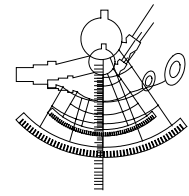


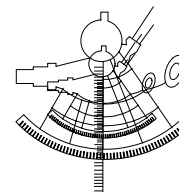
# European Trend Chart on Innovation



## The Identification of “Best Practice” - 2003

Covering period: October 2002 – September 2003

# European Trend Chart on Innovation



Innovation is a priority of all Member States and of the European Commission. Throughout Europe, hundreds of policy measures and support schemes aimed at innovation have been implemented or are under preparation. The diversity of these measures and schemes reflects the diversity of the framework conditions, cultural preferences and political priorities in the Member States. The 'First Action Plan for Innovation in Europe', launched by the European Commission in 1996, provided for the first time a common analytical and political framework for innovation policy in Europe.

Building upon the Action Plan, the *Trend Chart on Innovation in Europe* is a practical tool for innovation organisation and scheme managers in Europe. Run by the Innovation Directorate of DG Enterprise, it pursues the collection, regular updating and analysis of information on innovation policies at national and Community level, with a focus on innovation finance; setting up and developing innovative businesses; the protection of intellectual property rights; and the transfer of technology between research and industry.

The Trend Chart serves the "open policy co-ordination approach" laid down by the Lisbon Council in March 2000. It supports organisation and scheme managers in Europe with summarised and concise information and statistics on innovation policies, performances and trends in the European Union. It is also a European forum for benchmarking and the exchange of good practices in the area of innovation policy.

## The Trend Chart products

The Trend Chart on Innovation has been running since January 2000. It tracks innovation policy developments in all EU Member States, plus Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Iceland, Israel, Latvia, Liechtenstein, Lithuania, Norway, Poland, Romania, Slovak Republic and Slovenia. The Trend Chart website ([www.cordis.lu/trendchart](http://www.cordis.lu/trendchart)) will provide access to the following services and publications, as they become available:

- a database of policy measures across Europe;
- a "who is who?" of agencies and government departments involved in innovation;
- a series of six-monthly country reports for all countries covered;
- a series of six-monthly trend reports covered on each of the four main themes;
- a number of benchmarking reports;
- the European Innovation Scoreboard and other statistical reports;
- a news service and thematic papers;
- the annual reports of the Trend Chart.

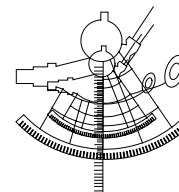
The present report was prepared by **Paul Cunningham, PREST, University of Manchester**. The information contained in this report has not been validated in detail by either the Member States or the European Commission.

Contact: Christophe Guichard; [Christophe.guichard@cec.eu.int](mailto:Christophe.guichard@cec.eu.int)

This document originates from the European Commission's "European Trend Chart on Innovation" (Enterprise Directorate-General).

Copyright of the document belongs to the European Commission. Neither the European Commission, nor any person acting on its behalf, may be held responsible for the use to which information contained in this document may be put, or for any errors which, despite careful preparation and checking, may appear.

# European Trend Chart on Innovation



## 1. Introduction

Good or best practices can be used relatively casually, as illustrations of how to improve organisational efficiency and effectiveness. Alternatively they can be used more formally as a method of benchmarking performance. They can be identified from within the existing practices of a group of organisations as their own best practices or can be identified from observations of other outside groups. They can be actual achieved practices or target specifications.

In the Trend Chart project they can be selected from within a single country, or from observations across several countries. They can be based on specific policy measures or on other activities related to the encouragement and facilitation of innovation.

This section of the Synthesis Report 2003 presents examples of “best practice” in innovation policy within the Member and Associated States of the European Union. These have been presented in two separate reports during the reporting period. The remit of these reports is to present examples of good or best practice in the four priority areas of the Trend Chart: technology transfer, new technology based firms, IPR and financing innovation. Two examples from each area are to be presented each year. In a broad area such as technology transfer, the range of measures in place is generally sufficient to enable one or two candidate examples to be identified under the broad set of criteria used (see below). However, far fewer measures address the issue of IPR and, as a result, the selection of examples from this priority area is much more problematic. To some extent, this leads to an unequal selection of measures. In addition, examples of good practice in areas of innovation policy not covered by the four priority areas are not covered at all, due to the contractual requirements under which the report is prepared.

