

FIVE YEAR ASSESSMENT REPORT

RELATED TO THE

SPECIFIC PROGRAMME:

INNOVATION

AND

INNOVATION-SME

COVERING THE PERIOD 1995-1999

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1. Executive Summary

Innovation has long and widely been argued to be the engine of growth. Innovation is also considered as a key factor in sustainable economic development, social development, new job creation and industrial competitiveness, being a topic of discussion and debate for a very long time. The creation, management and promotion of innovation is a multidisciplinary exercise requiring the expertise of many areas such as engineering, manufacturing, marketing and business strategy, finance, human resources management etc.

In the mid 1990s the European Commission launched a series of policy initiatives, among which the INNOVATION Programme and the Green Paper on innovation were the major ones, reflecting a rethinking on research and innovation policies. These initiatives combined the response to social objectives with the need to further valorize and exploit the results of European research, realizing that innovation policy has wider objectives than those of science and technology policy. The Action Plan for innovation in Europe, based on the Green Paper, was an effort to define concrete actions, which would lead to a European innovation policy with a strong and distinct role among the other EU policies on the one hand and national and regional innovation policies on the other. Organizational change and better resource management within the Commission would support the new innovation policy.

The INNOVATION Programme within the Third Activity of Framework Programme 4 (FP4) approved on December 1994, seemed to respond to the specified requirements. The programme, which had a budget of 312 Mecus, was aimed at enhancing the culture of innovation in Europe and strengthening the innovative behavior of European industry. There was a special emphasis on SMEs, research results exploitation and technology diffusion. During its operation from 1994 to 1998, the programme undertook a large variety of activities trying to create and promote a European innovation policy, to develop innovation management methods and tools and diffuse them among European firms, especially SMEs, to coordinate the national and regional innovation policies and to set up infrastructures for the dissemination of Community RTD results. However the effectiveness of the effort has been undermined by the limited resources and authority of the programme.

The new INNOVATION-SME Programme within the current Framework Programme 5 (FP5) has taken advantage of the experience acquired by its predecessor. Hence, it has clarified its objectives and focused on specific areas of activities. However, its limited resources (its budget of 363 Meuros has not marked a substantial increase on its predecessor's) in comparison with the high number of its activities as well as its limited authority upon the thematic programmes, undermines its effort and prevents it from effectively coordinating the Commission's innovation activities.

More precisely, the views of the panel on the effectiveness and efficiency of INNOVATION and INNOVATION-SME, are those summarized in the following points.

- INNOVATION has consistently provided in-depth study and debate in support of the priorities identified by the Action Plan for innovation in Europe.

- INNOVATION has undertaken a large, possibly too large, number of activities, varying widely in themes and modes of operation, with a relatively small total budget. At the operational level, both proven schemes and experimental ones have been undertaken. Good results have been achieved against the initial objectives but failures have also been noted. The good results of some activities were not made as visible as they would deserve.
- Systematic and continuous evaluation and monitoring procedures based on measurable targets have not been implemented consistently across the programme, especially in the case of the experimental actions. In most cases continuation or discontinuation of these actions did not depend on evaluation exercises.
- INNOVATION had the responsibility but not the means to co-ordinate the dissemination and exploitation activities within the specific programmes of FP4. Co-ordination of similar activities under FP5, though potentially improved, has not yet arrived at concrete results. In particular, it seems that INNOVATION-SME lacks the budget authority to fully leverage the operations and efficiency of the Innovation Cells.
- More generally, INNOVATION-SME's organisational arrangement is not very positive for the effective operation of the programme, since in many cases the programme's budget authority is not aligned with its objectives and responsibilities.
- The complexity and standardization of the Commission's procedures, leading to a high cost of application, hampers SMEs from fully benefiting from INNOVATION-SME.
- It is open to question whether INNOVATION-SME can be effective and even viable in its efforts of co-ordination and in its service tasks for the thematic programmes, and if it would be better to let the programme pursue wider innovation objectives in its own right.

The recommendations of the panel can be summarised in the following points.

1. The importance of innovation should be further enhanced and promoted. In addition, the role of INNOVATION-SME should be strengthened significantly within FP5.
2. The Commission should define a clear strategic role for INNOVATION-SME. The programme should focus on those customers where the highest leverage effects can be achieved and where its core competencies can be used best.
3. The complex organizational situation of the programme should be clarified and simplified. Its structural complexity prevents INNOVATION-SME from effectively managing its resources and from giving the appropriate transparency of its structure to its clients.
4. INNOVATION-SME should improve its co-ordination with other innovation related activities undertaken by the Commission and within Member States
5. Permanent evaluation and self-evaluation mechanisms, based on an appropriate set of performance indicators, should be established across all activities and consistently followed throughout the lifecycle of the programme.

6. Appropriate evaluation procedures for the Commission staff, based on the ability to follow up and manage projects effectively, should be implemented. Training and measuring the performance of Commission staff is a serious issue whose examination would improve eventually the effectiveness of the programme.
7. The Commission should examine the option that the budget of CORDIS becomes independent of the budget of INNOVATION-SME, while still remaining within the activities of the programme, as the on-going development of CORDIS over the life of FP5 can meet financial constraints within the present budget of the programme. In addition, it is clear that CORDIS activities are not directly linked to innovation.
8. The Panel strongly recommends that in such an event, the budget of INNOVATION-SME should in no way decrease.

2. Introduction

This report concerns the external evaluation of the activities carried out within the INNOVATION Programme, as well of those carried out within the INNOVATION-SME Programme.

INNOVATION implemented the Third Activity “Dissemination and Exploitation of Results” of the Fourth RTD Framework Programme (1994-98). Complementing and supplementing the dissemination and exploitation activities implemented under the specific research programmes, INNOVATION pursued a range of activities and services focused on three interrelated objectives: a) promotion of an environment favorable to innovation and the absorption of new technologies by enterprises, b) stimulation of a European open area for the diffusion of technologies and knowledge and c) supply of this area with appropriate technologies.

INNOVATION-SME aims to promote innovative activities contributing to a more effective implementation of the first action plan for innovation, and to encourage and facilitate participation of SMEs in the FP 5. Consequently, the programme stands at the cross-roads of the Community's policies on Research, Innovation and SMEs. It promotes innovation at Community level and encourages SME participation in R&D activities. It supports European businesses to innovate, to develop and integrate new technology and to manage change more effectively. It also pursues the spread of innovation culture in Europe, the creation of a more innovation friendly environment, the development of new innovative companies, the diffusion of new technologies and the emergence of new economic activities.

The present evaluation covers the activities carried out during the five years preceding the assessment, namely the period 1995-1999. This report contributes to the overall evaluation of the activities undertaken within the Fourth (1994-1998) and the Fifth (1998-2000) Framework Programme of the European Community for Research, Technological Development and Demonstration.

This panel of independent experts was asked to:

- Assess relevance of the specific programme objectives and identify whether they need adaptation to respond to the evolving international R&TD environment;
- Identify major achievements and lessons learned from programme implementation;
- Assess effectiveness, i.e. whether the objectives have been achieved taking into account the European added value.
- Assess efficiency, i.e. whether the objectives have been pursued in a cost-effective manner.
- Provide conclusions and recommendations for the future.

During its first meeting in September 1999, the panel was provided with an extensive information package including relative Council decisions, reports on the results of the

previous evaluation and monitoring exercises of the programme, working documents on the current and past activities and actions of the programme etc. The panel was also provided with additional information it asked concerning specific subjects.

The members of the panel studied carefully the documents provided by the Commission and the information available in the CORDIS web site. In addition to this, the panel interviewed the director and the heads of units of the DG-Enterprise, Directorate C Innovation, responsible for the implementation of the programmes INNOVATION and INNOVATION-SME. The panel also interviewed the head of the SME and Innovation Unit within the DG-Research and the responsible officers of the Innovation Cells within the thematic programmes. Members of the panel interviewed individually in their country the national representatives in the programme committee, individuals from the staff of certain local IRCs and participants in Technology Transfer and Validation projects. The members of the panel discussed and exchanged views on seven meetings held between September 1999 and May 2000.

Based on the multifarious activities of the programme, the panel decided that the most appropriate way to express its opinion was to follow the structure of INNOVATION consisting of three main objectives, each one including a number of action lines. The activities of the INNOVATION-SME may be correlated to the action lines of the parent programme in order to achieve common conclusions and show the continuity between the two programmes. The correlation is presented in the following Table 1. The panel proceeded to evaluate the individual action lines/activities on the basis of the criteria requested by the Commission. The criteria were grouped in a way that the panel considered more convenient. The groups are Relevance (R), Achievements and Lessons Learned (A&LL) and Efficiency and Effectiveness (E&E).

Chapter 2 is the main body of the assessment report. It is structured in five parts. The three of them correspond to the three objectives of INNOVATION. The fourth part examines the horizontal character of the programme while the last one deals with the new activities of INNOVATION-SME concerning the encouraging of SME participation.

