building**

A large number of measures are proposed which aim to encourage and enable networking, including *enhancing the linkages between research institutes and firms* (eg. Auvergne, Centre, Niedersachsen, Thanet, Tuscany). In Lolland, the aim is to encourage firms to forge links with research institutes outside the area, as there are none locally. Measures in some cases involve the *exploitation of private research facilities* through encouraging spin-off companies and inter-company co-operation, especially in supply chains.

- **Promotion of technology and technological development**

The promotion of technological development is the final element of the policy mix highlighted here. Again, the heading includes a range of initiatives such as *raising awareness of the significance of RTD* (eg. in Rheinland Pfalz, Saarland and Emilia Romagna) and *encouraging greater participation* by SMEs in national and international RTD projects (eg. through themed workshops in Ångermanlandskusten).

The overall objective of the relevant elements in SPDs is to improve the regional, national and international competitiveness of the productive sector,

and especially SMEs, through enabling diversification and modernisation⁸. Such policies will also in many cases contribute to raising the competitiveness of the tertiary sector, including producer services.

The prominence of RTD and innovation policies is certain to continue into the 1997-99 programming round, given the high profile accorded to this theme in the Commission's guidelines⁹. The significance of such activities to self-sustaining growth in the long term is not disputed but, at the same time, they are the 'most difficult policies anywhere in any region', not only to develop but also to implement successfully. Interview evidence gathered in the partner regions confirms this: where relevant policies are included in SPDs, there have frequently been less good quality applications than there are available resources, leading to underspend and pressure (albeit resisted by the Commission to a substantial degree) to vire funds into other fields where it is easier to commit financial resources. The following sections raise some of the specific challenges, and consider some of the responses of Objective 2 regions.

4. APPROACHES TO RTD/INNOVATION POLICY DEVELOPMENT

4.1 The Challenge of Effective Policy Development

Developing appropriate and effective RTD and innovation policies in Objective 2 areas is complex. The traditional assumption that innovation is a *linear* process in which there are a series of distinct phases from concept development to product launch has been challenged¹⁰. It is increasingly being argued that in practice, an interactive model is more realistic, in which product and process innovation takes place through iterative interaction between support providers, the recipients, policy organisations and the market. This requires a much more flexible model of RTD policy support and one with different foci and this, in turn, has implications for the policy responses proposed in Objective 2 areas. Rather than development support being focused on a few organisations carrying out 'distant from market' research, it appears desirable for support to be channelled into enabling focused interactions between a large number and range of actors, including companies, support agencies and research and technological development service providers. There are a range of characteristics which appear to a greater or lesser extent in Objective 2 areas, and which place them at a disadvantage in achieving this.

- **Lack of innovation culture.** The firms in such areas tend to be followers rather than leaders. Business sector expenditure on RTD tends to be low

⁸ CEC, 1995a, *The new Regional Programmes under Objectives 1 and 2 of Community Structural Policies: A Summary of the Results Expected and Obtained from their Establishment*, COM(95) 111 final, Brussels, 29/3/1995.

⁹ CEC, 1996, *Note for Guidance: Concerning operations in the declining industrial areas (Objective 2) for the second programming period 1997-99*, DG XVI, Brussels.

¹⁰ Bachtler, J, 1995, *Research, Technological Development and the Regional Policies of the Member States*, Conference paper for: Forschung und Innovation in entwicklungsschwachen Regionen (Research and Innovation in Lagging Regions), Burg Schlaining, Austria, 4-5 December 1995.

and few, especially small, firms will have their own RTD capacity. Further, their technology levels overall may be low. Companies will also lack knowledge on the types of support available to help them raise their technology levels, or to develop and implement innovative products or processes which could afford them vital competitive advantage.

- **Lack of dynamism and belief.** There may be a lack of vision and self-belief not only among firms but also in the political arena. A culture of dependency may have grown up, firms and political leaders believing their area will never be able to compete on equal terms and that they will always need support.
- **Firms lacking the resources for RTD.** They may lack both the financial and personnel resources to either innovate in-house or to gather and interpret information on technology and innovation opportunities available through outside agencies. Even should a small firm wish to develop a new product or improve its technology levels, it may lack the financial resources to be able to pursue its ambitions to a successful conclusion.
- **Firms' lack of experience of co-operation.** Few firms have experience of co-operation on a local, regional, national and, especially, international level in the development of new products or processes. In addition, few may be willing to undertake such activity. They may be protective of their own markets and knowledge, and are often inappropriately structured for such activity.
- **Agencies' difficulties in engaging with the business community.** Agencies offering innovation and technology support services need to engage with firms on a one-to-one basis, but this is both extremely resource intensive and requires highly skilled people (with knowledge of product, process and service technology, the needs of business *and* the policy environment).
- **Areas' unattractiveness to inward investment.** Old industrial areas may attract 'assembly line' inward investment, but are possibly less likely to attract plants with their own RTD resources.
- **Educational institutions' own priorities and collaboration preferences.** Universities prefer collaboration with large, prestigious and highly sophisticated firms to resource-intensive projects with small, technologically backward firms. In addition, the capacity of universities and further education colleges for collaboration may be limited as such work may be in conflict with the achievement of their own core functions.
- **Limited resources and tight timescale of Objective 2.** Objective 2 programmes run over just three years which is very little time to achieve the implementation of a complex policy area. In addition, the resources which these programmes are able to dedicate to RTD and innovation are in fact extremely limited.