## 2. A working definition of “good practice”

Best practices have been identified in the four areas that are analysed in the thematic reports produced under the Trend Chart project: technology transfer, new technology based firms, IPR and financing innovation. Correspondents have been asked to identify best practices within their own countries and were provided with guidelines (see below) to indicate what examples might be suitable. The definition of good/best practices and the criteria whereby they may be identified have exercised considerable debate. During the course of the Trend Chart project the following set of criteria have been used as a “working set” to aid Trend Chart project correspondents, and others, in the selection of examples.

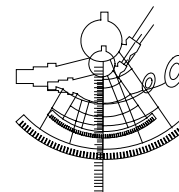
Good or best practices might be based on policy measures, or on other actions or structures. In the present exercise, examples of good or best practice were selected on the basis that they fulfil one or more of the following criteria:

**Favourable Evaluation.** Examples of best practice ideally need to be validated by appropriate evaluations, which need to be sensitive to different contexts. The availability of credible evidence of success may arise from independent evaluations. Government statements of success (in press releases, etc.) may also be used as evidence, although the provenance of such evaluations should be made clear.

**Longevity.** An indication of good practice might be assumed where a scheme is extended or renewed, particularly over several funding cycles, or where resources to support that scheme are strengthened. However, caution is needed since the need for continuation or extra resources might also indicate that insufficient impact has been achieved.

**Transferability.** Best practices, almost by definition, need to be transferable or adaptable to other similar circumstances. Where similar concepts or principles can be found in the policies of more than one country (or region) it is possible to assume that those principles are recognised as worthwhile. Thus, in this context best practice could be a concept or principle rather than a specific scheme.

# European Trend Chart on Innovation



**Popularity.** A scheme that evokes a good response in terms of its uptake (and which may even become over-subscribed) may be assumed to elicit a degree of satisfaction amongst its target groups. However, care must be exercised to ensure that any over-subscription is not due to under-resourcing of the scheme, or that other motivations (e.g. access to finance) are not primarily responsible for driving the scheme's popularity.

**User feedback.** Schemes may generate a positive feedback from the user community that may be reported through a variety of channels (popular or trade press, Government statements, etc.). Other favourable aspects of schemes may also be reported, such as ease of application processes or transparency.

**External recognition.** Studies, for example, by international agencies (OECD) or other national governments, may, on the basis of any of the above criteria, select specific schemes as the focus for detailed or comparative review. Evidence from such reviews forms a particularly robust criteria for best practice nomination.

**"Innovativeness".** A departure from previous national or regional innovation policy practices may indicate either the search for an improved methodology or evidence of the implementation of lessons learned from prior experience. Such policy developments can form evidence of good practice, especially if the shift in policy is based on comparative studies with other programmes.

It should also be noted that best practices need not be confined to specific policy measures but might be embodied, for example, in the principles that help construct policies or that facilitate policy implementation. Thus, the creation of a single innovation unit with inter-ministerial responsibility for innovation issues could be viewed as an example of best practice. Similarly, the formulation and implementation of an innovation framework (such as the "Innovation Laws" legislated in some countries) may represent an example of best practice at the very broad policy level.

A number of additional criteria have also been proposed. These include:

**Effectives size.** The volume of the measure exceeds a critical mass, for example it reaches at least 5% of the potential target group.

**Flexibility.** The measure allows for adjustments over time or has successfully been adapted to changes in framework conditions – in a sense this also involves an aspect of longevity as the degree to which a measure is able to respond to changing conditions and demands will contribute to its continued usefulness.

**Strategic Orientation/Coherence.** The measure directly addresses the strategic objectives of national innovation policy and is coherent with EU innovation policy priorities.

Obviously these criteria further broaden the potential selection of measures and, it could be argued, further dilute the concept of "good practice". On their own, each would not appear to necessarily reflect aspects of good practice, perhaps with the exception of "flexibility". However, in combination with the existing set, these new criteria could be applied to the identification of candidates for good practice examples.

