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COMMUNICATION FROM THE COMMISSION

TO THE COUNCIL, THE EUROPEAN PARLIAMENT,
THE ECONOMIC AND SOCIAL COMMITTEE
AND THE COMMITTEE OF THE REGIONS

"REINFORCING COHESION AND COMPETITIVENESS THROUGH RESEARCH, TECHNOLOGICAL DEVELOPMENT AND INNOVATION"

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Economic and social cohesion is enshrined in the Treaty on European Union together with economic and monetary union and the completion of the Single Market. It is further underlined by the Amsterdam summit Resolution on Growth and Employment and by the November 1997 Jobs Summit in Luxembourg, which adds the requirement that priority should be given to the fight against unemployment.

The Commission's document "Agenda 2000" confirms that the Structural Funds should continue to encourage competitive development and sustainable job-creating growth in the less favoured regions. In order to foster diversification, restore economic dynamism and promote an active business culture, specific support measures should be put in place. Such measures should include support for infrastructure, technological, financial and organisational innovation, SMEs and human resources, including equality of opportunity. Agenda 2000 also requires that account be taken of the prospects of the candidate countries.

It recognises that knowledge policies - research, innovation, education and training - should play an important part in bridging the gap between scientific and technological excellence on the one hand and industrial and commercial successes on the other. Stimulating innovation in SMEs is regarded as particularly important.

This Communication intends to bring together cohesion, competitiveness and RTD and innovation in a single, coherent framework.

THE OBJECTIVES OF THIS COMMUNICATION

1. Our common objective is to reinforce the competitive capacity of less favoured regions (LFRs – defined as regions and geographical areas eligible for Structural Funds) by ensuring that RTD and innovation policies are integrated within the productive fabric of the region.

   In order to do so, it is necessary to increase the awareness of national and regional authorities and economic players to:

   - strengthen the capacity of regions to integrate RTD and innovation into their economic development;
   - improve the learning processes by which firms can become more innovative;
   - assist firms and institutions to respond to the difficulties they face in adapting to new forms of work organisation;
   - better co-ordinate sectoral policies at national level in supporting regional development efforts.

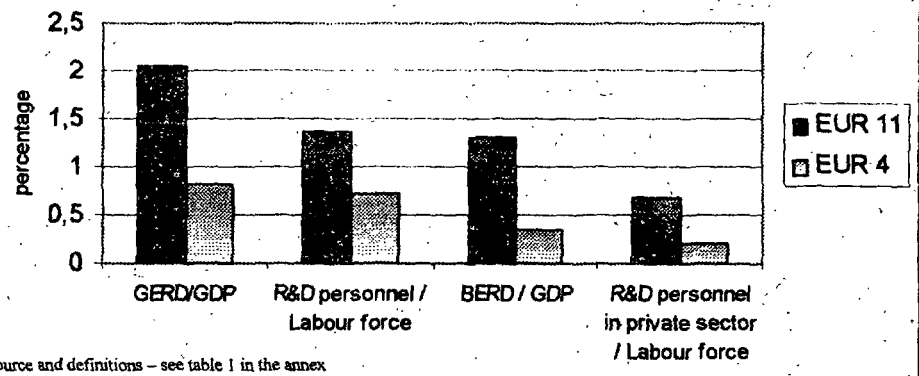
   This communication also intends to show that the complementary use of Community instruments – the Structural Funds and the Framework Programme for RTD – can contribute to cohesion and competitiveness.

   Moreover candidate countries (Cyprus and Central and Eastern European Countries (CEECs) too can benefit greatly from experience of EU support for RTD and Innovation in LFRs.

2. Statistical analysis suggests that both the economic gap (measured in terms of Gross Domestic Product per inhabitant) and the technology gap (measured in terms of Gross Expenditure on R&D by GDP and Patents per 1000 inhabitants) between the 4 Cohesion Countries (Irl, SP, PT and GR) and the other Member States have decreased from 1989 onward.

   Yet – as illustrated in graph 1 and in tables 1 and 2 in the annex – the technology gap remains significant both in the private and public RTD systems. Furthermore, the situation seems even more divergent when interregional differences are examined. Important regional differences exist also in the countries with more efficient RTD and innovation systems. However, even when the weakest regions of the richest countries are considered, their RTD and innovation system is still more robust and demand-oriented than that of the poorest countries.

Graph 1 - Selected RTD "input" indicators: 1995



Source and definitions – see table 1 in the annex

3. There are also indications of increased polarisation between North and South in terms of information and communication technologies (ICTs), as indicated by domestic and commercial usage of Internet, home ownership of personal computers, web hosting and tele-working schemes.

4. Broadly speaking, it can be said that the scientific and technological systems of LFRs - and especially Obj.1 regions - continue to be characterised by: (i) overall low RTD intensity; (ii) over-representation of the public sector and lower presence of the private sector; (iii) primary emphasis on basic research; (iv) low levels of technology transfer between the public and the private sectors and within the private sector itself; (v) poor linkages to international RTD and Innovation networks.

5. Such qualitative differences suggest that injections of public funds into research activities in LFRs will produce lower economic return than in more developed regions. More emphasis therefore needs to be put on the private sector. Firms need to be engaged more in the research and innovation process and this should be facilitated by public authorities stimulating venture capital, and providing other incentives to encourage activities such as electronic commerce.