Chapter 3 presents the overall assessment conclusions on INNOVATION and INNOVATION-SME, not in a priority order. Finally, in Chapter 4 the global recommendations of the panel, grouped on a conceptual basis, are presented.

**TABLE 1: CORRELATION BETWEEN THE ACTION LINES OF
INNOVATION AND INNOVATION-SME**

| INNOVATION Programme Programme FP 4 | INNOVAT Committed (Mecu) | INNOVATION-SME Programme Programme FP 5 | IN-SME Budget (MEuro) |
|---|---|---|-----------------------------|
| Objective I : Promotion of an environment favoring innovation and the absorption of technologies <ul style="list-style-type: none"> • EIMS • Financial environment • Regional action and support of science parks • Innovation management techniques • Increasing public awareness of research and technology | 10.7 14.9 19.1 11.2 6.1 | <ul style="list-style-type: none"> • Studies and Good Practices • Access to private innovation financing • RINNO • Mechanisms to facilitate the setting-up and development of innovative firms | (*) |
| Objective II : Stimulation of the emergence of a European open area for the diffusion of technologies <ul style="list-style-type: none"> • Relay centre network • European networks and services • The OPET Network • Technology transfer projects | 59.67 12.9 10 95.7(**) | <ul style="list-style-type: none"> • European support network for the promotion of research, technology transfer and innovation • Transferred to the thematic programme Energy and Environment • New approaches to technology transfer | (*) |
| Objective III: Supply of this area with the appropriate technologies <ul style="list-style-type: none"> • CORDIS • Assistance in the protection and the exploitation of RTD results • Technology validation projects | 45.63 11.8 | <ul style="list-style-type: none"> • Electronic Information services and other means of dissemination • Intellectual Property • New approaches to technology transfer | (*) |
| <ul style="list-style-type: none"> • Inter-Programme Coordination and Dissemination-Exploitation Activities | | <ul style="list-style-type: none"> • Coordination of Innovation Cells • Support activities relating to innovation activities of the thematic programmes | (*) |
| | | <ul style="list-style-type: none"> • Support activities relating to SMEs • Encouraging SME participation | |
| TOTAL | 312 | TOTAL | 363 |

(*) Not known at this stage

(**) Including Technology validation projects

3. Assessment of the implementation and achievements of the activities carried out within the INNOVATION and the INNOVATION-SME Programmes during the five years preceding the assessment

3.1 Objective I: Promotion of an Environment Favouring Innovation and the Absorption of Technologies by Enterprises

3.1.1 The European Innovation Monitoring System (EIMS) AND Studies and Good Practices

Background Information

The European Innovation Monitoring System (EIMS) appeared as a component of the SPRINT¹ Programme, aiming to improve the European innovation environment through a better understanding of the processes involved. EIMS tried to achieve its objectives by collecting and processing information on innovation policies in governments and innovation practices in firms and by developing and establishing a system for the use and exploitation of this knowledge on various levels. Under the Framework Programme 4, EIMS continued its activities within the INNOVATION Programme. Its final budget was 10.7 MECU (3.4% of the total). EIMS aimed to provide policy makers with data and tools for the analysis of the factors influencing innovation at company level across Europe. Its activities focussing mainly on six areas, i.e. Innovation policy, Finance, the Community Innovation Survey (CIS), Regional aspects of innovation, Innovation in firms and Innovation and technology transfer. The work of EIMS was pursued through calls for tenders. The dissemination of the results was mainly based on publications, workshops and conferences. The two major outcomes of the EIMS were the Trend Chart on Innovation in Europe and the Community Innovation Survey (CIS). Trend Chart pursues the collection, regular updating and analysis of information on innovation policies at national and Community level. The CIS, a joint effort of INNOVATION and EUROSTAT², aimed to collect, in a systematic way at European level, data on innovation process and practice in firms. CIS continued its activities (CIS II) through a second call for tenders in 1997. The results of CIS II had not yet been delivered.

The objectives of EIMS, within INNOVATION-SME, continued under the action "Studies and Good Practices". Studies and Good Practices supports the analysis and benchmarking of innovation performances and policies in Europe through the design, implementation and assessment of new pilot activities. The main components of the action are the further development and exploitation of the Trend Chart and the continuation and extension of the Community Innovation Survey (CIS III). During 1999, a number of call for tenders was launched for the continuation of Trend Chart and the

¹ Strategic Programme for Innovation and Technology Transfer, implemented from 1983 to 1994, aiming to improve the innovation environment in Europe. SPRINT has never been part of a FP.

² Statistical Office of the European Communities

studies on priority issues for Community innovation policy. These studies are expected to be completed within 2000.

Assessment findings

i. Relevance of the objectives

- EIMS created the prerequisites for the development of innovation policy at European level. The activities undertaken within Studies and Good Practices are still relevant, as they aim to formulate and implement a European policy on innovation.

ii. Achievement and Lessons Learned

- The work undertaken within EIMS can be considered generally successful, in terms of high quality and quantity, complying with the initial objectives. However, the results achieved could be further and more efficiently promoted and exploited at national and European level.
- The data collected and processed within the Trend Chart, CIS and other studies has not yet achieved a satisfactory level of exploitation proportionate to the size of the effort. In addition, the data collected need to be further elaborated in order to achieve the necessary consistency and coherence.

iii. Efficiency and Effectiveness

- The impact of EIMS in formulating and promoting a European innovation policy is generally positive, taking into account the relatively small budget of the action.
- The outcome of the studies has not fully reached its target audience of innovation-related individuals and institutions, nor the public.
- Many of the activities within EIMS and Studies and Good Practices present similarities to activities of other DGs, and an overlapping of effort may be suspected. The coordination of all similar activities between the various DGs has not yet achieved a sufficient level of effectiveness.

Recommendations

Based on the conclusions above, the recommendations of the panel are the following:

- The knowledge and tools acquired within the action line must be efficiently disseminated to the largest possible number of innovation policy related individuals and institutions all over Europe but also to the general public, in order to increase the European awareness on the importance of innovation.
- The products in EIMS and Studies-Good Practices should be made available through CORDIS in order to increase their potential impact. In particular, free of charge studies and data from the Trend Chart and the CIS should be available in CORDIS.
- The data collected should be further elaborated, in order to achieve a high degree of homogenization, coherence and consistency.
- Cooperation and coordination of the Studies and Good Practice activities with similar activities of other DGs should be further pursued, in order to minimize overlapping.

3.1.2 Financial Environment for Dissemination of Technology AND Access to Private Innovation Financing

Background Information

According to the Action Plan for Innovation³, the Commission and Member States should both take action to encourage investment in risk capital and equity, secure conditions favourable to the development of European capital markets for innovative enterprises, and improve the interfaces between technological innovation and finance.

These principles inspire the three major initiatives launched in Financial Environment. I-TEC, a collaborative pilot action with the European Investment Fund, supports a network of venture capital investors that have agreed to reserve at least 25% of the funds raised over three years for early stage investments in innovative SMEs. The Commission will cover up to 50% of the costs of the initial appraisal and management of such investments, provided that they total less than 5% of the investments made and Euro 0.5 million. LIFT (Linking Innovation Finance and Technology) helps firms and investors exploit EC funded research. It provides an information package, access to guides and directories on innovation finance, access to seminars and training courses, and a help desk for on-line support. FIT (Financing Innovative Technologies) provides financiers and technologists with a forum for debate about specific aspects of innovation financing. At present, FIT deals with guarantee mechanisms, technology appraisal methods and informal investors. I-TEC, LIFT and FIT are also the mainstay of Access to Private Innovation Financing in FP 5.

There are parallel initiatives in other Commission services. The former DGXXIII was carrying out some activities in innovation financing⁴ that continue under DG Enterprise. DG Regional Policy, DG External Relations and DG Financial Affairs⁵ also run similar schemes.

³ "The First Action Plan for Innovation in Europe", Office for Official Publications of the European Communities, Luxembourg, 1997, pp. 22-23

⁴ In particular, DGXXIII was responsible for the Seed Capital Fund Initiative (CREA), Joint European Ventures (JEV) (in co-operation with the former DGII), European Business Angel Network (EBAN) and EASD (in co-operation with the former DGXIII). CREA and JEV are similar to I-TEC, in that they support some type of transaction costs. EBAN is a networking initiative.

⁵ DG Regional Policy and DG External Relations operate in the area of innovation financing through the Structural Funds and the Phare and Tacis programmes, respectively. DG Economic and Financial Affairs is responsible for Eurotech Capital, Joint Venture Programme (JOP), and JEV (see note above). Eurotech Capital supports a network of venture capital funds which invest in transnational high technology projects. Its support is given in the form of a capital contribution and of access to Eurotech Data, an information service on technologies and technology markets. JOP, which is financed under the Phare and Tacis programmes, works along principles similar to JEV, but with a different geographical scope. It aims at SMEs from the EU intending to invest in Central and Eastern European Countries, or in New Independent States and Mongolia.