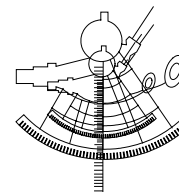
The following sections describe examples of good practice identified for the current reporting period from the four priority areas.

## 3. Specific examples

### 3.1 Innovation Finance

This category deals largely with the implementation of fiscal incentives for the promotion of innovation by individuals or companies (such as tax credits for R&D) and with the stimulation of venture and seed capital provision for the establishment and development of newly created innovating companies.

# European Trend Chart on Innovation



This category deals largely with the implementation of fiscal incentives for the promotion of innovation by individuals or companies (such as tax credits for R&D) and with the stimulation of venture and seed capital provision for the establishment and development of newly created innovating companies. However, financial support to small firms may be provided through other channels. One example of such a measure is provided by the UK's Small Business Research Initiative – SBRI (UK\_46). The primary reason for its choice is given below:

**Transferability:** The scheme was inspired by the US Small Business Innovation Research Programme, which has been the subject of favourable reviews.

## Small Business Research Initiative (SBRI) (UK\_46)

The SBRI is designed to increase the success of smaller firms in obtaining contracts from Government bodies to conduct research and development. Through the SBRI, the R&D procurement programmes of Government Departments and the Research Councils (worth up to £1 billion (almost €1.5 billion) in total) are made more accessible to smaller businesses. The Government Departments involved will aim to buy at least 2.5% of their R&D requirements from smaller businesses. The Research Councils will move to meet the same targets over time. The target is for £50 million (around €74 million) worth of Government research to be bought from smaller firms. Although the scheme is open to all businesses, it is particularly suited to SMEs and it is coordinated by the Small Business Service (SBS). Charities, university spin-offs, individuals and groups are also eligible to participate if they fulfill the requisite criteria.

SBRI is not a grant scheme, but a procurement measure which aims to:

- strengthen those existing small firms whose businesses are based upon providing R&D - by increasing the size of the market,
- encourage other smaller businesses to increase their R&D capabilities and capacity - to exploit the new market opportunities, and
- create opportunities for starting new technology-based or knowledge-based businesses.

All of the opportunities available under SBRI are offered by the Government Departments and Research Councils which are participating, and application to undertake R&D projects is in accordance with their individual timescales and procurement procedures.

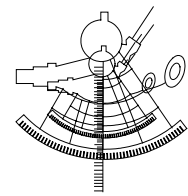
The following Government Departments and Research Councils participate in the scheme:

- Department of Health
- Department for International Development
- Department of Environment, Food and Rural Affairs
- Ministry of Defence
- Biotechnology and Biological Sciences Research Council
- Economic and Social Research Council
- Engineering and Physical Sciences Research Council
- Medical Research Council
- Natural Environment Research Council
- Particle Physics and Astronomy Research Council
- Department of Trade and Industry
- Office of Science and Technology

An example of a programme being utilized under the SBRI is the DTI's £40 million (€58 million) per annum expenditure on measurement science under the National Measurement System.

**Contact:** Mike Burrows  
Small Business Service  
Kingsgate House

# European Trend Chart on Innovation



66-74 Victoria Street  
London SW1E 6SW  
Email: mike.burrows@sbs.gsi.gov.uk

**Information:** The SBS has set up a pilot information and enquiry service which provides more detailed information about SBRI and the participating organisations, including access to their websites. See: <http://www.sbri.org.uk/>.

The second example selected here is the German BTU venture capital programme (DE\_12). It has been chosen because of its:

**Favourable evaluation:** Several favourable evaluations have been conducted of the Programme. The scheme has been found to be successful in helping the German Venture Capital industry to gain competitiveness and is one of the reasons why Germany forms the largest market for early stage financing in high-tech in Europe in 2000.

**Longevity:** The scheme has been running since 1995.

**Strategic Orientation/Coherence.** The measure directly addresses one of the strategic objectives of national innovation policy and is coherent with EU innovation policy priorities into improving the situation of early stage start-up finance.

**Popularity:** It is estimated that until 2000, roughly 75% of all cases of venture capital involvement in the early phase of high-tech firms in Germany were BTU-co-financed.