While Objective 2 areas face a formidable task in successfully developing and implementing RTD and innovation policies, many of them are better placed to achieve this than some other lagging regions, especially the more rural and

remote ones. They may already have prestigious research facilities in higher education institutions, they may be in proximity to the main European islands of innovation (eg. Greater London, Lyon/Grenoble, the Rhein/Ruhr), and they may have existing highly competitive high tech clusters eg. aeronautics in Aquitaine.

4.2 What are the Implications of ‘Objective 2 Characteristics’ for Policy?

4.2.1 Assessing actual policy requirements

In developing RTD and innovation policy in Objective 2 areas, the first observation is that there is a need for RTD-specific approaches and methods for analysing the supply, demand and use of RTD, to analyse transfer and intermediation mechanisms and to create a package of policies which is responsive to the varying but specific requirements of RTD organisations.

The current position of Objective 2 areas is critical to determining what policies might be most appropriate and for whom. RTD infrastructure measures provide a good example. The Commission is keen to reduce the amount being dedicated to developing RTD-related infrastructure, and instead to promote ‘soft’ measures. However, some areas still require investment in this area. Where the main infrastructure components are in place, investment may still be needed to extend, update, adapt or reorient facilities - in order to enable universities or research institutes to undertake specific projects for the benefit of the commercial sector. A further requirement may be for the development of specially equipped incubator units for spin-off high tech firms.

Given the variety of circumstances in Objective 2 areas, a region-specific analysis can be invaluable in assessing current innovation and technology levels in the various sub-groups and identifying gaps in the policy and infrastructure framework. It is possible that the impetus to carry out such an analysis is stronger where innovative policies are being developed than where existing national schemes are being called upon.

In assessing a region’s RTD and innovation requirements, a further good practice principle is to mobilise all the relevant local agencies, draw together their knowledge, exploit their expertise and engage their commitment to the strategy eventually agreed. The Aquitaine SGAR, for example, met with a wide range of organisations to define the strategy set out in the SPD, and used the opportunity to engage the commitment of partners, co-ordinate effort and identify and build on assets. North Jutland, Päijät-Häme and North East England provide further examples of regions where the contribution of a specific RTD ‘partnership’ to the SPD has been critical both at the policy development and implementation stages. In building such partnerships, it may be necessary to ‘widen the net’, considering the potential contribution of a wider range of agencies and organisations, including further and higher education colleges and departments which may hitherto have had little contact with EC co-financed regional development initiatives.

4.2.2 Pitching policies appropriately

At the moment, some RTD/innovation initiatives seem to be unsuccessful in Objective 2 areas simply because they are too ambitious. This is the case with

‘excellence oriented’ policies shaped for firms which already have a good technical level, qualified research personnel and a high level of familiarity with the regional RTD community. Such RTD policies (which are often national schemes) may be appropriate to *some* local firms but, at the same time, there may also be a need for policies which ‘prepare the ground’ in firms working from a lower base in order to enable real innovative activity to be stimulated there. There are still other firms which may be open to raising their technology levels but at the same time may not have the resources or the need for sophisticated technologies, and instead might benefit more from the application of “‘off-the-shelf” technologies that are well known and tested”¹¹. A mixture of policies may be required, taking into account the circumstances of such sub-groups. Policies which meet firms where they stand and accompany them towards a more innovation-oriented culture appear to be especially appropriate in Objective 2 areas and, while they may not be a rapid solution, they may be the most realistic and robust in the long run.

North Jutland has been pursuing just such an incremental approach and it appears to be paying dividends. Here, the original Nordtek programme, which began in 1986, supported the development of technology and innovation by means of ‘framework’ measures. As the technological standing of firms within the region has improved, however, later initiatives such as RENAVAL and Objective 2 have been able to propose more sophisticated and tailored activities, taking technology and innovation to the heart of the productive process through direct support for investment and knowledge projects in individual firms.

