**EURAB 02.053 final**

# IMPROVING INNOVATION

## Recommendations

**1. It is proposed that the Commission establish a Working Party from Industry and Academia, along with legal and patents expertise, charged with the creation of pragmatic models for intellectual property rights for industry/university relations in Europe. It is suggested that the European Industrial Research Management Association (EIRMA) and the European University Association (EUA) be the main participants.**

**2. Efforts should be increased to achieve the creation of a Community Patent.**

**3. It is proposed that existing national tax reduction schemes, for industries which place research contracts in universities and other research organisations, be extended to cover such contracts in other European countries.**

**4. It is proposed that a Small Business Innovation Research Programme (SBIR)-like mechanism, such as that employed in public funding in the USA be possible through Integrated Projects of FP6.**

**5. It is proposed that an SBIR-like mechanism be introduced into National Programmes. This may require a change of rules for state aid.**

**6. It is proposed that the Commission establish mechanisms to facilitate one-to-one collaborations between industry and universities or government research organisations. This is particularly important for SMEs. It is important that these one-to-one relationships have a strong European dimension.**

**7. It is recommended that more structural funds be made available on a regional basis for innovation activities.**

**8. It is recommended to extend the Networks of Excellence in FP6 to cover also "Leading Technology Institutes" (LTI's)**

## 1. Introduction

Europe needs to find new instruments to promote innovation in order to deal with global competition.

Innovation is not just a question of increasing the R&D effort to 3% of GDP. Innovation relies on excellence in science and technology and on the ability to create and utilise market opportunities. Innovation policy requires an integrated effort in many fields ranging from promoting basic science to taxation. Many elements are involved. It is not sufficient to look at indicators as presented in the European Innovation Scoreboard. Some countries at the top of this list have severe innovation problems. It is also a question of creating enthusiasm, encouraging entrepreneurship, the willingness and acceptance to take risks, and improving the interaction of all players in the process of transforming science into euros. Any modern industrial policy must rely on an innovation policy.

We know that a strong and open university system is a necessary condition and that the interaction between universities, other research institutions, industry and society plays a key role. This is a two-way process. The establishment of good university / industry relations may yield an important competitive advantage not only for the creation of new companies, but may also lead to bigger companies outsourcing more long-term research to universities.

We also know that most instruments for improving innovation work primarily at regional level. Although big companies contribute significantly to innovation, the renewal of industry is to a large extent fuelled by high tech SMEs, who are strongly dependent on local conditions although often operating on a global level. The regional efforts include technological infra-structures, i.e. local innovation centres, networks and technological institutes.

Are there problems which should be solved at the European level? Is there a role for the Commission?

Our answer is yes. We have identified constraints in the innovation process where actions from the Commission, and in particular from the Directorate General for Research are needed.

## 2. Rationale for the Recommendations.

This report focuses on 3 key issues requiring urgent attention :

- Incentives and barriers to the use of knowledge.
- The needs of small and medium-sized enterprises (SMEs)
- Regional activities (including use of Structural Funds to encourage innovation).

This leaves other important subjects, such as how to foster entrepeneurship, to be dealt with by future EURAB recommendations.

### Incentives and barriers to the use of knowledge

***Intellectual Property Rights (IPR):*** The essence of the problems experienced by the players is the achievement of fair and equitable treatment for the inventor, funder and user. It is a complex matter involving the terms imposed by the funder, (particularly if

the funder is a public or government organisation), on the researcher (inventor). In addition, there is the complex issue of patents with their costs and vulnerabilities. Conflicts of interest in the transfer of technology are common. The roles and mindset of universities and research institutes which may be publicly or industrially funded are distinct, and models have evolved to reduce conflict.

In the USA, the Bayh-Dole Law operates to give universities ownership of results obtained via public funds, with transfer to industry through royalties or equity. It has become a useful instrument for university "spin-off's", but there are growing problems for "spin-in's", i.e. when existing companies place research activities at universities. It has apparently tipped the balance too far in favour of the universities who often make unfair demands for royalties as perceived by the industry. On the other hand, certain industrial companies claim rights to everything even though they have funded only a small part of the work.

In the Commission's FP system, ownership of the IPR rests with the partners in the research activity and consortia are encouraged (in FP-6 it is likely to be obligatory) to conclude between themselves a Consortium Agreement covering such issues as IPR and settlement of internal disputes. The Commission provides (non-binding) guidelines for the production of such Consortium Agreements.

Another issue requiring consideration is the so-called "grace period" which pertains in the States. This allows a period of 1 year for the patent to be filed after publication. This is intended to help universities, private inventors and SMEs but is thought by some industries to be fraught with legal uncertainties.

It is apparent that such is the complexity of the IPR issue, that new models should be created for Europe. It is therefore proposed that the Commission establish a Working Party drawn from industry and academia, along with legal and patents experts, charged with the creation of pragmatic models for Intellectual Property Rights (IPR) for industry/university relations in Europe. It is suggested that EIRMA and the EUA be the main participants.