**Flexibility:** It has been possible for the Government to adapt the focus of the programme towards the provision of greater support for early stage start-ups.

## **BTU Programme: (Beteiligungskapital für kleine Technologieunternehmen - Venture capital for small technology-based firms) (DE\_12)**

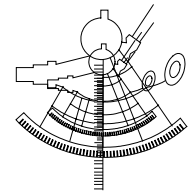
*The BTU Programme was originally set up as a pilot programme in 1990 to address a perceived shortage in venture capital for technology-based start-ups and small, but fast-growing technology-oriented firms. The high degree of uncertainty in economic prospects of such firms due to uncertain technological developments and volatile market demand contributes to a potential under-investment by the private venture capital market in such start-ups and small firms. This may hamper their innovation activities.*

The BTU scheme offers two types of public promotion for small technology-based firms and technology-based start-ups, depending on the market needs:

- **DtA Co-Investor Model:** The Technologie-Beteiligungs-Gesellschaft (tbG, a branch of DtA - Deutsche Ausgleichsbank) invests in young technology-based firms provided that another, usually private investor (lead investor) makes available funds at least matching those of tbG. The investment by tbG takes the form of a dormant equity holding whereas the lead investor's holding is active and thus has a greater say in the conduct of business. In return for the lead investor's commitment, tbG may compensate partially any potential loss sustained.
- **KfW Refinancing Model:** The Kreditanstalt für Wiederaufbau (KfW) provides low-interest loans to refinance venture capital providers who pass on this funding as venture capital to young technology based firms. KfW partially releases the venture capital providers from their liability for the refinancing loan.

BTU support is restricted to firms not older than 5 years. The BTU programme aims at spreading the

# European Trend Chart on Innovation



risks amongst the venture capital providers and assistance banks in order to mobilise a higher volume of venture capital for young technology-based firms and start ups. At the same time the burden on public financing is kept small. The level of support is adjusted regularly according to market developments. With a comparably small amount of public funds firms can be effectively supported by going on to be listed on the stock exchange. Within the innovation support strategy of the Federal Ministry for Economics and Technology, the BTU programme focuses on (indirect) financial support for R&D and the introduction of new products and services into the market. Within the programme FUTOUR (DE\_20), public venture capital is made available to firms in Eastern Germany. The ERP Innovation Programme (DE\_10) offers venture capital for larger firms.

Since the launching of the programme in 1995, the volume of venture capital mobilised by BTU and other public venture capital measures (FUTOUR, ERP Innovation Programme) rose from around €90 million to €750 million in 1999. In 2000, a further increase to €1 billion took place. It is estimated that roughly 75% of all cases of venture capital involvement in the early phase of high-tech firms in Germany are BTU-financed. There are some success stories of firms from the internet, biotechnology and telecom sectors which have been supported by BTU and experienced fast growth, such as MobilCom, MorphoSys and Intershop Communications. So far, a total of 24 firms supported by BTU have already gone public, reaching a current market value of €30 billion.

The Federal Ministry of Economic and Technology reports a significant effect of the BTU programme on the labour market. On average, a company aided by BTU creates approximately 20 new jobs over the first four years. These results have to be compared with the performance of non-supported firms in the same fields of technology, however.

The focus of the programme has now been shifted towards stronger support in the early phase of start-ups. In 2001, a new sub-programme, BTU Early Stage, was launched. It provides VC for pre-seed and seed stages of technology-oriented start-ups to be used for developing a business plan and carrying out market research and technology development, including grants for R&D. Start-ups have to co-operate with a 'coaching investor' who provides managerial support and looks for other investors.

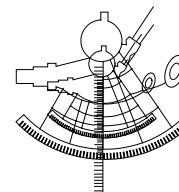
The BTU programme heavily suffered from the crises of the New Market segment on stock markets from 2001 on. The number of IPOs - and thus one major exit option for private investors - fell to zero in 2002. Private VC investment in early stages in Germany was also near to zero in 2002 and 2003. Consequently, the BTU programme stopped virtually working due to a lack in private investment. At the same time, a number of co-investment made in 1999 and 2000 turned out to be not economically viable, resulting in high total writing offs. In 2002, these costs amounted to €125 million and are expected to be €75 million in 2003. Some of the former BTU success stories are struggling hard today, and the high growth rates of 1999-2000 turned to contraction rates of similar level.