Assessment Findings

i. Relevance of the objectives

- Developing a financial environment conducive to innovation is certainly relevant. INNOVATION has satisfactorily articulated this general objective setting up a range of activities respectful of the principle of subsidiarity and of the role of private initiative.

ii. Achievements and Lessons Learned

- I-TEC and its successor I-TEC 2 have selected twenty-eight venture capital operators. As a result, early stage, technologically innovative investments amounting to Euro 94 million were reported in October '99.
- More than one thousand customers from firms and universities have approached LIFT in its first year of operation. A handful of these customers have been helped prepare a business plan and orientated to potential investors. Almost three hundred customers have attended seminars. These figures are encouraging, although the action still lacks focus. In fact, it is not clear whether LIFT is primarily a support tool within FP5 or more generally a means to raise awareness of financing opportunities and procedures among innovators.
- FIT is focussing on three important topics. Its attempt to integrate analysis, discussion among the interested parties and dissemination of results may help avoid the main criticisms levelled at the EIMS studies, namely the lack of a clear rationale and poor dissemination.

iii. Efficiency and Effectiveness

- At the end of FP IV in 1998, the intentions expressed in the Action Plan were still taking shape, with the result that a definite judgement on the performance of LIFT and FIT cannot yet be made. The slow start is partly justified by the need to define a well-thought-out policy perspective.
- More information is available on I-TEC, which has been the subject of a recent external assessment⁶. The assessment conclusions are generally positive in terms of relevance. The scheme has targeted a major constraint to the rate of investment on early stage, technologically innovative firms. On the negative side, it is noted that I-TEC has been less effective than it might have been expected because participants are often in a position to regard its support as a subsidy for which they have to make no adjustment to their behaviour.

Recommendations

⁶ Interim Assessment of the I-TEC Pilot Project, Final Report, Prepared for DG Enterprise of the EC by Bannock Consulting, March 2000

- The Commission should re-focus the assumptions supporting the I-TEC pilot project and similar initiatives, taking into account that Europe's business culture is changing rapidly. There are signs that European start-ups have easier access to venture capital funds. This does not necessarily rule out the desirability of continuing public-sector support in this area, but it certainly calls for reviewing the aims and modes of such support.
- The Commission should re-think the clientele targeted by LIFT and the range of services provided, given that the money being spent on LIFT seems too dilute to be effective.
- The DG Enterprise should re-assess its initiatives in the area of innovation financing. It may well be that some overlap can be eliminated. Overlaps are a source of inefficiency that claims to increased effectiveness can seldom justify.
- More generally, better co-ordination should be established among the Commission services involved in innovation financing. It should be avoided, for instance, that DGXIII's Action Plan for Innovation and DGII's Action Plan for Risk Capital appear as unrelated efforts. Stronger co-ordination is needed both of strategy definition and of evaluation of results. Unified management may also be desirable when separate initiatives have similar aims and modes of operation.

3.1.3 Regional Actions (RITTS, RIS, TRIP)-Support of Science Parks AND Regional Innovation Observatory (RINNO) and Mechanisms to Facilitate the Setting-Up and Development of Innovative Firms

Background Information

With regards to Objective I of INNOVATION the Regional Actions was the largest action line, absorbing 6.1% of the total budget. This action line, which aimed at helping the regions of the EU to develop coherent and effective innovation and technology strategies and to assist the regional services and infrastructures, included: a) the Regional Innovation and Technology Transfer Strategies and Infrastructures (RITTS), aiming to support regional authorities in the analysis and development of regional innovation and technology transfer infrastructures; b) pilot actions to encourage technology transfer and scientific knowledge to certain regions; c) support actions to enhance the operation of science parks and facilitate their networking for the exchange of know-how; d) Trans Regional Innovation Projects (TRIP) aimed at fostering collaboration in the practical development and implementation measures which reflect the outcomes of RITTS/RIS/RTP and similar regional exercises by helping them to compare their experience in a systematic way in order to support more efficiently innovation in companies and e) The Innovating Regions in the Europe Network which has facilitated the exchange of experience between the regions involved in innovation actions.

Two calls were launched during 1995-1998 for RITTS/RIS and one call for the support of Science Parks. The two calls for RITTS/RIS were the main activities within this action line and within them more than a hundred European regions will have performed audits of their regional technology transfer and innovation systems and infrastructure.

The successors of the Regional Actions in INNOVATION-SMEs are Regional Innovation Observatory (RINNO) and the Mechanisms to Facilitate the Setting-Up and Development of Innovative Firms. The total budget of this activity has increased to 25 MEuro, reflecting its importance to the Commission's policy on innovation. RINNO, set up as a joint action of INNOVATION-SMEs and the European Regional Development Fund builds upon the achievements of the earlier actions on RIS/RITTS to produce a European directory of regional public support measures for the promotion of innovation. More precisely RINNO aims to support and facilitate the development of regional policy measures for the promotion of innovation in firms by regional authorities. The second part of the new regional activities, the pilot action Mechanisms to Facilitate the Setting-Up and Development of Innovative Firms, also seems interesting. The first call closed on September 1999 had a promising response, both in quantity (123 proposals) and in quality since the proposals recommended for negotiation have been considered as very good or good. It is intended to sign 30 contracts. There will also be launched a new call for the regions in the Newly Associated Countries to be able to use the RITTS approach as a tool for their economic development. Also the Innovating Regions in Europe Network is going to be continuing its activities as a thematic network.

Assessment Findings

i. Relevance of the objectives

- The panel considers that Regional Actions had a high leverage effect in creating an environment favouring innovation on a regional level and consequently it judges positive the budget increase in INNOVATION-SMEs.

ii. Achievement and Lessons Learned

- RITTS gives a strong impulse for regional players and decision makers to work together strategically, and focus on and rethink the ways this regional innovation system is supported and maintained. The money spent is probably much less important than the authority of the EC standing behind RITTS. RITTS does not, however, support the achievement of strategy results. Good strategies do not necessarily lead to good results since strategic thinking does not automatically transfer into strategic action. The panel therefore very much welcomes the strategic action orientation in the new pilot action "Mechanisms to Facilitate the Setting-Up and Development of Innovative Firms".

iii. Efficiency and Effectiveness

- Three calls were launched during 1995-1998, within INNOVATION. For the first two calls it took almost a year from the closing date of the call to the date of signature of the first contract and for the last call it took about a year and a half. Although the panel understands that there are complex issues to be dealt with when processing these calls, it seems mandatory that the time span between closing date and signing

the contract must not exceed 6-9 months as was the case for most of the other action lines within INNOVATION. This lack of efficiency has already been mentioned in the 1996 and 1997 External Monitoring Report but the remark had obviously no effect on the last call in 1997.

- The previous evaluation and monitoring exercises consistently rated RITTS as important, yet with some criticism concerning possible failures in implementing the innovation policies. The evaluation of the proposals by the experts indicates a reasonably balanced quality. Further more some learning seems to have taken place among proposers between the first and the second call.

Recommendations

- The panel stresses that the pilot action Mechanisms to Facilitate the Setting-Up and Development of Innovative Firms should also encourage regions to participate which did not so in RITTS/RIS. The panel would like to see a substantial percentage of regions involved in the pilot action, not involved in RITTS/RIS activities, in accordance with the target of the Workprogramme to consolidate the network of the regions participating in RITTS/RIS, and enlarge it to include regions not initially involved.
- The panel approves the decision, not to continue the support to Science Parks.

3.1.4 Innovation Management Techniques

Background Information

Stemming from tested predecessors such as MINT (Managing the Integration of New Technologies) BUNT (Enterprise audit prior to technological development) and Euromanagement programmes, this action line was aimed at strengthening the know-how of national and regional organisations in their promotion of innovation management techniques for SMEs. Additionally this action line was sought to stimulate across Europe the exchange of knowledge and methodologies in this field.

Specifically the IMT action line, which was undertaken between 1997 and 1999, consisted of 23 specific projects and 6 accompanying measures with a total of 90 organisation involved from 18 countries. The action line involved Community funding of roughly ECU 9 million. An external assessment of this action line was carried out during 1999⁷.

Assessment Findings

i. Relevance of the objectives

⁷ Promoting Innovation Management Techniques in Europe: Progress achieved by the Innovation Programme of the European Community. Erdyn Consultants December 1999.

In the context of innovation, the importance of Europe using (and ideally creating) leading-edge innovation management techniques is critical. However, in the context of this action line, the previous five-year assessment⁸ felt that, in general, the diffusion of such techniques was more a national responsibility. Within FP5 this FP4 action line has been absorbed in other action lines, most specifically EIMS.