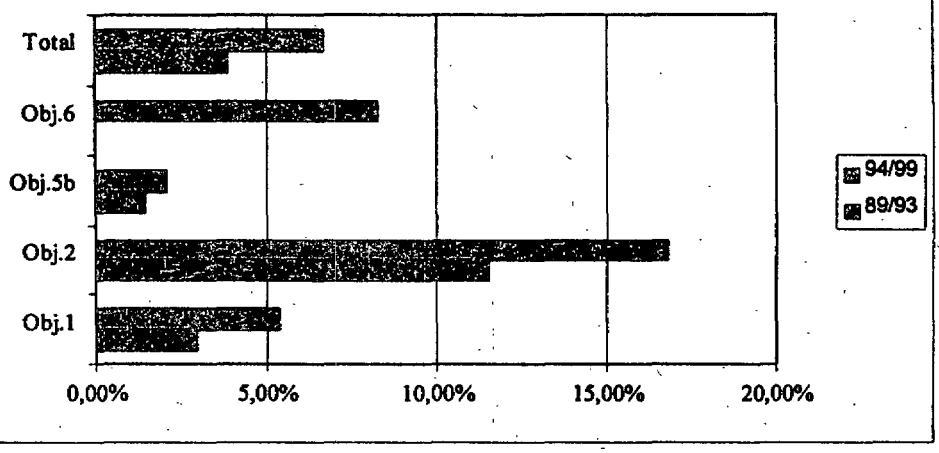
THE STRUCTURAL FUNDS - PAST AND CURRENT ACTIONS

6. The 1993 Communication argued the need for structural policies to allocate an increased amount of funding to RTD and innovation-related activities. It suggested that structural interventions should assist better LFR participation rate in the Community's RTD Framework Programme; to finance the transfer of technology and to introduce greater innovation into firms.

   The assumption behind these recommendations was that substantial resources had been directed almost exclusively to finance classic RTD infrastructure and pre-competitive research. For example, an evaluation carried out in Greece, Ireland and Portugal at the end of the 1989-1993 Structural Funds' programming period concluded that structural interventions, whilst positive in their overall impact, faced a number of problems. These were identified as: lack of revenue finance to operate facilities; overemphasis on public sector supply instead of stimulating private sector demand; over-reliance of Member States on external (EC) funding and undue concentration of RTD activities around capital cities.

7. The situation has evolved since then in quantitative terms (see graph 2 and table 3 in the annex).

Graph 2 - Evolution in the RTD component of structural interventions



   Moreover, in some countries and regions, more effort has been put into building human capital, including raising the number of qualified RTD personnel and emphasising networking, brokerage and demand stimulation. In Ireland, for example, following the last mid-term review, greater emphasis has been given over to in-company research and development, including training. In short, less research for firms; more research in firms.

8. In parallel with the main interventions of the Funds, the Commission launched a number of pilot projects to explore ways to overcome the above structural difficulties (BOX 1).

BOX 1

REGIONAL STRATEGIES

Under the Art.10 of the European Regional Development Fund (ERDF) and in collaboration with the Innovation Programme, Regional Innovation Strategies (RIS - Art.10 ERDF) and Regional Innovation and Technology Transfer Strategies and Infrastructures (RITTS - Innovation Programme) have been developed with the following main objectives (see map in annex):

- to create a clear strategic framework for integrating innovation in the productive structure of the region;
- to establish networks of co-operation within firms and between firms and the public sector;
- to strengthen the RTD and innovation supply in the region.

Funded by Art.6 of the European Social Fund and Art.10 of the ERDF, Regional Information Society Initiatives have been launched to take account of the growing importance of information and communication technologies (ICTs) for regional development, work organisation, human resources, employment and equal opportunities.

Despite all these positive changes, a large part of structural interventions still tends to be directed towards support of the existing scientific (public-oriented) system - especially in the Obj.1 regions - perpetuating and eventually reinforcing the structural problems besetting the regional innovation system. This issue needs to be examined critically.

THE COMMUNITY FRAMEWORK PROGRAMME FOR RTD

9. The Framework Programme (FP) has contributed to socio-economic cohesion through training of researchers, dissemination of scientific and technological knowledge toward the LFRs; and creation of networking structures.

   Under the Third FP and the Fourth FP virtually one quarter of links established have been between the four cohesion countries and the other eleven Member States. In 1997 alone more than 13.000 such links were established.

   The financial participation rate of LFR of nearly 9% - with a slight increase in the Fourth FP – is in proportion to their current scientific capacity.

   Two cohesion countries, Spain and Greece, have made important progress in the field of Information Technology, Biomedicine and Health for example. Standards, measurement and testing is also an important area where the 4 Cohesion countries have improved their participation. On the other hand, progress remains to be made in Industrial and Material Technologies and Biotechnology.

   Furthermore, special features of the Fourth Framework Programme have proved to be particularly relevant for LFRs, such as the demand-oriented Technology Stimulation Measures for SMEs (TSMEs) (BOX 2).

BOX 2

TECHNOLOGY STIMULATION MEASURES FOR SMEs (TSMEs)

Based on the successful CRAFT actions under BRITE-EURAM, TSMEs encourage the take up of "Exploratory Awards" and allow SMEs to engage third parties to carry out co-operative research. There is a higher level of participation from companies from the four cohesion countries in these measures than in their average participation in Framework Programme projects.

Moreover, these project-types, by being centred on their technological needs, provide a new dimension for local medium/low tech SMEs to network with foreign companies. These efforts are reinforced by the Innovation Programme which fosters innovation and technology absorption, and by Innovation Relay Centres which assist LFRs to access relevant information and by RITTS projects which help to develop an innovation culture.