In order to overcome the shortage of private investment in early stages of technology oriented start-ups, the German government will establish a new public fund of funds. It will be financed jointly by the German Federal Government (ERP funds) and the EIB by a total of €500 million and is expected to raise private capital for investment in new technology based firms of €1.2 billion in the forthcoming five years. The fund in funds will start in 2004.

### **3.2 Start-up of New Technology-Based Firms**

Support for the creation of new enterprises takes many forms, ranging from the provision of the necessary financial resources, provision of advice and other non-financial support, incentives for entrepreneurs and improved framework conditions (such as tax regimes and IP protection). The current example does not support the creation of new enterprises *per se*, but rather provides support to improve the infrastructural and organisational capabilities of SMEs (including newly established companies) through the introduction of new Information and Communication Technologies. As such, it provides a good example of a measure which falls within the national efforts to promote the "Information Society".

# European Trend Chart on Innovation



The first example provided here is that of the Spanish ARTEPYME II scheme. The rationale for its selection is set out below:

**Favourable evaluation:** The scheme has been reviewed favourably. Since its inception, ARTEPYME II, has received subsidies in excess of €10 million from the Ministry of Science and Technology. In addition, the Ministry has chosen this scheme as an example of good and new experience to promote ICT adoption by Spanish SMEs.

**Longevity:** The measure has been renewed: ARTEPYME II was preceded by a scheme which ran from 1996 to 2000. The objective of this scheme was to improve SME competitiveness through the modernisation of technologies and production systems. Now, the scheme has been designed as an annually renewed financing instrument with different objectives, namely focusing on the absorption of ICT and e-commerce technologies by SMEs.

**Transferability:** By this token (the extension of the scheme), the measure has high potential for transferability to other similar circumstances: for example, it could be extended to different regional economies where SMEs and traditional sectors form the targets.

**Popularity:** This forms another important characteristic: entrepreneurial organisations and sectoral associations have recognised the opportunities offered by this measure, along with SMEs from a range of economic sectors: agriculture, metal, machinery, tourism, energy, distribution, etc.).

**External recognition:** The ARTEPYME II scheme has been recognised as an example of Good Practice by the European Commission within the framework of the Go Digital initiative, (included in the *e-Europe* action), in the framework of a project to analyse different national policies to promote electronic business in SMEs<sup>1</sup>.

**Innovativeness:** The scheme recognises the key role of Entrepreneurial organisations in the process of technology diffusion and final adoption, and this is a new characteristic of the scheme, in relation to its predecessor.

## ARTEPYME II Scheme: Subsidies for projects for ICT technologies in SMES (ES\_22)

Improving the competitiveness and modernisation of SMEs has been a growing concern in Spain and there have been several measures and initiatives aimed at achieving these objectives. Related to this concern, the recent liberalisation of telecommunications in Spain has made it possible for companies (including SMEs) to adopt new ways of development and to obtain access to new markets. Normally, SMEs lack the necessary tools to take advantage of these new technological developments and hence it has been necessary to implement instruments and measures to favour these companies in the adoption of new technologies.

ARTEPYME II is a multisectoral-oriented scheme, included in the overall platform of INFO XXI (the Spanish Strategic Plan to develop the Information Society in Spain (ES-19)). It has been designed to promote the utilisation of new Information Society-related technologies, including e-commerce, by SMEs.

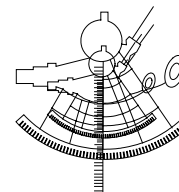
The programme's objective is to foster the introduction of new technologies in Spanish SMEs in order to improve their organisational and productive methods and to enable their participation in new markets.

ARTEPYME II is projected to run from 2001 to 2006 and an overall budget of €90 million is foreseen. This budget is co-financed by European Regional Funds. Subsidies are awarded for the conduct of studies which examine the feasibility and planning of the establishment of new ICTs in SMEs, to fund activities to promote the utilisation of telecommunications technologies by SMEs and to support the creation of Telecommunication centres to meet the demands of SMEs.