The present panel feels strongly that IMT, although absorbed, is still a very important catalytic ingredient in leveraging innovation.

ii. Achievement and Lessons Learned

- The projects provided good opportunities for contracting organisations to improve their expertise. The 23 specific projects are estimated to have trained nearly 400 consultants and subsequently resulted in over 760 IMT assignments being conducted in SMEs.
- The IMT action line has produced a general set of innovation management techniques and implementation methodologies documented in a range of publications, (e.g. Temaguide⁹ and "Innovation Management"¹⁰). An overview of the full set of publications is available in CORDIS Focus edition of 15 November 1999.
- As underlined by the external evaluation some National organisations have adapted and extended their IMT projects locally.

iii. Efficiency and Effectiveness

- The direct effectiveness of this action on both consultants and SMEs has been very positive and proportional to the degree of participation. However it is difficult to rapidly scale-up the diffusion of IMT within SMEs as successful diffusion generally involves a "human carrier".
- While significant effort was dedicated to the projects themselves, more effort could possibly have been put into the editing of the resulting project publications.
- The success of some projects is more attributable to general business improvement rather than innovation. The assessment panel agrees with the finding² that more restrictive criteria should be applied for selecting methodologies that are exclusively related with innovation management.
- While the action line has produced a broad set of IMT, it is questioned whether it would stand-up to benchmarking against global best practices.

Recommendations

⁸ Five Year Assessment of the Specific Programme: DISSEMINATION AND OPTIMIZATION OF RESULTS (INNOVATION) *Report EUR 17600*

⁹ TEMAGUIDE presents 18 selected, analysed and described innovation management techniques. This toolkit book is an outcome of one of the IMT action lines "accompanying measures" . COTEC

¹⁰ Innovation Management: Building competitive skill in SMEs SOCINTEC, European Directorate General

- A further distillation and review of the innovation management techniques and benchmarking against global best practice is necessary.
- The commission needs a policy on broad IMT methodologies whilst still maintaining an active watching brief on successful state-of-the-art private methodologies.
- Best practice needs to be promoted to the consultant base possibly through online web-based training or through conferences.
- In general contractors should be encouraged to improve the quality of their project publications in an effort to improve dissemination and adoption. The somewhat sporadic nature of project publications quality occasionally contrasts sharply with the excellent quality of the Commission's own publications.

3.1.5 Increasing Public Awareness of Research and Technology

Background Information

This action line of INNOVATION consists of the Training and Dissemination Scheme Projects (TDSPs). The TDSPs are based on the experience of the European Awareness Scenario Workshops (EASWs) and of the "Interface" projects in VALUE. The EASWs, launched by the former DGXIII/D as a pilot action in 1994, help the main social actors in a city formulate a common vision for the sustainable development of their environment. It is a consensus-building methodology suitable for use at the local or regional scale in different cultural contexts. VALUE's "Interface" projects had the wider scope to stimulate socio-economic research on the impact of science and technology on society. The TDSPs experiment with methodologies for increasing the awareness of science and technology among the public and for involving the public in the process of innovation. The TDSPs identify and validate best practice, and adapt it across different countries. As a result of a call for proposals, eleven TDSPs were selected in 1996 for a definition phase and six of these have entered the demonstration phase for full-scale implementation.

The Commission decided not to launch a second call for proposals as originally planned and to discontinue this action line in FP 5. The money allocated for the second call was redirected to other activities within INNOVATION.

Assessment Findings

i. Relevance of the objectives

- The objectives of this action line are certainly relevant. Indisputably there is a need to make the general public more aware of scientific achievements and technological developments. Even more urgent is the need to make the principles themselves of scientific and technological work more widely understood among non-specialists. Conversely, scientists and technologists should pay more attention to the social implications of many decisions on science and technology topics.

ii. Efficiency and Effectiveness

- The panel agrees with the decision to discontinue this action line in FP 5. Member States seem better suited than the Commission to the task of increasing the awareness of science and technology among their citizens. It may be objected that there is an appropriate niche for action at the European level, for instance in the form of identification and dissemination of best practice. It may be so, but the experience with INNOVATION shows that the existence of such a niche is far from obvious. Especially considering the many priorities of INNOVATION-SMEs, it sounds more convenient to assume that Member States can provide better contents for such a highly culture-specific task and also deliver them more easily.

Recommendations

- The decision to discontinue does not exempt the Commission from providing a reflection over what has been done. Furthermore, the projects in the action line may have yielded some good results that do not deserve to be buried with the action line. The Commission should therefore evaluate its experience with the TDSPs to find out if their results are worthy of further promotion. Such results could be passed to the Human Potential programme, which continues work on awareness of science and technology in FP 5.

3.2 Objective II: Stimulation of the Emergence of a European Open Area for the Diffusion of Technologies and Knowledge

3.2.1 The Innovation Relay Centre Network (IRC Network)

Background Information

The Innovation Relay Centre Network (IRC) was created in 1995, within the INNOVATION Specific Programme, aiming to promote the dissemination and exploitation of research results on one hand, and to stimulate the transnational transfer of technology, based on the needs of the local industry, on the other. The design of the IRC Network activities were, in large part, based on the experience and the knowledge acquired from the operation of the Value Relay Centres within the VALUE II Programme. During the period 1994-98, the network was consisting of 53 IRCs from the EU member states and the associated countries, involving 176 partner organisations. It was also including a pilot sub-network (FEMIRC network) from 10 Central-Eastern European countries. In the last call of 1999, within the new INNOVATION-SME Programme in the FP 5, the network was extended and is now consisting of 68 IRCs with exclusive objective the support of the transnational technology cooperation.

Assessment Findings

- i. Relevance of the objectives

- The initial objective of the IRC network, to operate as infrastructure for the dissemination and exploitation of European research results, was relevant at that time.
- The later orientation towards technology transfer and innovation support was also relevant, responding to scientific and technological needs of the local industry and to needs of local R&D developers for the promotion of their results. The IRC network had shown the necessary flexibility to effectively change its priorities in response of the new requirements.

ii. Achievement and Lessons Learned

- The information dissemination and exploitation of European research results activities were successfully undertaken by the IRCs. They have contributed substantially to the increase of the awareness of the European industry and SMEs on the importance of research and their active participation in the European R&D programmes.
- The operation of the IRCs as springboards for transnational technology transfer was generally good and the introduction of quality in the network activities successfully promoted. New interesting services were developed within them such as the organization of SME missions abroad and the Venture Capital Sourcing.

iii. Efficiency and Effectiveness

- The overall performance of the IRC Network can be judged good and being improved during the evolution of operation. However, the effectiveness of the network has suffered due to the lack of industrial experience and appropriate tools for transnational technology transfer. In addition, there is a skepticism whether a network of public, in the majority, organizations can compete and be effective in a domain where private companies are dealing with.
- The objectives of the network were not always clearly reflected in the relative documentation. Till recently, the references to dissemination and exploitation activities were mixed with the principal technology transfer ones, thus misleading the IRCs in the definition and implementation of their priorities.
- The IRC Network was managed in an effective way, moving successfully towards transnational technology transfer and innovation promotion activities. The Performance Indicators Mechanism was appropriately applied by the individual IRCs to improve their management on the basis of daily self-evaluation.

Recommendations

Based on the conclusions above, the recommendations of the panel are the following:

- The IRC network, in close cooperation with the Commission, must more efficiently communicate its objectives to its clients and design its strategy on the basis of the regional needs. In addition, the Commission should provide the network with appropriate management tools helping it to improve its performance.

- The IRC network should be very careful in defining its role and activities in the transnational technology transfer process in order to avoid overlapping with activities offered by private consulting companies and violation of the market rules.
- The individual IRCs should more closely cooperate between them and other regional infrastructure. Thus, across the network examples of good products, processes and practices developed within it, could be shared. They should also cooperate with firms already having technology transfer experience at local, regional or national level, and acquire from them the missing industrial experience.
- The Commission should ask from the individual IRCs quantified achievements against the objective of technology transfer agreements and innovation support activities. Success stories should be judged on the basis of economic profit and employment improvement and not only of the technological outcome.

3.2.2 European Networks and Services

Background Information

The European networks and services (ENS) was one of the smaller action lines of the programme. The purpose of the action line was to establish networks of existing organisations. By building on their activities and integrating in them the European dimension, would contribute to the diffusion of technologies and the promotion of innovation in the member states. The action line was an experimental one, the continuity of which was depending on its success. Three calls were launched from March 1996 to December 1997. The time interval from the closing date to the signature of the first contract was 9, 14 and 6 months respectively, thus showing a substantial improvement in the efficiency of the procedures at the third call. The majority of the proposals were rated “not acceptable” even though there was a major increase in the quality of the proposals of the third call.

Assessment Findings

i. Relevance of the objectives

- The panel considers that the action line contributed to the creation of an environment favouring innovation. Thus the purpose of ENS is an important one, on conceptual level, and should continue within INNOVATION-SMEs perhaps in another form and structure.

ii. Efficiency and Effectiveness

- ENS aimed to interlink technology advisory centres, university-industry liaison services, technology-watch bodies and liaison services between SMEs and large companies. ENS operation was not sufficiently effective in achieving its objectives perhaps because the proposals were not at the necessary quality level.

- The panel supports the decision of the Commission not to continue ENS in FP V as an individual action line. However, the panel considers that no in-depth assessment study on the action line was undertaken and not much learning was gained from the experience with ENS. It should be noted that not all experiments must succeed but the unsuccessful experiments can be those which lead to the greatest insights. To make efficient use of ENS these insights should be achieved.