4.3 Broader Strategic Frameworks for RTD/Innovation Policy

4.3.1 The rationale behind regional technology strategies

In order to target policy responses better, and also to gain continuity in RTD policy, there are strong arguments for developing a wider and longer term regional strategy for RTD/innovation in Objective 2 areas than the three-year timescales of SPDs allow.

- This enables both the financial and personnel resources to be assembled for a specialised in-depth analysis of a region, including analysis of the explicit or latent demand of SMEs, assessment of the existing technology supply and support services, and the development of an action plan to correct the imperfections detected.
- It proactively engages all the relevant actors, and ensures their commitment to a common set of core goals.
- It enables these goals to be established formally and widely publicised.
- It intensifies dialogue between the actors involved and so increases the potential synergy between their activities, multiplies the potential for co-operation and reduces duplication of effort.
- It increases the precision and vision of the policies proposed.

¹¹ OECD, 1995, *Boosting Business Advisory Services*, Paris, Organisation for Economic Co-operation and Development

4.3.2 *Examples of broader RTD strategies*

Among the most prominent examples of regional technology strategies are those being encouraged by a joint action between DG XIII-D and DG XVI-A under Article 10 of the ERDF. Following a pilot phase in which 30 regions were concerned, a call for proposals was issued in September 1995, which generated over 100 further applications. Around one region in four is now involved in an EC regional innovation initiative. Wales was among the pilot regions and has now agreed its Regional Technology Plan (RTP), while an RTP and a Regional Innovation and Technology Transfer Strategy (RITTS) are currently in preparation in Strathclyde (UK) and Pääjät-Häme (Finland) respectively.

In order to prepare the 'Wales Regional Technology Plan'¹², research and discussions took place over an 18 month period, including in-depth technology audits of 350 SMEs, a review of key sectors of the Welsh economy, and 30 panel discussions involving more than 300 people. These culminated in the publication of a *Consultative Report* in January 1996, which was circulated extensively for comment. The next stage involved the framing of an Action Plan, highlighting what had emerged as the key priorities for Wales, and how these would be met, including potential funding sources and the types of organisation to be involved in implementation. The resulting Action Plan is clearly presented and structured, and free of technical jargon. Its format emphasises local organisations' wide commitment to implementing it: under each priority heading, the actions required are highlighted, followed by three types of project:

- **flagship projects**, which local organisations will launch immediately,
- **committed projects**, which lead organisations have expressed their commitment to implementing, and
- **challenge projects**, which have been identified as important but which still require a champion to take them forward.

Rather than establishing the Action Plan as static, it is anticipated that it will evolve as the debate continues and deepens and as progress is made. The final priority is that a regular monitoring and evaluation programme will maintain the momentum and measure the impact of the Action Plan. Its strategic direction will also increasingly be incorporated into other policy frameworks, including the Objective 2 programme: the Industrial South Wales Single Programming Document Working Groups are using the Plan as part of the underlying framework for Structural Fund priorities in 1997-99.

Some of the possible benefits of RTPs, RITTSs and are as follows:

- The EC facilitates strategy development through its own financial contribution and also by securing the co-finance of the partners.
- Strategy development is given momentum by working to an agreed timetable.

¹² Welsh Development Agency, 1996, *Wales Regional Technology Plan - An Innovation and Technology Strategy for Wales, Action Plan*, WDA. (Available from: Mr Tony Newson, Technology Programmes Manager/RTP Implementation, Technology Transfer Agency, Welsh Development Agency, Principality House, The Friary, Cardiff, UK.)

- The process is strengthened by a tried and tested methodology which is itself a distillation of ‘best practice’.
- The project has the support of experienced Commission advisors.
- The regions become associated with a positive and co-ordinated approach to RTD/innovation, and potentially gain Europe-wide publicity for this. This enhances their prestige, profile and credibility.
- This same process positively influences the self-image of regional actors.
- The final strategy is the result of combined regional expertise, is region-specific and has the commitment of the key regional actors. This not only helps ensure the appropriateness of the proposals, but also engenders ‘ownership’ and wide active involvement in implementation.
- The RTP/RITTS provides a robust framework upon which all other relevant instruments can draw - eg. Objective 2, Objective 5b, Community Initiatives, etc.

It is not only through Commission initiatives that regional technology strategies are established. An example of another approach is the Finnish ‘centres of expertise’ initiative, which has led to the development of some strong cluster-based strategies. These build on cores of *opportunity* - which can occur in both economically healthy *and* troubled areas. Two of the seven centres of expertise selected are in Objective 2 areas - Central Finland and South Karelia. The ‘centres of expertise’ policy aims to enable specific zones to build highly competitive clusters in high value added fields. These potential clusters are identified on the basis of the specific cores of knowledge held in the region from which specialisms could grow.