10. The Fifth Framework Programme intends to focus on solving a limited number of socio-economic problems by means of 'key actions'. Particularly relevant for LFRs will be those key actions dedicated to 'Sustainable management and quality of water', 'Sustainable development of agriculture, fisheries and forestry, including the integrated development of rural areas', 'Systems and services for the citizen', 'Sustainable mobility and intermodality' and 'The city of tomorrow and cultural heritage'.

    Following on from the Fourth FP, several successful actions will be reinforced, notably the training and mobility of researchers, the promotion of innovation and the dissemination of research results and networking of researchers. In this respect, the future programme on "Promotion of Innovation and encouragement of SMEs participation" will further support LFRs by favouring networking activity and by fostering best practice.

DEVELOPING COMPETITIVENESS AND COHESION AT NATIONAL AND REGIONAL LEVELS

11. There is an increasing recognition that encouraging competitiveness, in an era of rapid global economic, technological and cultural change, requires key policy interventions at various levels:

    - Strategic planning and promotion of partnership at all levels;
    - Education and training policies;
    - Provision of venture capital;
    - Regulatory policies;
    - Provision of hard and soft infrastructure;
    - Enterprise development policies.

12. In the context of Structural Funds' interventions, for example, there is a clear trend in Objective 2 areas towards embedding RTD and innovation in more sophisticated local economic strategies for creating and reinforcing competitive advantage and overcoming disadvantage. Frequently, Objective 2 areas can exploit the economic advantages of large cities. For example, clusters of industries or sectors can exploit economies of scope, tacit knowledge transfer and dynamic networks. Such clusters may also have access to sophisticated telecommunications networks and a high, concentrated demand for the goods and services to which such networks give rise. North Jutland in Denmark offers a good example of clustering. (BOX 3).

Rural or coastal areas, on the other hand, will have the opportunity to exploit different assets in which environment and perhaps tourism will play a part.

BOX 3

NORTH JUTLAND, DENMARK (Obj.2)

North Jutland has suffered high levels of unemployment as a consequence of closures in the shipping and related industries. Its major problems were – and, to an extent, still are – lack of internationalisation, relatively few entrepreneurs for its size and lack of key skills and a core of long-term unemployed. North Jutland has nevertheless been extremely successful in following a development strategy that puts RTD and innovation at its heart. The strategy includes:

introducing innovative practices, technologies and techniques into traditional industries and services, adding knowledge to design and production processes, as well as using new materials and developing new products;

encouraging the attraction and growth of high tech industries, based on the convergence of science, research, technology development and innovation, particularly in communications technologies and applications;

maintaining and improving the education and training of the workforce, aiming to improve management development and graduate retention.

Since 1989 private industry has been allowed to take advantage of Structural Fund assistance under Objective 2. This in turn has stimulated interest among SMEs in developing innovation-based programmes which have increased the "knowledge content" of products, and management and production processes. Relationships between SMEs and research institutions have improved, but at first the relationships tended to reflect "technology push" on the part of the RTD providers. More recently, however, this has changed since SMEs have begun to influence the researchers on a more equal basis. In three areas - chips and circuits, communications equipment and image analysis - groundbreaking new commercial and domestic applications have developed in a very short time-scale.

Clusters are forming to develop these complementary activities and economies of scope. The University of Aalborg has, through its NOVI initiative (science / technology park and related funding mechanisms), helped to reinforce this physical consolidation and, working with key firms, has also participated in the 3rd and 4th Framework Programmes for research.

The ability to plan for the future, both *horizontally* across related policy areas, and *vertically* between levels of authority is growing in North Jutland. Twenty- seven municipalities have joined up behind this regional economic development strategy which has put RTD and innovation high on the list of interventions. Various ministries are developing a dialogue with the region in order to support local development.

13. It is necessary to ensure that RTD and innovation interventions are integrated with the productive fabric of the region. The regional RTD and innovation system – no longer seen as dominated by supply-driven research institutes but expanded to include firms, policy-making institutions and the labour market – should be responsive to the local economic *milieu*. LFRs, less adept at attracting high added value activities, can gain particularly by synchronising their RTD and innovation strategies with their economic plans.

14. From the previous analysis the following considerations emerge.

- Public interventions should be directed towards developing integrated frameworks which in turn have strong links to the market (ie. venture capital; access to the single market...)
- These frameworks should address the environment in which firms - SMEs in particular - and RTD and innovation players work.
- They should be based on an effective and accurate 'needs analysis'.
- Consensus, partnerships and commitment of key players are essential.
- Real co-ordination must be sought at national and European levels
  - to avoid unnecessary duplication of effort between the regions, and
  - to ensure a wider distribution of technological capabilities.

These considerations have led to the idea that in order to help reduce the economic gap, a systemic approach should be adopted to enable RTD and innovation policy to be well integrated within a wider local and regional economic development strategy.

RTD AND INNOVATION - A SHARED RESPONSIBILITY

15. From a competitiveness and cohesion point of view, there is thus a clear need to formulate **INTEGRATED RTD AND INNOVATION STRATEGIES** which connect to the economic development process in the regions and which, via the national system of RTD and innovation support, is integrated into a wider European perspective. The strategy is articulated at three levels.

- Role of ***local and regional levels***
  - i. carry out the analysis of regional and local needs and potential;
  - ii. develop the strategic framework in which research, technology innovation and related policies should be embedded;
  - iii. implement an agreed programme for RTD and innovation which incorporates specific priorities and measures, suitable for delivery by appropriate agencies;
  - iv. organise a streamlined, focused and inclusive regional partnership which takes responsibility for effective strategic economic development planning, co-ordination of policy instruments and provides the necessary finance to fund the strategy and the actions.
- Role of the ***Member States***
  - v. determine national framework conditions which can assist RTD and innovation efforts;
  - vi. shape national RTD and innovation policies and systems including the distribution of technological installations and programmes to assist usage of these facilities by business in the regions;

vii. prepare the development plans to be co-financed under the Structural Funds.