Recommendations

- The panel supports the fact that with TRIP (Trans Regional Innovation Projects) the Commission allocates efforts to interlink regional innovation systems and technology clusters in a way that these regional systems can learn from each other and even create new business together. These efforts should not be abandoned just because ENS was not as efficient as it should have been.
- The panel approves the fact that the basic objective of ENS has been embodied, to some extent, in the pilot action Mechanisms to Facilitate the Setting-Up and Development of Innovative Firms within the INNOVATION-SMEs. The panel strongly supports the interlinking of regional innovation systems and subsequently the building of a “network of networks of innovative firms”.
- An in depth analysis of ENS should be undertaken in order to understand why the relevant objectives of ENS were not successfully completed and to provide new guidelines for the future design of new pilot actions.

3.2.3 The Organizations for the Promotion of Energy Technologies (OPET) Network

Background Information

The OPET network promotes innovative energy technologies, in particular those demonstrated in European programmes. The OPET network has been in operation since November 1996, about one year after the launch of the relevant call for proposals. The consortia forming the network were awarded support for three years. Funding for the third year was however conditional on a mid-term performance evaluation of the individual OPETs to be carried out by a panel of independent experts. As a result of the evaluation three OPETs were discontinued and only 36 of the original 39 were consequently retained for funding until the end of 1999. This figure does not include two more OPETs that started operations in 1997 and 1998 and the 13 FEMOPETs (Fellow Members of the OPET network) set up by THERMIE in 1998 with funding from INCO. The FEMOPETs are based in the Central and Eastern European Countries.

At the start of FP V, the Energy, Environment and Sustainable Development programme has taken over the responsibility for the selection and management of the OPETs. A new call for proposals with two cut-off dates in 1999 and 2001 was launched in March 1999 in order to provide financial support for the network throughout FP V. In FP V, the OPET network will cover the EU and 14 Associated States with about 45 OPETs, some of them

transnational, and will reach out to other key world regions through some 11 “OPET Associates”.

Assessment Findings

i. Relevance of the objectives

- The OPET network, as a thematic network, did not suit the “horizontal” aims of INNOVATION and it would be completely out of place in INNOVATION-SMEs, where such aims are made more explicit. This panel therefore supports the decision to hand the OPET network over to the Energy programme.

ii. Efficiency and Effectiveness

- The mid-term evaluation is the most comprehensive analysis of the OPETs to date. Based on six criteria, the evaluation categorised the OPETs as “very good” (1), “good” (22) “satisfactory” (11) and “poor” (5). It found that in most cases the OPETs were properly selected as the most effective organisation in their region and attributed the difference in performance to the individuals in the OPETs, in particular to the ability of such individuals to focus on practical projects with measurable results.
- According to the mid-term evaluation panel, poor performing OPETs tended to overlook their core activities in favour of non-core tasks, preferred to address a generic audience rather than target key energy individuals, had a poor understanding of how to measure their performance, and did not use the full range of support available through personal contacts with other OPETs.
- Having identified some common weaknesses in poor performing OPETs, the mid-term evaluation moved on to three major recommendations. It was recommended to highlight and promote best practices among the OPETs, identify the ‘minimum’ results expected in the individual OPETs, and develop the commercial awareness of OPET staff.

Recommendations

- This panel did not investigate to what extent the recommendations of the mid-term evaluation panel were put into effect in 1999. It is reasonable to believe that their implementation may fall in large part under the responsibility of the ongoing Energy programme. The Commission should therefore ensure that these recommendations are not lost on the new management of the OPET network.

3.2.4 Technology Transfer and Technology Validation Projects

Background Information

The Technology Transfer and Validation Projects was the most important action line within INNOVATION in economic terms, as it absorbed the 30% of the budget of the Programme. The line merged two separate lines, namely the Technology Transfer

Projects coming from SPRINT and the Technology Validation Projects coming from the VALUE II¹¹. The merging was considered necessary in order to enhance the strategic and operational efficiency of both type of projects and common calls for proposals followed. The joint action aimed to implement projects demonstrating and disseminating innovative approaches, using technology in a way to enhance the innovation culture throughout Europe. 243 projects were selected for the definition phase and 146 of them continued in the demonstration phase expecting to end to a prototype. Some of these projects have been completed and their results published as success stories in technical terms but there is no information on the economic benefit, attained from the exploitation of their results, nor on general lessons drawn from them.

The new INNOVATION-SME Programme, within the FP 5, introduced a new scheme of Innovation projects promoting the initial transfer and integration of new technologies and the analysis of socio-economic and organizational aspects of the innovation process, emphasizing on non-technical aspects of this process. The budget of the activity was in the same order as its predecessor. The first call for the innovation projects and accompanying measures was launched in March 1999 with a budget of 30 Meuros. 44 proposals were received, number much lower than that expected. 27 of them were innovation projects and 17 were accompanying measures, the majority of them planning to assist innovation projects in the clustering issue. The evaluation procedure was completed in short time after the deadline. 21 proposals were considered good in their potential to contribute as showcases to the implementation of the European innovation policy and in the efficiency of strategies to be tested.

Assessment Findings

i. Relevance of the objectives

- The initial objectives of the action line to demonstrate and disseminate innovative approaches for the promotion of innovation culture throughout Europe and to create the conditions for efficient technology transfer was certainly a relevant one.
- The projects often functioned in the cascade of R&D projects, focussing on the exploitation of specific technologies and not on the diffusion of innovation concepts.
- The new orientation of the Innovation projects within INNOVATION-SME seem to be in the right direction of technology transfer in response to user needs focussing more on non-technical aspect of innovation and the satisfaction of social objectives.

ii. Achievement and Lessons Learned

- The results of the projects within the action line concerning the exploitation of specific technologies are interesting. However, this was not their main objective.

¹¹ Community Programme for the Centralized Action for the Dissemination and Exploitation of Knowledge Resulting from the Specific Programmes of Research and Technological Development, adopted by the Council Decision of April 1992, to promote dissemination and exploitation of RTD results under FP 3.

- The technology driven character of the projects has in some cases dominated over their market driven one, thus leading the action line in these cases to operate as a downstream service to R&D Programmes.
- The participation of the SMEs in the action line was very high, proving the interest of SMEs in such type of actions combining technology and innovation aspects.

iii. Efficiency and Effectiveness

- Taking into account that a relatively large amount of money was allocated to the line and that a substantial cost/benefit analysis of the results is not undertaken by the Commission, it is difficult for the panel to conclude if the TTP+TVP really achieved their objectives in a cost-effective way.
- The overall duration of the projects of the line was longer than the mean duration of other analogous projects within other Programmes. The demonstration phase of most projects is still in progress and it will not be completed before 2001, leading to a necessary allocation of human resources to activities still belonging to FP4.
- The Calls for Proposals of the action line didn't sufficiently motivate the proposers to take into consideration the achievements of the IMT line, which could provide them with useful methods and tools.
- The projects selected covered almost all activity areas without priorities, from conventional technologies to the most advanced ones, presumably reducing the effectiveness of the action.
- The first call of Innovation projects in March 1999 had not the success expected. The low response clearly shows that the new orientation was not effectively communicated to proposers and the complexity of the information package did not help the situation.

Recommendations

- An analysis of the achievements of the TTP+TVP, on the basis of measurable results (e.g. economic benefit from the exploitation of the outcomes, creation of new jobs, etc), should be undertaken by the Commission in order to draw conclusions on the efficiency of the action line. Based on the analysis conclusions, the Commission should publish guidelines on technology transfer methods and innovation practices.
- The orientation of the innovation projects, emphasising the non-technical aspects of the innovation process, seems to be the right one. However, the Commission, should communicate the new concepts to potential participants more effectively. The information package must be largely revised, clarified and simplified. In addition, the activity should focus more on areas critical for Europe.
- The design of a new call should take into account, in a balanced way, the conflicting interests of innovation policy theorists with those of industrial participants.
- Mid-term reviews of the innovation projects should be a standard monitoring mechanism for the progress of the projects. Measurable results should be required from the participants in every stage.

3.3 Objective III: The Supply with Appropriate Technologies

3.3.1 Community Information and Dissemination Service (CORDIS) AND Dissemination of Information Electronically and through Periodicals

Background information

The Community Research and Development Information Services (CORDIS) is the electronic publishing and communication service for the entire FP5 and all its research programmes. It also promotes innovation policy.

This channel offers access to all aspects of FP5 such as open calls and related information briefing packages, a daily news service, a partnering and expression of interest service and a full text document library service. The CORDIS Results Service provides to the public an opportunity to publish research results requiring further development or exploitation support. Other services refer to SME Specific Measures, Technology Marketplace, Financing Innovation, IPR-Helpdesk, LIFT, Innovation Management Techniques, Innovation Action Plan, Technological Implementation Plan as well as guided tours on “turning an idea into a project”, different tools for industry, technology transfer, tomorrow’s enterprise etc. In addition, CORDIS offers the EU R&D council services and Member States services. Following user feedback the site’s structure was renewed at the end of January 2000. The number of visits of the CORDIS web site has rapidly grown during 1999 and exceeded two million visits per month.