In the past, there have been previous schemes to encourage the adoption of new technologies in SME. However, the main novelty of this measure in relation to these previous schemes, is that it

<sup>1</sup> see <http://europa.eu.int/comm/enterprise/ict/policy/benchmarking/final-report.pdf>

# European Trend Chart on Innovation



subsidises projects to benefit groups of SMEs having the same interests. ARTEPYME II considers associations of SMEs with similar requirements and interests. This new approach gives the scheme a wider dimension, since it can benefit a larger number of SMEs.

Contact: Javier Monge and Jesús Galván  
Tel.: +34- 91-3461510  
Email: Javier.monge@setsi.mcyt.es  
Email: JGALVAN@teleline.es

The next example provided here is that of the French "Incubator structures" (FR\_12). The rationale for its selection is set out below:

**Popularity:** By mid-2002 the scheme had assisted 635 projects exceeding by 11% the target fixed and representing 75% of the global target.

**Strategic Orientation/Coherence:** Incubators have shown a strategic orientation/coherence with the innovation policy in France. As a result, the new Innovation Plan (April 2003) has stated that the public financial support which was initially limited for the three first years of the measure will be continued.

## Incubators structures (FR\_12)

This measure began with a call for tenders launched in March 1999 by the Ministry of Research and the Ministry of Economy, Finance and Industry. As a result, 31 incubators were created all throughout France.

Incubators are defined as a place of reception and support established by research organisations or universities. Each incubator is a place where researchers can develop a commercial activity and, where enterprises can receive guidance or develop co-operative research projects. Their tasks are to provide advice and financing and act as a place for projects to be developed. Incubators are designed to encourage the creation of innovative enterprises from the results and outputs of public research. Through this measure the government aims at constructing interactive consortia based on partnerships between universities and public bodies (research institutes).

Incubators are, in the majority, multi-sectoral. Ten are concentrated on biotechnologies and two are specialised (one in multimedia and one in biotechnologies).

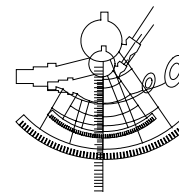
- The last report from the Ministry of Research published in April 2003, accounted for
  - 733 projects incubated
  - 344 enterprises created
  - 1315 (approximately) jobs created

The total budget allocated to the 31 incubators was of the order of €24,64 million over three years (an average of €28,203 per project). Up until December 2002, €12.5 million were given to incubators; the equivalent of 50.4% of the total budget for the programme. Up until mid-2002 these incubators had assisted 635 projects exceeding by 11% the target fixed and representing 75% of the global target.

The distribution between technological sectors was very stable throughout the years. In August 2002 the incubator population was distributed as:

- Life sciences and biotechnologies: 36%
- Information and Telecommunication/Communication Technologies: 30%
- Engineering sciences and technologies: 27%
- Social and human sciences and services: 7%

# European Trend Chart on Innovation



The Ministries and Secretariats in charge of national education, research, technology and economy, finance and industry created the grouping called France Incubation. This body has the objective of getting together incubators and enhancing the transfer of good practices, exchange of information, ensuring an international information system for its members, etc.

**Contact:**

Ministry of Research  
Technology Direction  
1, rue Descartes 75231 Paris Cedex 05  
Tel: 01 55 55 87 79

**Information:** <http://www.recherche.gouv.fr/technologie/mesur/incub/>

### 3.3 Intellectual Property Rights

The area of IPR is relatively restricted in terms of opportunities for good practice, other than in the organisation, administration and management of IPR issues. Examples of measures brought into place recently appear to largely address issues of bureaucratic simplification and awareness promotion, together with legislative restructuring and the support of incentives for IPR protection and patenting.

The first example selected for this period is a new initiative by the German Federal Government to promote the use of IPRs at higher education institutions and other public research organisations (DE\_72). It has been selected as an example of good policy practice for the following reasons: its innovative approach and the positive user feedback..