– Role of the ***Member States and the EU***

viii. establish the long-term strategic objectives of RTD and Innovation policies, based on a comprehensive understanding of the strengths and weaknesses of the RTD and Innovation system and the economic system of each Member State;

ix. ensure that interventions are coherent and that available instruments are aligned and directed towards compatible goals.

Two strategic platforms present themselves. Firstly, the Green Paper on Innovation and the Action Plan for Innovation have provided the Commission and Member States with a common framework allowing for the identification of priority options and opportunities for co-operation. Secondly, in order to promote a wide-ranging discussion on the long-term guidelines for European territorial development, Member States have agreed to develop a European Spatial Development Perspective (E.S.D.P.) whose adoption is envisaged for Spring 1999.

16. All levels should agree on performance criteria and targets, devise effective monitoring and evaluation procedures and harmonise programme time-scales. Indeed, it is necessary to base performance criteria and targets on a clear understanding of the overall impacts of RTD and innovation policies on regional development and cohesion. Thorough evaluation of interventions will allow for more accurate performance indicators to be set.

17. Implementation of a broader-based RTD and innovation strategy will ultimately be fine-tuned by conditions and potential in the regions and localities themselves, but there remain certain key activities which no Member State or region can afford to ignore. Innovation promotion, industrial co-operation and networking and strengthening of human capabilities will be common to all the strategies.

THREE PRIORITIES

PROMOTING INNOVATION

18. A key proposition underpinning this Communication is that cohesion policy should shift from primarily promoting upstream research and technological capacity on its own, towards helping to turn RTD and Innovation efforts into economic activity. Significant elements for promoting innovation in this context are as follows :

i. focus innovation strategies on demand-side schemes for raising awareness of technology and strengthening innovation management. Many firms, SMEs in particular, continue to regard innovation as an additional burden and a cost, rather than as an opportunity and an investment for the future. SMEs may not necessarily be aware of their needs (eg. access to international markets) and may not, therefore, seek solutions. Nor do small firms developing research results tend to be in a position to sell them.

ii. promote a policy of total quality management at regional and local level as it opens the way to stimulate demand for innovation (particularly in SMEs) and to contribute to increased business competitiveness. (BOX 4).

BOX 4

EUROMANAGEMENT

The EUROMANAGEMENT scheme is applicable to both the national and local level. Firstly, a common methodology to assist SMEs in areas which are critical to their survival or growth (eg. environment, RTD, standardisation, certification, quality etc) is established. Then, SMEs in fields relevant to the concerted action are audited by consultants in order to assess their strengths, weaknesses and readiness to apply for EU programmes. Accessing the subsequent reports is of great interest for specialised consultants, public authorities and SMEs, as they allow for the identification of experimentation and benchmarking throughout Europe.

iii. develop new financing and management mechanisms adapted to the characteristics of the economic structures of LFRs and take into account the need to establish alternative forms of financing and the establishment of direct links with financial markets (BOX 5).

BOX 5

GLOBAL CDTI GRANT

The global CDTI (Centro para el Desarrollo Technologico Industrial) grant in the Spanish Objective 1 Community Support Framework (CSF) represents another interesting scheme. The Global CDTI Grant is an instrument, under the Spanish CSF for Obj.1 regions, by which technological projects submitted by firms are co-financed (up to 50% of total costs) with either no reimbursement in case of failure or, in case of success, reimbursement over a 5 year period starting after the end of the project with no interest applied. No guarantee is requested. The funds, once reimbursed, are reintroduced in the system for the financing of new projects.

iv. rationalise the excessive supply of business support services in the Member States to ensure a higher degree of specialisation and targeting of the services offered.

v. encourage activities which support innovation, including :

- promotion of professional mobility and new work schemes to assist employment growth;
- co-operation between research institutes (public and private) and SMEs;
- exploitation of information technologies;
- venture capital support policies to assist the "spinning out" of new firms (eg. from universities or larger firms intensive in RTD and Innovation).
- intellectual property rights policies, particularly those supporting SMEs.
- develop mechanisms to promote company related RTD, aimed at increasing the number of firms undertaking RTD, particularly 'first-timers'.

vi. Learn from best practice where clustering occurs in centres of excellence, in universities, science and technology parks, for the purpose of :

- Developing commercial applications from research in these fields.

- Using the financial and commercial expertise offered by business angels and venture capital funds to incubate new firms which can exploit these technologies and capture new markets.
- Using technologies to benefit local communities – eg. to improve online access to public services, or to develop networks for community information and training.

IMPROVING NETWORKING AND INDUSTRIAL CO-OPERATION

19. Ever-increasing market pressure such as globalisation, deregulation, changing patterns of demand, and new societal needs as well as scientific and technological developments, make innovation more complex, more costly and more risky. To manage this complexity, it is not sufficient to purchase advanced equipment or to have access to new technologies.