It is not always necessary for a region to have a *formal* strategy in place. It can still benefit from undergoing a process of detailed regional analysis and consultation on its technology capacity and requirements. Päijät-Häme made a bid for ‘centre of expertise’ status which was unsuccessful, but the substantial effort made was not wasted. First, the policy and project options generated through the wide consultation were channelled into the Objective 2 SPD, giving it a head start by ensuring that the SPD’s policies responded to genuine demand, were well known, and had a minimum time lag leading to the generation of project applications. Second, the momentum set up by the centres of expertise bid has driven a successful RITTS application.

5. OBJECTIVE 2 RTD/INNOVATION POLICIES: APPROACHES TO IMPLEMENTATION

Implementing some RTD/innovation related policies in the context of an Objective 2 programme should be fairly straightforward. The development or enhancement of RTD infrastructure, for example, usually involves a small number of large projects which are often in their formative stages even before the SPD is written. In turn, the addition of co-financing to existing national or regional RTD schemes (such as Puma and Logic in France and Smart and Spur in the UK) to increase the number or size of awards, also often proves fairly straightforward as they are well known to potential recipients, well

tested and have the support of skilled people already in place to assess and manage proposals. However, other policies which are more innovative or which are aimed at increasing the technology and innovation levels of less responsive firms or promoting intangible activities such as networking, present more difficulties.

In the light of the difficulties which may be encountered, this section raises a series of key issues and explores how they are addressed in different areas:

- How can programme management enhance the implementation of RTD/innovation measures?
- How should project selection be managed?
- How can Objective 2 provide a bridge to other RTD opportunities?
- How can synergy between actions be achieved?
- How can opportunities be built on?
- How can the active participation of SMEs be assured?
- How can networking be promoted?

5.1 How can Programme Management enhance the Implementation of RTD/Innovation Measures?

Implementing the RTD and innovation elements of an Objective 2 programme in the three years available poses a tremendous challenge and, as such, a proactive approach to policy implementation imposes itself.

5.1.1 Pro-active monitoring of project applications

There are many possible reasons for under-performance on a given measure. These may include a long lead time to projects, lack of awareness of the SPD's RTD-related measures, policies and projects which do not respond to genuine demand, or sometimes more technical issues. The following concrete examples from Aquitaine illustrate the range.

- The slow application rate for one measure was found to be due to the availability of other similar schemes offering higher grant awards with similar conditions attached.
- 'Puma' technology transfer awards in turn were found to simply require more promotion to increase their uptake.
- In Aquitaine's Konver Community Initiative, the potential of a mentoring initiative in which large firms assist small ones in technology development, has met with difficulties due to Commission regulations. The participating large firms quickly reach the *de minimis* limits and are then unable to assist more firms, although it is not they but rather the SMEs who are the final beneficiary.

Identifying the reasons why the performance of a measure is not as expected is a first step towards devising and taking appropriate remedial action. The *regular reporting process* associated with monitoring committee meetings provides the framework in which this can take place. Should additional resources be required, then the *Technical Assistance budget* can be called

upon, funding brief investigative studies and also enabling remedial action to be taken such as funding publicity for the opportunities available.

The use of *specialists* to appraise RTD and innovation-related project applications has provided the Scottish programmes with a strong tool to ensure the effective implementation of relevant measures. The advisory committees for technology, which comprise experts from a wide range of specialist organisations, appraise project applications and are well equipped both to assess the strength and viability of individual proposals and to interpret patterns in the applications being received.

5.1.2 *Pro-active monitoring of implementation*

It may also be advisable to monitor project implementation closely. Projects may first be meeting unexpected problems, and may second present opportunities for additional, related, support initiatives to maximise their effectiveness eg. in training, marketing or network development.

An example of unexpected problems is provided by a Computer Aided Design (CAD) initiative. Facilities were provided to support new product development in a cluster of textile firms. However, these firms, concerned that the design work they did on the system would not be confidential, declined to use the facility. It was only after identifying the problem, that action could be taken to reassure the potential users and so gain any benefit from the investment.

5.1.3 *Exchange of experience*

There are many fora through which specialised personnel working on the RTD/innovation aspects of Objective 2 programmes can both gather information and exchange experience (conferences, specialised journals, the Internet, etc). The active exploitation of these sources is imperative in this challenging and quickly moving field.