**Favourable evaluation/Popularity:** The measure has received positive user feedback.

**Innovativeness:** The measure demonstrates an innovative approach.

### Commercialisation of Intellectual Property at Public Research Institutions (DE\_72)

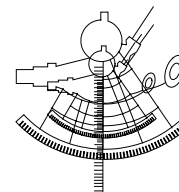
This measure aims at strengthening the use of Intellectual Property Rights (IPRs) at German higher education institutions (HEIs) and public sector research establishments (PSREs), and thus improving technology transfer to the enterprise sector. The measure was launched in summer 2001 and has four objectives:

- (i) creating a professional patenting and commercialisation infrastructure for public research inventions in Germany,
- (ii) promoting the use of patents for protecting research results,
- (iii) increasing further education for researchers in the field of IPRs,
- (iv) building up a network of commercialisation units at HEIs and PSREs.

A main feature of the measure is the creation of formal partnerships between HEIs and PSREs, and already existing private or public patent agencies. One ultimate goal of the measure is the establishment of a nationwide network of Patent Commercialisation Agencies (German abbreviation: PVAs) that serves HEIs and PSREs in their patenting and commercialisation activities. As an innovative approach, these PVAs are not associated to a certain HEI or PSRE (such as Technology Transfer Offices in the USA) but are responsible for a large number of HEIs and PSREs in their region (typically, a Federal State). By this means, PVAs have a broader portfolio of technologies and inventions and are less dependent upon casual commercially relevant inventions from a specific university.

The background of the measure is a change in IP regulation at German HEIs that came into force in February 2002 and is part of the ongoing institutional reforms at HEIs (see DE\_59). The new IP regulation at HEIs refers to a change of the *Arbeitnehmererfindungsgesetz* (Employee Invention Law).

# European Trend Chart on Innovation



§ 42. It foresees that researchers at HEIs have to announce any invention made by them to the HEI administration. The latter is free to decide whether it will take over the IPRs on this invention or leave it to the inventor. In the case of accepting the IPR (which should be the regular case), the HEI is expected to care of an efficient commercialisation of the patent. Until this change, the IPR was solely in the hands of the researcher.

As many HEIs do not run their own patent and commercialisation infrastructure (such as a technology transfer institutes with experts in IPRs), there is a lack of know-how and resources for efficient commercialisation of IPRs at HEIs. The new PVA network is expected to provide this infrastructure. Each HEI, and those PSREs not yet running their own technology transfer office, conclude a contract with the PVA in their region (i.e. their Federal State). The contract states the details for transferring IPRs, covering patent related costs and sharing any incomes of commercialisation activities. Typically, the HEI transfers all new patents to the PVA, the PVA covers all costs, and incomes are split up to the inventor (30%), the HEI (30%) and the PVA.

So far, the programme provides two types of support:

(1) State subsidies for establishing PVAs. HEIs, and PSREs with low patent activities have to develop a concept for strengthening the use of IPRs and establish a formal co-operation ("partnership") with a private or public patent application and commercialisation company. The partner is expected to bring its professional knowledge on running a PVA. The concept should state the organisation of the PVA with respect to

- individual consulting for scientists concerning patenting procedures
- evaluation of patenting potentials and commercial relevance of new research finding
- writing patent specifications/applications and covering external costs
- production of invention exposures, direct contacts to potential customers/licensees
- contracting of commercialisation agreements, controlling licensing contracts
- support for new firm start-ups that commercialise research findings
- information and further education measures on patent related issues
- taking care of legal conflicts with respect to IPRs
- co-operation in a network of commercialisation units

Public support is solely given for realising such a concept, given that a PVA takes over the associated tasks. HEIs and PSREs enter into an agreement with the PVA that clearly states the goals of co-operation and the resources needed for each task. Once a year the progress will be evaluated and the agreement may be continued, adjusted or even terminated.

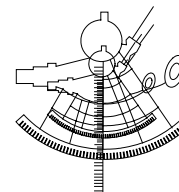
(2) State subsidies to HEIs, PSREs and PVAs in order to offer qualification measures to researchers working at HEIs and PSREs in the field of patenting and commercialisation of research results. The sub-measure is called IPV (Innovation through Patenting and Commercialisation) and provides funding for (a) developing a qualification concept, (b) carrying out qualification measures, and (c) special activities such as exchange of experience among PVAs on qualification related issues.