    There is also a need to integrate innovation into other functions of business development – such as marketing, human resources development, quality control – and create feedback loops in the management of firms. Since SMEs tend to lack the articulation of large firms, they have to rely on capabilities external to the firm. Accordingly, policy interventions need to be based on a proper understanding of the mechanisms governing networking capabilities of SMEs. Important elements of policy definition are:

    - developing actual channels for technology information and acquisition, and the scope for change / amplification of these channels through networking;
    - identifying existing gaps (communicative, cultural) between SMEs and the technology supply infrastructure;
    - facilitating business networks to encourage inter-firm learning and building of collective strategies to improve market position;
    - creating regional clusters of subcontracting firms since sub-contracting activity is often a key feature of LFRs' productive structures;
    - developing technology validation and technology transfer projects as a tool to demonstrate the benefits of adopting innovative technologies and processes;
    - taking account of social aspects of innovation;
    - understanding the organisational and spatial conditions for technology support and transfer in order to facilitate a customised and differentiated approach to technology support.

20. The Commission has developed a number of instruments which support networking, favour industrial co-operation and stimulate public / private partnerships (BOX 6).

BOX 6

COMMUNITY NETWORKS

Community networks such as the Innovation Relay Centres, Euro-info Centres and the European Networks and Services can assist LFRs. These networks facilitate their participation into Community activities and improve their absorption capability with regard to new technology and innovation. For example, the Commission has promoted since 1984 a network of Business Innovation Centres (BICs). These offer the advantage of being linked to an international network (European BICs Network) managed at central and national levels, which assists technology transfer, ensures the transfer of know-how and facilitates interregional and international co-operation between firms. These networks need to be more responsive to the local actors charged with defining and implementing territorial and business strategies aimed at creating or reinforcing local innovation systems.

REGIONAL INNOVATION STRATEGIES – THE CASE OF WALES

The Regional Innovation Strategy in Wales - previously the Regional Technology Plan – co-financed by the Art.10 of the ERDF-led to one consultation exercise involving over 700 individuals representing over 600 organisations. As a result of the final Regional Technology Plan, 60 key projects have been identified across all sectors of the Welsh economy and have now moved into the implementation phase (eg. the Welsh Business Angels Network, graduate development and placement programmes, the Welsh Centre of expertise, the Technology Implementation Programme for SMEs). Moreover, under the Objective 2 Industrial South Wales Programme (1997-1999), the priorities identified in the RTP have been embodied in its various measures: around 20% of the total Programme is devoted to this activity, ie. investment in excess of £90 million with a Structural Fund input of just under £40 million.

STRENGTHENING HUMAN CAPABILITIES

21. Human capabilities are central to competitiveness and development processes based on knowledge. Attention should thus be given to:

    i. the training of human resources;

    ii. the establishment of feedback mechanisms between the private sector and technical institutes and universities (partnerships);

    iii. in-company placement of researchers and mobility in the international context (exchanges between institutions in developed and less favoured regions). Examples of the latter can be found in the Framework Programme for Research and Development (BOX 7).

BOX 7

THE MARIE CURIE FELLOWSHIP

In the "Training and Mobility of Researchers" Programme, in which the Marie Curie Fellowship system aims to provide advanced training through research, there are specific instruments by which LFRs can clearly benefit, one such being the Marie Curie Individual Return Fellowship Programme, which encourages researchers originating from an LFR to return to an LFR in their own country. The forthcoming Marie Curie Development Host Fellowships system will contribute to the development of new competence in existing research institutions in less favoured regions. Participants in this activity will be research institutions in LFRs with a need to develop new areas of competence, as well as developing the young and experienced researchers hosted by these institutions. Under the Marie Curie Experienced Science Fellowships Programme, expertise of Europe's experienced researchers will be transferred between industry and academia (in both directions) and similarly transferred to LFRs, within a dedicated component of this programme. Other activities under discussion within the Marie Curie system could help in a more indirect fashion. These include measures to encourage PhDs to stay at Community research sites, or Industry Host Fellowships in which SMEs in particular will be encouraged to participate as hosts to young researchers through special measures. Opening up major research infrastructures to research teams who would not normally have access to them is a further goal under consideration for the next Framework Programme.

22. A key point to bear in mind is the need in SMEs for management support to help them absorb new technologies. Greater availability of technology alone will not produce optimum results. Development of training schemes in technology management and continuing training of employees in SMEs in new techniques is therefore essential. Community action can contribute to this objective:

- efforts can be intensified to increase investment in human capital and life-long learning in LFRs. The Structural Funds can support graduate placement schemes, which could be tailored to local conditions and needs;
- the European Social Fund's action under the current Obj.4 is aimed at improving both the qualifications, management capability and employment prospects of workers who are in employment. It is a direct response to the need to help workers throughout the Union adapt to industrial change and to changes in production systems, to which the Community Initiative ADAPT has already made a significant contribution. The new proposed Objective 3 (encompassing the current Obj.3 and 4) will consolidate this intervention;
- the role of ICTs in the development of open and distance learning systems to facilitate access to training, especially for SMEs, low skilled workers and long term unemployed must be promoted, as well as support systems for tele-workers.

CONCLUSIONS

23. RTD and innovation policies have to be integrated within the productive fabric of the region. This means regional players have to identify and direct resources towards strategic regional priorities.

An integrated RTD and innovation strategy should be based on partnership between local and regional bodies, Member States and the European Union. The strategy should aim to promote innovation, improve networking and industrial co-operation and strengthen human capabilities and be adapted to the institutional, socio-economic and cultural characteristics of each region. The Commission's role should be to create the framework for this to happen.

24. Regions should initiate and develop an integrated RTD and innovation strategy, based on the needs of the regional economic structure and progressively enhancing the content of the regional development plans during the next round of Structural Fund interventions.

Member States should ensure, in a spirit of partnership, that the relevant national policies complement and support the needs and potential identified at regional and Community level.

Member States are invited to take into account the recommendations set out in this Communication in the context of the work being carried out by the ESDP.