The '*Directory of STRIDE projects*'¹³, is a specific example of an information source which can be of benefit to both policy makers and project builders. This gives a transparent record of what has been undertaken under this EC initiative, where, and by whom and, as a result, offers the possibility to identify, contact, learn from and collaborate with other organisations which have already undertaken similar projects or policies. Such information is in fact much less readily available for RTD-related Objective 2 projects - but its collation could offer clear benefits. In the short timescales available for Objective 2 programmes, a structured Internet facility for the dissemination of successful practice between regions, including a 'help board', could be one possible specific constant exchange mechanism.

¹³CEC, 1995b, *Directory of Stride Projects*, Commission of the European Communities, DG XII, Brussels.

5.2 How should Project Selection be managed in a fast moving and complex Area?

5.2.1 Focused selection

In a field where it is difficult to generate projects, there may be a tendency to accept any project application of a reasonable standard. However, strong selectivity and focus may promise greater rewards in the medium to long term, enabling more coherent and relevant projects to be generated and these to be appraised in a more robust way.

Strathclyde were reactive at first in their implementation of the RTD aspects of their SPD, assessing individual applications on their merits as they came in, without working within a strong framework. They have since become more critical, only supporting those projects which really fit their strategic direction and aspirations. To increase the number of applications and their quality, the approach is now to develop a technology strategy (an RTP) as a framework for both project development and appraisal.

5.2.2 Flexible approaches

In seeking to address firms of varying degrees of experience and knowledge in the RTD field and firms' very different technology requirements, the *flexible application of a single policy* can sometimes be preferable to a proliferation of policies. For example, North Jutland is aiming to concentrate resources on technical projects which offer a qualitative leap forwards/upwards for a firm. In assessing this, the present level of technological development of the applicant is taken into consideration, so that a small and relatively backward enterprise may obtain support for a project that would have been rejected if it had been put forward by a larger and more modern enterprise.

Given the inability to predict all the areas for which there may be in demand in a field as fast-moving and difficult to define as RTD, some strategies flag their willingness to encourage 'experimental' project applications. Strathclyde has proposed a form of '*catch-all*' clause among the RTD aspects of its 1997-99 SPD so as not to discourage innovative RTD projects to come forward, and so as to ensure initiatives inspired by the forthcoming Regional Technology Plan can be funded.

The fact that this open approach is clearly set out in the SPD as the core source document is highly significant. There is some evidence that in some cases, the interpretations placed on the contents of SPDs by partners in direct contact with applicants may act as a barrier to some projects which are potentially eligible but which are perceived not to be by these intermediaries.

As a final example of flexible approaches, some programmes have chosen to take into account the complexity involved in developing RTD projects by enabling Structural Funds to be used not only to implement fully formed projects but also to *develop their operating concept* and to assess their feasibility. One example is the Green Triangle Finland project in Päijät-Häme, based on a Danish environmental technology project.

5.2.3 *Project generation*

It appears desirable to identify the main barriers to raising the innovation and technology levels of local businesses, and then to focus efforts on plugging these gaps. In North East England, during the development of their RITS (Regional Innovation and Technology Strategy), which informed the Objective 2 strategy, interested parties were encouraged to meet to discuss current provision of policies, initiatives and facilities in the Objective 2 areas and to identify the missing pieces in the jigsaw. This has enabled them to tightly focus their efforts at the implementation stage on actions which will make a genuine difference in the locality, by removing bottlenecks or enabling opportunities to be exploited.

5.3 **How can Objective 2 provide a Bridge to other RTD Opportunities?**

A range of other EU-funded actions to support research and technology could be taken into account in the development of Objective 2 programmes (see above). Relevant actions might be occurring within the eligible zone, in nearby zones, or further afield but relevant to specific target sectors. It is likely that not all the opportunities available to build on progress already made are being exploited.

There are some Objective 2 projects, however, whose purpose is to enhance the access of relevant organisations to other R&D initiatives such as the Fourth Framework Programme. In Groningen Drenthe, for example, a liaison bureau was set up during the last programming period at the Rijks University, Groningen, as a *facilitating structure* to expand the volume of contract research, particularly of an international nature, obtained and realised in the region. The initiative has led to an over-proportional growth in the number of international projects and research income and has increased employment in the area in contract research from 397 in 1991 to 528 in 1994. In Liège, in turn, R&D centres of excellence are being created in the current round to enable SMEs to develop the capability to participate in EC R&D programmes.