The following periodicals are published: 1) Innovation & Technology Transfer, the newsletter of the INNOVATION Programme, informs about the activities of the programme and research projects across FP5 (five languages published six times a year, 40.000 copies). 2) CORDIS Focus, reports the latest news on EU research, technological development and innovation activities (fortnightly newsletter in five languages, 41 000 copies). Its content is based on information published daily on CORDIS. Special supplements are occasionally published focusing on a particular theme (e.g. FP5 implementation, assistance to proposers, SME measures etc.). Special Results supplements published 4 to 6 times a year present exploitable results and technology offers derived from the CORDIS online Results service. 3) Euroabstracts, a publication review journal reports on developments in European Union research, research-related policies and activities through presentations of the existing publications (published six times a year in English, 12 000 copies). The budget allocation for these activities under FP4 was 45.6 Mecu and under FP5 is 50 MEuro.

Assessment Findings

i. Relevance of the objectives

- The objective of the action line to offer a collective information service on European research with the aim of encouraging participation in European RTD programmes and promoting the exploitation of their results, is undoubtedly a very relevant one but its interest is not limited exclusively to the horizontal INNOVATION and

INNOVATION-SME. All the activities within the action line, address themselves to all thematic programmes and respond to the information needs of their clients.

- The web service will undoubtedly become the most important means of communication. To invest in the development of the web is perfectly in line with EU goal of bringing Internet to the everyday use by all organisations and individuals. The services of EU should set the standards and show the power of the tool. The CORDIS Web service can and must in the long run offer outstanding features in contact cost, speed, accuracy and two-way communication. It may also benefit in the future from the emerging technologies for automatic translation. The web site of today is a very good start in achieving the above-mentioned goals.

ii. Achievements and Lessons Learned

- The CORDIS web site is professionally constructed, including even its own search engine and a mail back service that automatically sends an e-mail when something new is available within the interest area that the subscriber has put into the system. However the system, and more precisely its “key-words” sub-system component, can be further improved in order reduce the junk mail. In addition, the first time users doesn’t immediately realise the possibilities offered by the service and possibly fail to return later to exploit them. The new version, taken into use in January 2000 is clearly improved in this respect.
- Visitors of the site do not have to identify themselves even when drilling deeper into the service. This prevents CORDIS from reacting quickly to the habits and preferences of its users. In addition to knowing its clients, another major key to long-term success is ensuring information provided by the web is frequently updated and correct.
- The three CORDIS publications and their special issues are of very high quality. However, in certain cases the presentation itself may give a wrong and misleading impression of a highlighted project.
- Since the CORDIS publications are distributed free of charge and the recipient is not required to indicate user characteristics and reason for ordering, it is difficult to get information about the readership. The only way how this could be done is through separate reader feedback. An idea would be to include a mail back leaflet for readers wishing to continue receiving the publication thus eliminating non interested subscribers.

iii. Efficiency and Effectiveness

- There exists a number of other web-based research and innovation related services within EU. Some of them, like the well-constructed PROSOMA within the Information Society, are only loosely linked to CORDIS. Within INNOVATION also it seems that parallel activities exist like the partner search and technology offers and requests through the IRC network’s electronic database. Putting together these databases (with IRCs own Intranet features) would automatically guide the IRCs in more effectively marketing CORDIS to their SME customers.
- The amount of contracts that have been explicitly signed thanks to CORDIS has been reported very low till now. Certainly there are contracts and a good number of useful

contacts that have emerged through CORDIS and which cannot be traced. The fact that under 2000 of the registered users come from enterprises suggests that CORDIS is still mainly a tool for companies already participating in R&D programmes. In addition, the low number of contracts signed through CORDIS suggests the assumption that the tool and its service are not too well known among enterprises.

Recommendations

- CORDIS should become a standard tool and first source of RTD related information for all potential players within the EU innovation system. CORDIS web service should collect all updated information on European research activities and present it in a user friendly way. Best practice principles should also be followed.
- The financial issues of CORDIS should be looked now in a totally new framework as CORDIS serves not only INNOVATION but also all EU research related activities.
- CORDIS should be expanded into an active marketplace, where technology developers and potential users would easily find each other.
- The publications should be more sharply profiled in relation to defined reader groups. These can also then more effectively promote the web service.
- Increased efforts should be taken that “news” type of information is frequently updated and outdated information is deleted.

3.3.2 Assistance in the Protection and Exploitation of RTD Results AND Intellectual Property

Background Information

The objective of the action line was to assist the specific programmes and the Joint Research Centres in both the protection and exploitation of knowledge. The previous five year assessment¹², covering the period 1991-1995 of the INNOVATION Programme, suggested radical change of the organization and operation of these activities and proposed a number of specific measures including awareness campaigns and the eligibility of patent costs within RTD projects. This was timely and relevant advice just preceding the widespread adoption of the Internet from 1996.

The driving force behind this action line has been the steady growth in European patent applications¹³ and the growing community awareness of the need to redress Europe’s weak IPR position relative to its key competitors of the US and Japan.

¹² Five Year Assessment of the Specific Programme: DISSEMINATION AND OPTIMIZATION OF RESULTS (INNOVATION) *Report EUR 17600*

¹³ Online Newsletter *IP-Wire issue 10 (19/12/99)* reviewing provisional EUROSTAT data for 1998 showing that 40,023 patent applications were filed by the fifteen EU Members States .

With a budget of 11.80Mecu (4%) in the period of the present assessment, good progress had been made under the IPR action line with the creation of the specialized IPR Helpdesk. A range of both internal (within the Commission) and external awareness events have successfully taken place (see later). Specifically a successful *Quickscan* facility was offered under FP 4. To consolidate the results of this pilot project, following its first two years of operation, a call for proposals on "Awareness and assistance actions in the field of IPR (Accompanying Measures)" has been planned for 15.09.00.

Assessment Findings

i. Relevance of the objectives

- The objective is crucial in assisting the RTD programmes and the JRCs in the protection and exploitation of knowledge. At an awareness level this action line is important in promoting '*clarity not complexity*' and is a very useful resource of the community complementing the roles of the European and National Patent offices.

ii. Achievement and Lessons Learned

- The IPR Helpdesk facility through its web presence provides a comprehensive informational portal site with links to European and National Patent Offices **and the** World Intellectual Property Organisation. It includes down-loadable documentation, and most importantly, links to the EPO's online patent search service esp@cenet. The Helpdesk's associated on-line telephone and e-mail support is particularly useful to Community RTD contractors helping on model contracts and consortium agreements.
- Under FP 4 in conjunction with the European Patent Office, a *Quickscan* facility, was offered in a pilot phase to 100 contractors of innovation projects of the 1995 call. This proved itself very useful at early screening of projects for novelty, avoiding prior art, and even had some side benefits in helping contractors scan for competitors.
- At a visible community level an important achievement has been the organization of two successful conferences, namely Patinnova '97 (Vienna, 350 participants) and Patinnova '99 (Greece, 400 participants). An internal but subliminally important achievement has been the organization of IPR seminars for Commission officers beginning with a trial at 1995, specific seminars at 1996 and more general seminars at 1997 and 1998.

iii. Efficiency and Effectiveness

- This IP-Helpdesk service was receiving over 200 calls/emails a month at the time of this evaluation. The IP-Wire newsletter is e-mailed to approximately 1800 subscribers throughout the community and beyond. However IP-wire could be further exploited.
- The success of *Quickscan* is credited with the creation of FP 5's *QuickSearch* facility available across all thematic programmes and managed through DG-Research.
- The Patinnova conferences appear to achieve a high profile among a focused audience of patent advisers, governments, national organizations and industry.

- While the IPR action line is successful in assisting RTD contractors in protecting and exploiting "patentable" knowledge, today's business climate, especially for SMEs, would suggest enlarging the remit to other elements of industrial property.

Recommendations

- At a policy level the panel encourages the Commission's continued support towards an environment contributing to the development and implementation of an affordable community-wide patent system. (The panel notes with optimism the progress that has been made at the recent Lisbon Economic Council where the Community Patent is now a political reality and that the proposal for the Regulation is expected to be ready by July 2000).
- At an action line level the panel felt that awareness campaign should be expanded to include the industrial design and trademark elements of IPR in an effort to further encourage SME participation.¹⁴
- The panel recommends continuing the development and promotion of computer based tutorials to encourage more rapid knowledge penetration.
- The Commission should also significantly expand the IP-wire circulation list beyond the present professionals to automatically include all RTD contractors to painlessly increase IPR knowledge diffusion.