25. The Commission:

- favours the integration of RTD and innovation into the future structural programmes. This Communication forms the basis for the establishment of guidelines for structural interventions in the area of RTD and innovation. It also serves as a reference for the *ex-ante* evaluation of the coherence of the RTD and innovation strategy set out in the regional development plans;
- intends to build on the experience gained under present regional innovation and information society strategies in order to consolidate a demand-led, bottom-up approach, in accordance with the principle of subsidiarity;

- invites each Member State to develop jointly, in advance of the next programming period of the Structural Funds, a set of fine-tuned performance indicators for RTD and innovation against which to evaluate and monitor structural interventions;
- proposes strengthening the trans-national partnership, between the centres of excellence located in the regions not yet sufficiently developed at the technological level and the centres of excellence in the other regions. In this context, it intends to promote various forms of co-operation, on a voluntary basis, such as:
  - vocational training courses in excellence centres (ESF);
  - the reinforcement of the structures and of scientific equipment in the eligible regions (ERDF);
  - the creation of trans-national consortia (or of EEIG) for research projects under the RTD FP.
- invites each CEEC and Cyprus to develop an appropriate RTD and innovation strategy at regional and national level, to be considered within their respective pre-accession frameworks as agreed by the European Council in Luxembourg. The Commission will stimulate exchange of experience between candidate countries and Member States;
- intends to create an RTD and Innovation European Interactive Web site to interlink regions, Member States and candidate countries.

ADAPT	Community Initiative designed to anticipate and prepare for changes in employment structure within firms
BERD	Business Expenditure on Research and Development
BICs	Business Innovation Centres
BRITE-EURAM / CRAFT	Materials Programme under FPIV; / Initiative aimed at encouraging SME participation in European Research Projects
CEECs	Central and Eastern European Countries
CSFs	Community Support Frameworks (programmes in Objective 1 regions)
ERDF	European Regional Development Fund
ESDP	European Spatial Development Perspective
ESF	European Social Fund
FP	Framework Programme on Research and Technological Development
GERD	Gross Expenditure on Research and Development
ICTs	Information and Communication Technologies
LFRs	Less Favoured Regions
RIS	Regional Innovation Strategies
RISI	Regional Information Society Initiatives
RITTS	Regional Innovation and Technology Transfer Strategies and Infrastructures
RTD	Research and Technological Development
SMEs	Small and Medium Enterprises
SPDs	Single Programming Documents (programmes in Objective 2 and 5b regions)
TSER	Targeted Socio-Economic Research
TSMEs	Technology Stimulation Measures for SMEs

TAB.1

RTD: Basic Indicators

1995

	B	DK	D	F	I	NL	A	FIN	S	UK	EUR 11 [2]	EUR 4	EL	E	P
BASIC DATA															
Population (1000)	10137	5228	81661	58138	57301	15459	8047	5108	8827	58606	308511	163179	10454	39210	9917
Labour force (1000)	4183	2796	38961	25033	22607	7304	3842	2429	4498	28404	140057	25948	4201	15561	4753
GDP (in Mio ECU)	205852	132474	1845177	1176205	831376	302543	172372	95599	176275	841571	5779444	643889	87416	428091	79166
GDP / Capita	20307	25340	22596	20231	14509	19571	21422	18716	19970	14360	18733	10192	8362	10918	7983
GERD (Mio ECU)															
per habitants (1000 ECU)	327	462 [1]	515	473	151	403 [1]	339 [1]	443	689	295	384 [1]	383 [1]	40 [1]	87	192	47
as % of GDP	1,61%	1,82% [1]	2,28%	2,34%	1,04%	2,06% [1]	1,58% [1]	2,37%	3,45%	2,05%	2,05% [1]	0,82% [1]	0,48% [1]	0,80%	1,21%	0,61%
R&D Personnel															
as % of labour force	1,23%	1,71% [1]	1,52% [1]	1,58% [1]	0,86% [1]	1,47% [1]	1,18% [1]	1,97%	1,95%	1,22% [1]	1,37% [1]	0,73% [1]	0,83%	0,72% [1]	1,14% [1]	0,52%
RTD: GOVERNMENT SECTOR															
GBAORD as % of total budget	1,95%	1,79%	3,60%	4,33%	1,65%	2,70%	2,37%	2,90%	3,17%	2,27%	2,93% [1]	1,62% [1]	0,67% [1]	1,96% [1]	1,05% [1]	1,61% [1]
GOVERD as % of GDP	0,06%	0,32% [1]	0,34%	0,49%	0,22%	0,37%	0,12% [1]	0,41%	0,13%	0,30%	0,33% [1]	0,16% [1]	0,13%	0,17%	0,14%	0,16% [1]
HERD as % of GDP	0,44%	0,41% [1]	0,43%	0,38%	0,26%	0,58% [1]	0,50% [1]	0,46%	0,63%	0,39%	0,41% [1]	0,24% [1]	0,22%	0,25%	0,27%	0,21%
R&D personnel in GOV and HES															
as % of total R&D pers.	47%	47% [1]	46% [1]	50% [1]	62% [1]	60% [1]	59% [1]	49%	45%	44% [1]	49% [1]	73% [1]	89% [1]	71% [1]	54% [1]	69%
RTD: BUSINESS ENTERPRISE SECTOR															
BERD (Mio ECU)															
as % of GDP	1,09%	1,10%	1,51%	1,44%	0,56%	1,09%	0,83% [1]	1,50%	2,68%	1,34%	1,30% [1]	0,35% [1]	0,11% [1]	0,37%	0,99%	0,12%
as % of GERD	67%	60%	66%	62%	54%	53% [1]	52% [1]	63%	78%	65%	64% [1]	45% [1]	24% [1]	46%	74%	28%
R&D personnel in private sectors															
as % of labour force	0,65%	0,92%	0,82% [1]	0,80% [1]	0,33% [1]	0,59% [1]	0,49% [1]	1,00%	1,08%	0,68%	0,69% [1]	0,20% [1]	0,09% [1]	0,21% [1]	0,33%	0,16%
as % of total R&D pers.	53%	53% [1]	54% [1]	50% [1]	38% [1]	40% [1]	41% [1]	51%	55%	56%	51% [1]	27% [1]	11% [1]	29% [1]	46%	31%
Nr. of Europ. patent applications															
per Mio population	94	119	168	95	46	116	99	172	199	79	108 [1]	111 [1]	4	12	39	3