The success of measures enhancing the participation of firms in Objective 2 areas in the Fourth Framework Programme may be limited, in spite of the 'clear statement of determination to facilitate access of SMEs to research programmes, especially in the less favoured regions'¹⁴. The requirement for collaboration to be international is one of the central barriers, not just for firms in old industrial areas, but for small businesses everywhere. The challenges include additional expense, finding and establishing a working relationship with appropriate partners, working in another language, working with international patent regulations and dealing with the issue of intellectual property rights. Accessibility of firms from less favoured areas is also intrinsically problematic as the emphasis must always be on 'excellence'. These issues raise questions of the feasibility of focusing too much on overly ambitious and perhaps, inappropriate and inefficient objectives.

¹⁴ CEC, c.1995, op cit

5.4 How can Synergy between Actions be achieved?

Some regions emphasise the benefits to be gained through looking for linking projects, accompanying capital projects with support for effective exploitation, marketing, training etc. A guiding principle is that support should be available for both 'hard' and 'soft' measures. Otherwise, progress in one or other area may come to nothing. There may be little point inspiring SMEs' interest in technology projects if there is then no finance for implementation. In turn, there is little sense in supporting an investment in new technology if people are not appropriately trained to use it.

Training projects are often a complementary element of other technology-related ERDF projects. There are specific measures in over half the current SPDs proposing high level technology or innovation related training to be co-funded by the ESF in support of other RTD measures. These training measures form almost 30 per cent of the total Objective 2 ESF allocation. The ESF has a key supporting role, but actual take-up of such opportunities is in some cases limited by the preconception of the ESF as a 'bottom rung' fund, only relevant to pre-vocational and basic vocational training. The Commission, national authorities and regional actors could do more to publicise this opportunity.

A broader example of drawing maximum benefit from an opportunity is the mobile abattoir project in Austria. This vehicle (described in IQ-Net Thematic Paper 1(3) - Generating Good Projects) was invented by a farmer to kill animals directly at the farm rather than transporting them. The series production is planned for the Objective 2 area of Niederösterreich, directly creating jobs. The German firm involved in the further development of the prototype will set up an R&D office at the production facility which will undertake co-operation with Austrian research institutes (eg. BOKU, Atominstitut, Forschungsinstitut Seibersdorf), so potentially leading to further innovations. Further, all the organisations involved, including the sub-contractors, who will be locally based whenever possible, will co-operate with each other within the framework of a tight project-specific network coming to be known as a "virtual firm". E-mail, data transfer and video conferencing are likely to be used to facilitate a rapid system of order and supply chains.

5.5 How can Opportunities be built on?

The specific strengths of an area, in the form of existing clusters of high tech or innovative firms and specialised research institutes, give a head start in achieving competitive advantage in specific sectors or activities. By prioritising project which *build on these existing assets*, Objective 2 programmes can help contribute to achieving a self-sustaining 'critical mass' in a given sector or specialism.

In North East England, three 'centres of excellence' are being set up under what has been called the 'Three Rivers Strategy'. These centres build on existing assets of the North East: Teeside University will specialise in services for the processing industries (inspired by ICI and other chemical firms locally), Sunderland University, building on Nissan's presence, will provide expertise for high volume industries, and Newcastle University, inspired by its own local company base, will specialise in low volume, built to order

production. Smaller service providers will be able to link up to these three centres, which provide a legible framework for firms seeking support or advice.

Other good examples of strategies building on existing strengths are found in the French regions, where the national RTD policy framework also helps to reinforce the strength of individual regions in specific fields. In Rhône Alpes, the development of a medical fabrics testing and certification laboratory in Saint Étienne by the Institut Textile de France is an example of a project whose significance goes beyond the jobs it will directly create. It is also helping to strengthen an existing advanced medical textiles cluster in the city, and so to raise its national and international profile in this niche area.

The Finnish regions provide further examples. South Karelia and Central Finland each have poles of expertise of national significance (with ‘centre of expertise’ status), and these provide a focus for Objective 2 technology-related activity. In Päijät-Häme, in turn, the Objective 2 programme has been successful in supporting projects developing and implementing environmental technologies, in part due to the fact that the region is already advanced in this field.

In identifying opportunities, there is evidence that a ‘creative approach’ which challenges preconceptions is advantageous. For example, rather than assuming that the demise of sectors in decline is inevitable, investigations have in some cases been launched to identify ways to resuscitate them. An example from Scotland illustrates the point. On the basis that ‘there are no outmoded sectors, simply outmoded technologies *within* those sectors’, an initiative was launched to investigate the reasons for the steep decline in the Ayrshire lace industry. The project examined why, at the same time, this sector was flourishing in Northern Italy.

5.6 How can the active Participation of SMEs be assured?

One of the most difficult issues in Objective 2 areas is to successfully raise the technological level and innovation rate of firms. However, as seen above, this is a difficult task.