3.4 Inter-Programme Coordination/Dissemination and Exploitation Activities AND Support Activities Relating to Innovation

Background Information

"Horizontal" programmes such as INNOVATION and INNOVATION-SMEs support the operations of the programmes of the "First Activity". They also have a stake in policy areas that cannot be fenced in by the disciplines (in FP IV) or themes (in FP V) of the "First Activity". These two types of "horizontal" activities are associated with two different forms of co-ordination, which may be referred to as "narrow" and "strategic".

Among other tasks of common interest, INNOVATION and the RTD programmes had to co-ordinate their "dissemination and optimisation" efforts in FP IV. A request to do so had been rather vaguely worded in a footnote to the Decision adopting FP IV¹⁵ INNOVATION did its best to flesh this statement out by setting up an "inter-programme co-ordination group".

¹⁴ Strategic Dimensions of Intellectual Property Rights in the context of Science and Technology Policy June 1999

¹⁵ Decision No 1110/94/EC of the European Parliament and of the Council. Note (3) to Annex 1 "Amounts and Breakdown" reads "...., an average of 1% of the total budget of the fourth framework programme will be allocated to dissemination and optimisation in the framework of the first activity. Close co-ordination of dissemination and optimisation activities carried out under the specific programmes of the first activity with those carried out under the third activity will be ensured."

Stretching somewhat the letter of the Treaty¹⁶, INNOVATION-SMEs deals with the “promotion of innovation and encouragement of participation of SMEs”. Thus the “horizontal” scope of INNOVATION has been expanded in FP V.

Assessment Findings

i. Relevance of the objectives

- Co-ordination is not an end in itself. It is justified whenever there are economies of scale to be reaped, policy gaps to be filled and overlaps to be resolved. In this sense INNOVATION has shown that co-ordination is relevant across the RTD programmes. The new INNOVATION-SMEs seems to point to a need for even closer “strategic” co-ordination and also brings an additional burden in terms of “narrow” support to the thematic programmes.

ii. Efficiency and Effectiveness

- Despite the lack of a clear mandate for doing so, INNOVATION has pushed through the inter-programme co-ordination group the Technology Implementation Plan, an attempt at improving the poor exploitation record of European research. It has also sensitised some of the RTD programmes to the issues of intellectual property rights and finance. In particular, it has arranged training courses for scientific officers and has successfully promoted its QuickScan service, an agreement with the European Patent Office, which enabled contractors to conduct a novelty search early in their projects.
- The results of the efforts made by INNOVATION to co-operate outside the limits of RTD are also remarkable, considering that co-operation across departmental and policy borders has never been easy within the Commission. INNOVATION has put in place a notable effort of “statistical” co-ordination with the “Trend Chart on Innovation in Europe” and the associated Community Innovation Survey (CIS). It has also started a “Regional Innovation Policy Measures Resource Base” (RINNO) in co-operation with the European Regional Development Fund (ERDF). All this is positive, since a constant and thorough analysis of the measures taken by regions and Member States is the very basis for a European innovation policy.
- The work programme of INNOVATION-SMEs addresses in detail the scope for “narrow” co-ordination. In particular, it gives a comprehensive list of activities to be carried out in co-operation with, and to the benefit of, the thematic programmes. By contrast, the document is less explicit than desirable on “strategic” co-ordination. In particular, the co-operation with EUREKA would have deserved more attention.

¹⁶ Treaty establishing the European Community, OJ C 340, 10.11.97, pp.173-308 (consolidated version incorporating the changes made by the Treaty of Amsterdam, signed on 2 October 1997). Article 164 (ex article 130g) defines the “Third Activity” as follows: “dissemination and optimisation of the results of activities in Community research, technological development and demonstration”.

- In FP5 there appears to be a general commitment to make wider and better use of European research. This orientation to innovation will eventually rely on decisions made within the key actions, their money and staff. INNOVATION-SMEs and the Innovation Cells may play an important catalytic role in this, provided that their interaction is not unduly constrained by unfavourable organisational arrangements. Remoteness from the key actions and co-operation based on a lowest-common-denominator attitude are a major threat.

Recommendations

- The Commission should ensure that INNOVATION-SMEs and the Innovation Cells have a right to monitor the progress of the dissemination and exploitation activities of the thematic programmes. In other terms, INNOVATION-SMEs should be given a clear mandate for producing and updating a “scoreboard” of innovation within European research.
- INNOVATION-SMEs should watch the progress of the plans to revitalise EUREKA announced last year. These plans emphasise the need to promote a favourable environment for innovative firms. Consequently, a new strategic framework is being defined for EUREKA that will focus on SMEs, the provision of venture capital, and Central and Eastern European Countries. In view of this, INNOVATION-SMEs should sit on the governing body of EUREKA.

3.5 Support Activities relating to SMEs

Background Information

A common understanding within the EU is that small and medium sized enterprises (SMEs) are a driving force for the economic growth and improved employment. Several studies on the SME participation during the FP 4 were conducted and their outcome was used for the redesign of certain SME related activities aiming to facilitate their entry in R&D activities. A single entry point was introduced and the Exploratory Awards (EA) and CRAFT projects were coordinated under one umbrella within the Innovation Programme, renamed to “Promotion of Innovation and Encouragement of Participation of SMEs” in order to emphasize this target. Also accompanying measures called Economic and Technological Intelligence (ETI) specific measures were launched. 44 Meuro were allocated during FP 5 for this action line, which is managed by DG Research and is physically located in Brussels.¹⁷

Assessment Findings

The flow of EAs and CRAFT proposals has developed favorably and 17 ETI specific measures are under evaluation with no contracts yet reported. Assessing effectiveness and efficiency for this action is premature since data is limited to 1999. Hence this assessment

¹⁷ The EA and CRAFT projects funding comes from the thematic programs. (During FP 4 2635 EA:s were funded with 44,6 MECUs and 4343 CRAFT projects with 267 MECUs)

focuses on previous findings and on more general viewpoints. The study on SMEs participation in the 4th Framework Program for Research and Technological Development¹⁸ and the study on the efficiency and outcomes of the Exploratory Awards scheme¹⁹ seem to be the most important documents that have formed the basis for the changes made for the FP 5. According to these studies the SME participation had raised from 19 % during FP3 to 21 % during FP 4 and as the share of industry went down from 53 to 47 % the SMEs share has gone up from 35 to 45% within the industry participants. Also 96 % of SMEs that have participated in the programs state that they would do it again. The studies give actually quite a positive picture of the situation but quite rightfully this was not felt enough. The studies also indicate that when the companies went through the Exploratory Awards the success rate for subsequent collaborative research rose from 23 to 25 % and for CRAFT projects from 43 to 48%.

The panel welcomes the inclusion of Exploratory Awards (EAs) and CRAFT project coordination within this programme. To manage a program which is within two DGs and physically in two locations poses great challenges, not only for practical matters like approvals of expenditures. At present it is too early to give a final judgement on the organizational “lay out”, which by definition is tricky. The lead-time to the EAs and CRAFT projects is reported to have gone down to 13 weeks during 1997 and some further shortening has been reported from the beginning of FP5. The long lead times even after the shortened handling times of EAs and CRAFT proposals is still a major problem. The average total time from starting to prepare an EA to a signed contract is estimated to 61 weeks, for CRAFT projects 67 weeks and for Collaborative Research 61 weeks²⁰ (This is calculated with the average cut of delay time for the EAs and CRAFT projects). Although nearly half of this time is related to the partners developing a proposal, the risk is that the long lead times can guide SMEs and other proposers to suggest projects of secondary priority and importance. Should this become a trend it could have serious consequences even beyond the Innovation and SME programme. The frustration for the long delays can be understood when it is combined with the extremely great complexity and the amount of paperwork needed to go through the whole procedure. The actions that are being made now seem right and even innovative. The increased use of computerization and tracking methods are good intentions into the right direction but the panel strongly feels that even stronger measures are needed to simplify and speed up the procedures.

¹⁸ SME Participation in the 4th Framework Programme for Research and Technological Development, VERTICA Oy for the European Commission, 1998 (Cf. <http://www.cordis.lu/sme/src/surv.htm>)

¹⁹ Efficiency and outcomes of the Exploratory Awards scheme in the 4th Framework Programme for Research and Technological Development – Segal Quince Wicksteed for the EC, 1999

²⁰ SME Participation in the 4th Framework Programme for Research and Technological Development , VERTICA study for the European Commission, 1998 page 17

The new regulations that do not permit large companies to participate in CRAFT projects is regarded as a great handicap in building up the best possible teams to tackle a certain problem.

The fact that through EU funding the share of outside funding as a proportion of total costs can be higher than through domestic sources should not guide any companies on this road for projects that artificially have been made to fill the criteria. Previous experience shows that although the evaluation criteria tried to guarantee that no “national” project is selected for funding this was not always achieved.

The “SMEs and EU RTD” brochure²¹ lists the criteria for a potential participant in EU RTD programmes. Every SME should answer yes to all of the criteria and it would be fair to emphasize also the needed patience for the complexity and time frame.