Source: Eurostat

[1]: Estimation

[2]: Luxembourg not included

All personnel data in head count

ECU: Current exchanges rates

GERD - Gross domestic expenditure on R&D

GOVERD - R&D expenditure in the GOV

HERD - R&D expenditure in the HES

BERD - R&D expenditure in the BES

GBAORD - Government budget appropriations for R&D

GOV - Government sector

HES - Higher education sector

BES - business enterprise sector

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TAB. 2

RTD: Basic Indicators

Regional differences

	GERMANY [4] 1993		FRANCE [3] 1994		ITALY 1994		SPAIN 1994		PORTUGAL 1995		GREECE 1993		EUR11 [2] 1995	EUR4 1995
	Obj1	n-Obj1	GERD<	GERD>	Obj1	n-Obj1	Obj1	n-Obj1	Rest	Lisbon	Rest	Attiki		
R&D in the GOV														
GERD (Mio ECU)														
per habitants (1000 ECU)	179	548	21	94	67	211	44	151	30	81	26	57	384 [1]	83 [1]
as % of GDP	1,78%	2,46%	1,25%	3,49%	0,64%	1,20%	0,50%	1,18%	0,46%	0,81%	0,36%	0,67%	2,05% [1]	0,82% [1]
R&D personnel														
as % of labour force	na	na	0,65%	2,16%	0,49%	0,97%	0,54%	1,20%	0,38%	0,80%	0,63%	0,96%	1,37% [1]	0,73% [1]
R&D in public sector														
GOVERD														
per habitants (1000 ECU)	52	78	3	15	12	46	7	34	3	31	8	18	61 [1]	16 [1]
as % of GDP	0,52%	0,35%	0,20%	0,56%	0,11%	0,26%	0,08%	0,27%	0,05%	0,31%	0,12%	0,21%	0,33% [1]	0,16% [1]
HERD as % of GDP	0,62%	0,41%	0,11%	0,29%	0,33%	0,25%	0,28%	0,24%	0,20%	0,21%	0,17%	0,24%	0,41% [1]	0,24% [1]
R&D personnel in GOV and HES														
as % of total R&D personnel	na	na	31%	30%	83%	57%	86%	64%	67%	72%	88%	81%	49% [1]	73% [1]
R&D in private sector														
BERD (Mio ECU)														
as % of GDP	0,64%	1,70%	0,93%	2,60%	0,19%	0,69%	0,13%	0,66%	0,10%	0,14%	0,07%	0,22%	1,30% [1]	0,35% [1]
as % of GERD	36%	69%	75%	75%	30%	57%	27%	56%	23%	18%	20%	33%	64% [1]	45% [1]
R&D personnel in private sectors														
as % of labour force	na	na	0,46%	1,50%	0,09%	0,42%	0,08%	0,43%	0,13%	0,23%	0,07%	0,18%	0,69% [1]	0,20% [1]
as % of total R&D personnel	na	na	71%	69%	17%	43%	14%	36%	33%	28%	12%	19%	51% [1]	27% [1]
Nr. of European patent applications														
per Mio population	23	176	65	172	7	61	5	20	1	2	2	8	108	11

Source: Eurostat

All personnel data is head count

ECU: Current exchanges rates

[1] Estimation

[2] Data for Luxembourg are not available

[3] The first column contains the averages of all French regions whose GERD (as % of GDP) is less than the average of the country (2.38%)

[4] Statistics for regional RTD expenditure and personnel in higher education are not available

GERD - Gross domestic expenditure on R&D

GOVERD - R&D expenditure in the GOV

HERD - R&D expenditure in the HES

BERD - R&D expenditure in the BES

GOV - Government sector

HES - Higher education sector

BES - business enterprise sector

TAB.3

RTD: Basic Indicators

Structural Funds

1989-1993 / 1994-1999

Mio ECU

	1989-1993			1994-1999		
	TOT	RTD	%	TOT	RTD	%
Obj.1	43.818	1.280	*2,92%*	93.972	5.049	*5,37%*
Obj.6				697	58	*8,28%*
Obj.2	6.130	705	*11,50%*	15.352	2.580	*16,80%*
Obj.5b	2.232	32	*1,43%*	6.860	142	*2,06%*
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Obj.3 / 4	6.669	453				
Obj.3				12.938	-	-
Obj.4				2.246	-	-
Obj.5a agriculture	3.523	-	-	5.251	-	-
Obj.5a fishery	579	-	-	885	-	-
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
All objectives	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Community Initiatives	5.285	1.450	*27,44%*	14.018	690	*4,92%*
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Source: DGXII data