A wide range of organisations usually exist in a locality which are able to offer support to businesses in the field of technology and innovation. However, firms with a low technological or innovation level, and which are inexperienced in working with other organisations to enhance or develop new products or processes, may first see no requirement to contact such organisations. Even should they wish to seek support, they may be put off by the perceived difficulties in identifying their needs and then finding the right source of help, and may also see such activities as prohibitively expensive and time consuming.

To counter the barriers, there is a need to develop effective and pro-active links with the business community, getting to the heart of firms to engage in dialogue about technology needs. It is difficult for technology transfer agencies to take the pro-active approach required for a range of reasons,

including their lack of financial resources and appropriately skilled personnel for such intensive outreach efforts¹⁵.

To deal with the manpower constraint, one useful initiative in Rhône Alpes (on a region-wide basis rather than simply for the three discrete Objective 2 areas) has been to take highly qualified unemployed people, often from the shrinking defence sector, train them in business counselling and in the current business development policy environment, and place them in local chambers of commerce (CCIs). From this base, they undertake visits to firms and identify business development opportunities - often of a technological nature. In so doing, they not only use the specific skills they have built up during their working lives for the benefit of other firms, but also increase their own employment prospects. The initiative has helped the CCI in Drôme to have the manpower to cater to all the locality's firms. When projects are identified, another skilled unemployed person is placed in the firm to develop and implement them. If the project succeeds, then the person responsible is taken on by the firm. If it fails, this person has at least increased their experience and improved their prospects.

A further feature of the outreach support required is that, because 'SMEs plan in overall terms'¹⁶, business advisors need to be able to carry out a diagnostic process in a *range of fields* of which technology or the need to innovate is only one. At the same time, it is essential that their expertise in technology and innovation is of a high level. A further initiative in Rhône Alpes to address the deficit of appropriately skilled advisors and to ensure optimum use of manpower resources, is a network called "Présence Alpes", which unites organisations involved in promoting RTD and innovation initiatives. This network helps to co-ordinate the visits of the various economic development advisors to firms and so reduce duplication of effort. In addition, it provides a co-ordinated forum to train advisors in RTD issues. This helps all those concerned to be better informed about the field and about their respective activities, which in turn helps their clients to better understand and so exploit the policy environment.

Direct contact with companies through outreach from agencies and consultancy schemes is important, but, at the same time, other, more general channels for information about support available can be used to reinforce the message. These might consist of *promotion* by the chamber of commerce and *publicity in the press* for success stories.

Once SMEs have become involved in considering RTD/innovation projects, it is essential that they can gain access to the necessary finance for implementation, and SPDs should be framed with this in mind. An example of a valuable initiative is the Bremen Innovation Fund. This puts up venture capital (holdings, loans and guarantees) for the use of new technologies and provides support for the self financing of new and existing technology oriented SMEs.

¹⁵ Hassink, Robert, 1996, *Technology Transfer Infrastructures; some Experiences in Europe, the USA and Japan compared*, paper presented at the conference "A Changing Europe in a Changing World: Urban and Regional Issues", Crossmead Conference Centre, University of Exeter, UK, April 11-14 1996.

¹⁶ Hassink, 1996, *op cit*.

5.7 How can Networking be promoted?

As described above, the *linear* model of innovation has been superseded by one in which innovation is understood to take place through iterative interaction between support providers, recipients, policy organisations and the market. In innovative regions, such interaction is intensive and self sustaining. However, where it is limited, action may be needed to promote and enable appropriate networking, between universities, companies and other relevant organisations.

There is frequently not the framework in place in Objective 2 areas to enable universities and the local and regional business sector to co-operate. Small businesses may feel that the universities have nothing to offer them, that their support would in any case be too expensive or that it would simply be too difficult to identify appropriate providers. For universities, in turn, co-operation with SMEs is unattractive in the main. As well as being more prestigious, “large firms often provide HEIs with more financial input, long term contracts and thus little administrative work, and learning effects as their technological level is often high”¹⁷. In addition, large firms only need laboratories to undertake certain stages of the work, as they can take the basic results and carry on commercialisation on their own.

‘Brokers’ are increasingly being used to forge links. In Limburg, an agency has been set up to act as an intermediary between firms interested in engaging RTD services, and relevant providers. The support identified by the agency is free the first time, then a sliding fee scale is applied for subsequent requests. The ‘one door approach’ offered by the agency, and the attractive terms of the fee scale both encourage firms to seek a form of support which they might otherwise not have considered.