Recommendations

- The panel feels that further strong measures should be taken to simplify the procedures and minimize the delays in SME related projects.
- Perhaps EU direct support for SMEs is best suited in cases such as new business concept testing, using EU help in changing norms that would prevent marketing of a product, and projects where, by nature, a truly international consortium is needed.
- The future budget allocation decisions should be based more on financial evaluation on previous projects. The most important criteria should be how many jobs and how much revenues and profits were created with how many Euros.
- A flexible and quick system should be developed aiming to provide companies, not filling the eligibility or selection criteria, with the relevant information as quickly as possible.
- The single entry point has no doubt cut some corners in getting started with the project. Despite this there still exist a great number of parallel sources of information and assistance (National Contact Point, Euro Information Centre, IRC, other program-related contact points, CORDIS, country’s own domestic organizations etc.). If these hierarchies would be simpler and the resources pooled it could result in getting more SMEs to understand what the EU can offer in terms of Innovation and RTD funding. A study of SMEs awareness in this regard could offer guidance on future actions.
- The Innovation and SME program should scan and closely follow other EU SME related programs especially such that relate to dissemination of results, best practice etc. and distribute them wider than the original group. Such an example is SMEDIS, which whilst part of IST is not specific to it. Especially projects that would help networking could prove beneficial.
- The topic of how to reach the SMEs and to get them to know what is available seems to raise strong feelings. It is advocated that SMEs can be informed only through personal contacts and for that matter bodies like the NCPs are needed. The question should not read either or, but we should not underestimate the possibilities what the

²¹ “SMEs & EU RTD” Office for Official Publications of the European Communities L-2985 Luxembourg

electronic (and wireless) communication presents and how cost effective, when installed, it is in disseminating for example research results to hopefully hundreds of thousand SMEs in real time.

- The real fact that smaller and smaller SMEs need to internationalize clearly implies the development and implementation of direct SME actions, essentially setting the question whether the input-output ratio is better in policy and implementation of catalytic type of measures rather than the implementation of direct actions.

4 Conclusions

The following conclusions, without repeating the specific remarks of the body of the report, provide the reader with the panel's overall views on INNOVATION and INNOVATION-SME. The following statements are not presented in a priority order.

- **INNOVATION has provided in-depth study and debate in support of the priorities identified by the *Action Plan for Innovation*.**
- While respecting the principle of subsidiarity, the programme has consistently developed its general objectives - promoting a favourable environment for innovation in Europe, supplying the appropriate technologies and circulating them - into a set of relevant policy concepts and practices.
- **INNOVATION has undertaken a large, possibly too large, number of activities, with a relatively small total budget.**
- These activities differ widely in themes and modes of operation. At the thematic level, many concepts and practices dealing to a larger or smaller extent with innovation have been investigated. At the operational level, both large scale, proven schemes as well as pilot, experimental ones have been undertaken. Evaluation exercises have been implemented, but differing in depth and frequency across the various activities, thus not permitting a uniform view of the programme achievements and cost-efficiency. Good results have been achieved against the initial objectives but failures have been noted too. There is also a feeling that the budget allocated to some activities was insufficient to achieve the critical threshold needed in relation to their targets.
- All in all INNOVATION has undertaken a variety of activities much wider than that associated with a narrow definition of a horizontal programme, i.e. as merely providing services to the thematic programmes. The results of these activities were not made as visible as they would deserve.
- **Systematic and continuous evaluation and monitoring procedures based on measurable targets have not yet been implemented consistently across the programme.**
- A lack of systematic evaluation measures can be especially noted in the case of the experimental actions. In most cases continuation or discontinuation of these actions did not depend on evaluation exercises.
- Some action lines are better benchmarked and monitored than others. These differences are clearly reflected in more effective operation of the former .
- **INNOVATION had the responsibility but not the means to co-ordinate the dissemination and exploitation activities within the specific programmes of FP4. Co-ordination of similar activities under FP5, though potentially improved, has not yet arrived at concrete results.**

- Lacking a formal mandate to do so, INNOVATION was unable to track the 1% of the budget allocated for dissemination and exploitation within each specific programme. The Council Decision on FP5 has established Innovation Cells within the thematic programmes and has mandated their co-ordination to INNOVATION-SME. Till now, such co-ordination has been limited to the exchange of information among representatives of the various programmes and to discussions on a common innovation strategy.
- There are three major obstacles undermining the success of the co-ordination effort:
 - a) Different approaches to innovation and exploitation of results unfortunately lead to divergent priorities across programmes;
 - b) INNOVATION-SME lacks the budget authority to fully leverage the operations and efficiency of the Innovation Cells;
 - c) The key actions do not seem to take seriously into account the co-ordination efforts of INNOVATION-SME.
- **INNOVATION-SME is in an awkward organisational position.**
- The programme deals with innovation policy, but its budget comes from research policy. It is managed by a unit of DG Enterprise, whereas most of the staff dealing with research are based in DG Research and DG Information Society. It promotes the participation of SMEs in the thematic programmes, but such participation is funded from the budget of the thematic programmes themselves. In short, the whole organisational arrangement is not very positive for the effective operation of the programme.
- **The complexity and standardisation of the Commission's procedures hampers SMEs from fully benefiting from INNOVATION-SME.**
- One important aspect of this is the high cost of application that SMEs must face relative to their resources.
- **The horizontal nature of the programme raises some important questions.**
- It is open to question whether the horizontal endeavours of the programme can be effective and even viable, as far as its co-ordination and service tasks for the benefit of the thematic programmes are concerned, and also whether the Commission should not let INNOVATION-SME or its successor pursue wider innovation objectives in their own right.

5. Recommendations for the future

The specific recommendations for each action line can be summarised in the following groups.

1 Innovation needs further and more intense promotion

- 1.1 The importance of innovation policy should be further enhanced and promoted. The establishment of an innovation culture throughout Europe, an important issue of the Action Plan, should be more effectively pursued.
- 1.2 The role of INNOVATION-SME should be strengthened significantly within FP5. In addition, its budget is too low and its activities too many to create a critical mass for all the actions planned or undertaken. Particularly, its limited budget for co-ordination does not permit the programme to be taken seriously into account by the better endowed thematic programmes, thus substantially undermining its coordinating role.

2 The programme objectives and structure need clarification

- 2.1 The Commission should define a clear strategic role for INNOVATION-SME. Is this programme a service for the thematic programmes? Is it a service for SMEs? Is it a service for innovative enterprises, venture capitalists, regional actors of innovation, institutions conducting research on innovation management? The INNOVATION-SME programme has by far too many different types of customers, giving its size. This increases complexity and reduces both effectiveness and efficiency. The programme should focus on those customers where the highest leverage effects can be achieved and where its core competencies can be used best.
- 2.2 The structure of the programme is by far too complex as regards the management of its human and financial resources. It is managed by a unit of DG Enterprise while its dealings are mainly with DG Research and DG Information Society. It is responsible for the support of SMEs in FP5, but the staff in charge belongs to the DG Research and most of these activities are funded from the budget of the thematic programmes. This structural complexity prevents the programme from effectively managing its resources as well as giving the appropriate transparency of its structure and internal links to its clients. It is vital then for the programme that its organisational situation be clarified.

3 INNOVATION-SME should improve its co-ordination with other innovation related activities undertaken by the Commission and within Member States

- 3.1 Innovation related activities are necessarily within the scope of different Commission services. Duplication of efforts may easily occur. INNOVATION-SME should make an effort to avoid this by improving its co-ordination with other parts of DG Enterprise and other DGs.
- 3.2 Innovation related activities are often launched within Member States on the initiative of national or regional bodies. The programme should further enhance its interactions

with the policy concepts and practices of regional and national authorities, and of other relevant organisations within Member States.

4 Permanent evaluation and self-evaluation mechanisms should be established across all activities

4.1 Evaluation mechanisms, based on an appropriate set of performance indicators, of all activities within INNOVATION-SME should be established and consistently followed throughout the lifecycle of the programme. The credibility of the programme demands that the results of all actions be carefully evaluated and the conclusions of such evaluations be made highly visible and promoted in the Member-States. The experience with evaluation and self-evaluation of the INNOVATION Relay Centres is a good practice that could set an excellent example.

4.2 Appropriate evaluation procedures related to the Commission staff should also be implemented. Training and measuring the performance of Commission staff is a serious issue whose examination would improve eventually the effectiveness of the programme. The existing assessment philosophy seems to judge a person more on his/her ability to proceed smoothly through the internal rules rather than on the ability to follow up and manage projects effectively and professionally.

5 There should be clear distinction between the budget of CORDIS and that of the remainder of INNOVATION-SME.

5.1 Developments in the Internet may require further, and still unforeseeable, extensions to CORDIS over the life of FP5. These extensions could meet financial constraints within the present budget of INNOVATION-SME. In addition, it is clear that CORDIS activities are not directly linked to innovation. The panel therefore suggests that the Commission should examine the option that the budget of CORDIS becomes independent of the budget of the programme while still remaining within the activities of INNOVATION-SME.

5.2 The Panel strongly recommends that in such an event, the budget of INNOVATION-SME should in no way decrease.