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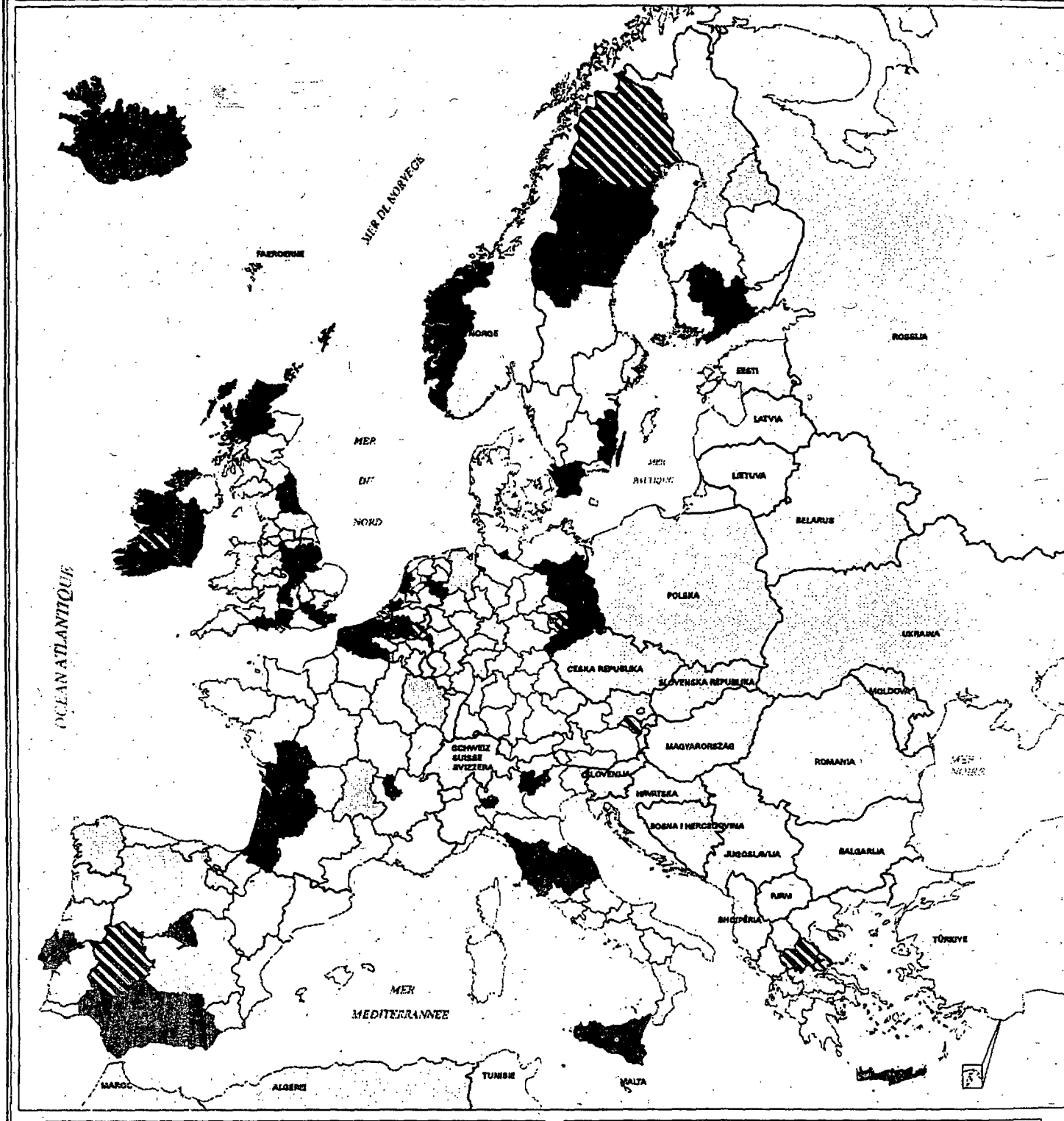
DIRECTION GENERALE XVI
POLITIQUES REGIONALE ET COHESION

DGXVIGIS

Article 10 du FEDER : Actions innovatrices en coopération avec la DG XIII, le Programme Innovation
Article 10 of ERDF : Innovative measures in cooperation with DG XIII, the Innovation Programme

Stratégies Régionales d'Innovation (R.I.S.) et Infrastructures et Stratégies Régionales de Transfert de Technologie et de Soutien à l'Innovation (R.I.T.T.S.)
Regional Innovation Strategies (R.I.S.) and Regional Innovation and Technology Transfer Infrastructures and Strategies (R.I.T.T.S.)



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- *R.I.S. & R.I.T.T.S.*
- *Projets pilotes R.I.S. 1996-98 (y compris projets pré-pilotes RTP 1994-96)*
  R.I.S. pilot projects 1996-98 (pre-pilot projects RTP 1994-96 included)
- *Projets R.I.T.T.S. préselectionnés 1995-98*
  R.I.T.T.S pre-selected projects 1995-98
- *Frontières Nationales*
  National Boundaries
- *Frontières de Régions (NUTS 2)*
  Regional Boundaries (NUTS2)

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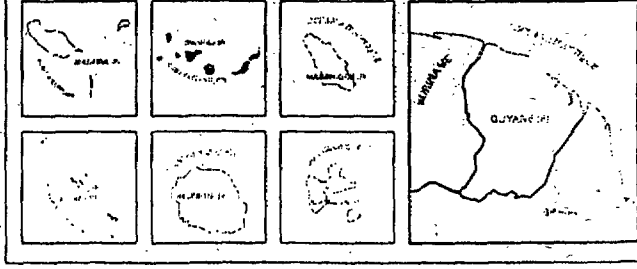

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