‘Knowledge House’ in North East England is a further good example of an initiative making a complex area legible to the small firm. An individual in each university in the eligible area identifies fields of special expertise and the people responsible for them. This information is brought together into a common directory. Companies then approach a single office to find out whether any university can help them, and if so, which, what department, and what individual. A similar network has been set up for the 20 Further Education colleges in the region, which are helped by a longer history of co-operation.

A further similar intermediary organisation exists at the University of Saarland. The *Kontaktstelle für Wissens-und Technologietransfer* (Contact point for knowledge and technology transfer), set up in 1985, aims to promote awareness in the business community of the research areas of the university departments and to facilitate joint projects between scientists and firms.

In another initiative helping to build links between firms and universities, Sunderland University in North East England offered Information Technology (IT) support to small firms - diagnosing their needs and helping them with the choice of IT solutions. This project not only provided SMEs with useful non-supplier dependent and so impartial IT advice but also changed some preconceptions about what universities can do for business. Many saw

¹⁷ Hassink, 1996, op cit.

universities as only being involved in much more high flying initiatives which would be beyond their needs.

Given the conflict between university core functions and support to business, it is not possible to rely on universities as the sole provider of research and development services. Therefore, other types of networking, involving other types of organisation, are required. An interesting development in Saarland has been the founding of a specific institute for mechatronics set up by lecturers from the University of Duisberg. This aims to work together with firms, particularly from the region, on application-oriented research either as contract research or joint projects. It has its own Transfer Office to develop contacts with local SMEs. Here, an R&D unit is effectively being launched as a business in its own right. Such offshoots, if successful, could have a major impact on the research activity of their clients, and so on the competitiveness of the sector locally. In turn, a new form of technology transfer policy in Nordrhein Westfalen which is enabling wide networking on specific issues is the establishment of *interest groups*. On the basis that concrete institutions are an expensive and insufficiently flexible method of transferring information about new technological developments, the idea is to group actors in similar fields, including higher education representatives, firms, consultants and chambers of commerce, to discuss recent developments through workshops, seminars, bulletins, etc. The groups, such as Initiative Teletech, may spawn joint projects which are then part-financed by the firms involved.

Creating networks may not always involve universities and research institutes, but may instead focus on private sector facilities. Thus, in West Cumbria and Furness, the high technologies used in the region's large firms will be used as the basis for developing the knowledge base of smaller firms to their mutual benefit. In North East England, too, supporting supply chain development is helping to encourage smaller firms to raise their technological level. Larger firms are asked what would persuade them to use specific local firms as subcontractors. Sometimes, improved technological know-how is among the factors and this can encourage the firms involved to become more technologically advanced.

Another extremely valuable way of building links between firms and research and educational facilities is through people. In North Jutland, graduates are placed into SMEs to help with specific technology related projects. These graduates help to build a link between the firm and the research community and so increase the likelihood that the firm will be inclined and equipped to seek further technology support should it be required. In Friuli Venezia Giulia, training is being provided to graduates in the transfer of know-how so that they can act as an interface between research centres and SMEs.

A further similar example is found in Saarland. Here, the Institute for Technology Transfer at the School of Technology and Commerce acts as an intermediary co-operating with firms, and particularly SMEs, in specialised projects in areas such as architecture, electronics and the environment. In some cases, senior students will be placed in firms for up to a year to work on specific projects, providing a bridge between research and business.

In further examples, skilled employees from *within* firms are sent on high level training courses which enable them to enhance their skill levels in using or

applying technologies. This at the same time forges direct and personal links between the training establishment and the firm.

A further benefit of such placement and training initiatives is that they ensure that firms have the appropriate internal capacities to be able to transform the information available on innovation and technology initiatives into ‘useful knowledge’ which the firm can use. Without being selected, decoded and absorbed, such information is of no value to the receiving firm¹⁸.

6. SUMMARY AND CONCLUSIONS

In order to set a context for discussion, this review of Objective 2 RTD and innovation policies has explored some of the difficulties involved in this policy field and also considered some of the practices which appear to improve the prospects of appropriate policy development and successful implementation. The paper has illustrated that the following overall principles appear imperative:

- **tailoring policy responses carefully** to the actual requirements of specific eligible areas,
- **taking a pro-active approach to implementation**, and
- **engaging the effort and commitment** of all the interested agents at grass roots level.

The challenge, however, is to translate these principles into practice, and this paper provides a starting point for that debate.

¹⁸ Valentin, F, 1995, Technology Transfer from Networks and Public Research to Innovative SMEs: the Hidden Costs of Stretching Learning Domains, In: O'Docherty, DP (ed), *Globalisation, Networking and Small Firm Formation*, Gordon & Trotman, London, Dordrecht, Boston, p 67-86.