***Community Patent:*** The creation of a Community Patent (long discussed), is an essential ingredient in the provision of incentives and removal of barriers to the use of knowledge in Europe. The savings in costs to the patentee through the use of a common language and the elimination of the need to file in many countries is self evident. At the Lisbon Council (2000), Member States agreed to move towards the creation of a Community Patent. Increased efforts to achieve this goal, by all concerned, is strongly recommended.

***Tax Reductions for University/Industry Collaborations:*** The decision to increase the European R&D effort to 3% of GDP with emphasis on industrial investment in R&D may be difficult to fulfil in a short time without outsourcing more research to universities. Government schemes exist in some countries, or are being established, to encourage this process, not least by tax incentives. Typically however, these incentives are limited to national arrangements. It is therefore proposed that the Commission encourage the national governments to extend existing tax reduction for industries who place research contracts in universities and other government research organisations to cover such contracts placed in other EU countries.

## Small and Medium sized Enterprises

The importance of SMEs in improving innovation in Europe cannot be overstated. Some 98% of companies in Europe are SMEs with 93% having less than 10 employees. It is felt that the Commission does not distinguish clearly enough between SMEs in general, high tech SMEs and large-scale enterprises when assessing project proposals. Drawing on the many contributions from the European Industrial Research Managers Association (EIRMA), the European University Association (EUA) and SMEs themselves, the following conclusions have been reached:

- Research is not the highest priority for SMEs. They need quickly to turn an idea /invention / process through a rapid development phase into profit.
- In most cases they do not want multiple collaborations with others. They want the wherewithal to get on with the work, namely cash and technical help- but most importantly cash, quickly.
- Collaborations affording specialist technical assistance should preferably be on a one to one basis, SME to University for example. Although the legal framework exists, we recommend that the EU create mechanisms to facilitate this.
- The current EU funding process does not match the needs of SMEs, who regard the system as tedious and time-consuming, having a low probability of success, having undue importance of geographical rather than excellence criteria, lacking in a European policy on IPR and stultified by the insistence on multiple, defined collaborations.

The needs expressed by SMEs condense into 3 specific areas:

- Funding.
- Collaborations.
- Intellectual Property Rights.

***Funding:*** The funding system employed in the USA has a (much larger) top-down approach, which is not dissimilar from the EU system. The top-down approach in the US strategic programmes is supplemented by a bottom-up mechanism. Such a mechanism is felt to be more suitable for SMEs. This is the Small Business Innovation Research programme (SBIR)[1]. It amounts to USD 1.3 billion and its purpose is to speed up the creation of companies. It is therefore proposed that an SBIR-like mechanism as employed in public funding in the USA be introduced into FP-6, possibly through the Integrated Projects.

It is also proposed that an SBIR-like mechanism be introduced into the National Programmes. This may require a revision of EU rules for state aid. If so, we recommend the Commission take the necessary steps.

***Collaborations:*** Many SMEs are reluctant to participate in EU-projects because they typically involve consortia with many partners. Often, a high tech SME would prefer collaboration alone with a university in another European country. The rules of FP-5

[1] SBIR is a 3 phase mechanism, integrated into all funding agencies. It works as follows:-
Phase 1: USD 50,000 to 100,000 available as "seed money"for feasibility studies; Phase 2 : USD 750,000 available for the prototype phase; Phase 3 : no funds available for commercialisation., alternative sources required. The Programme operates with the following provisos:-
It is possible to receive several awards; it is not necessary to own a company to apply, however a company must exist to receive the support. This is important as it allows the applicant to "test the water" before diving in and setting up the company; Phase 3 relies on other funding e.g. Venture Capital. This is followed by a Trade Sale or Investment Public Offering (IPO) as appropriate.

allowed projects with only two partners, but it was perceived that projects with partners from many countries were favoured. FP-6 will require at least three countries per project.

It is therefore proposed that the Commission establish mechanisms to facilitate one-to-one (SME/University) collaborations. It is important that such collaborations have a strong European dimension.

It is also proposed that Networks of Excellence could include the concept of "Leading Technology Institutes" (LTIs), based on the Dutch model. LTIs are aimed at long-term fundamental research with emphasis on the fast transfer of knowledge into innovative products and services. They are based on co-operation between existing institutions and companies and normally have a virtual character. The LTI mechanism is valid for larger companies as well as for SMEs..

***Intellectual Property Protection****:* SMEs are particularly vulnerable to exploitation and loss of their intellectual property. The creation of a Community Patent would significantly ease the present situation wherein many SMEs feel they have neither the time nor the money to obtain patent cover across Europe.This proposal is covered in the section on the Community Patent above.

## Regional Activities.

The clustering of like-minded companies on a regional basis can bring enormous added value, stimulating intimate cross-fertilisation of ideas and personnel. A classic example is Silicon Valley in the States.

Success in obtaining funds on a regional basis is however strongly dependent on the drive and initiative expressed by the local administration in the region; examples being in Saarbruecken, Germany, where some 40 nanotechnology companies have emerged, and in Finland where TEKES Technology Development Centre under the Ministry of Trade and Industry has led and financed many projects in universities and research institutes with close interaction with industry.

It is recommended that more structural funds be made available on a regional basis for innovative activities.

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