A third sub-measure that will give support to linking the various PVAs in order to exchange knowledge and experience is expected to be published in the second half of 2003.

The programme started in summer 2001 with a call for tender. Until 2002, a network of PVAs, 20 in total, has been established. In each of the 16 Federal States at least one PVA now exists. In two Federal States, two PVAs have been established, and in one Federal State, three. The PVAs partly evolved out of already existing public patent agencies such as technology transfer offices at large universities or patent offices run by Federal States. A significant number of PVAs are newly founded, especially in the Eastern German States. All PVAs are organised as private companies, allowing a high degree of flexibility in terms such as organisation, remuneration of technology experts and contracting with firms. The shareholders of PVAs are typically HEIs and PSREs as well as institutions of the Federal State (such as public banks) or the Federal States themselves.

The total amount of money allocated to this measure is €51 million. The first two sub-measures of the programme will run until the end of 2003. the third one still to be announced (networking of PVAs) is

# European Trend Chart on Innovation



likely to run until the end of 2004.

The measure may be regarded as an innovative way to stimulate the use of IPRs at public research avoiding some drawbacks of traditional models such as technology transfer offices at each individual institution. The PVAs are likely to achieve a critical mass of patent portfolio both in terms of number and technologies which makes them more cost effective and less dependent upon single patents. The strengthening of awareness measures and further education for researchers is likely to mobilise the potential of patentable inventions at HEIs and allows the PVA to follow a sound strategy of patenting commercialisation.

For further information, see: [http://www.patente.bmbf.de/de/patentpo\\_82.php](http://www.patente.bmbf.de/de/patentpo_82.php) (in German language only).

The second example provided below is the Portuguese GAPI network. Its selection has been prompted by the following reasons:

**Favourable Evaluation:** Although not yet subject to a formal evaluation (it was launched only in 2001), the network has already met with early successes, due particularly to the partnership approach adopted

**Popularity:** Early success of the network has led to a further extension, via a third phase.

**Transferability:** It is planned to replicate the network, in view of its success, in other EU countries and also, possibly, in Latin America.

## The GAPI network

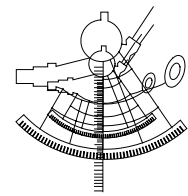
GAPIs, the Portuguese Industrial Property Support Offices, are light structures aimed at providing information and dynamising the promotion of industrial property mechanisms. Their ultimate aim is to strengthen the competitiveness of Portuguese companies through differentiation. Connected to the data bases of the National Institute for Industrial Property (INPI), GAPIs are located throughout the country within organisations concerned with innovation activities, such as University technology transfer centres, technology interface organisations or employers' associations (national, sectoral or regional). Through their information systems connections they are linked to the main sources of information, both national and international, on industrial property issues.

The creation of the GAPI network was undertaken in the context of a wider project on Valorisation and Promotion of the Industrial Property System, carried out by INPI in partnership with other organisations, and supported by the Operational Programme for the Economy. The first phase, running between 2001 and early 2003, concerned the launching of a network of 15 GAPIs and the establishment of the connecting IT system. A second phase, financed under the new PRIME Programme, will run between 2003 and 2004, and is aimed at consolidating and extending the network through the creation of five new GAPIs as well as at strengthening the information system supporting the network. In view of the success of this initiative, a third phase, focussed on internationalisation, is envisaged, replicating the initiative in other countries, both in the EU and outside. Approaches from Latin America countries have already taken place.

The mission of the GAPIs is to provide support to companies and other organisations with regard to the following:

- information on industrial property regulation, namely technical requirements, administrative requirements, and costs;
- information on industrial property protection;
- increasing the awareness of economic agents in the region or industries concerned on industrial property mechanisms;
- technical support for potential applicants in patenting decisions; and

# European Trend Chart on Innovation



- training on industrial property rights.

GAPIs are also expected to evolve into organisations promoting the valorisation of industrial property and to be active in technology brokerage. One of the main strengths of the initiative was the partnership approach followed. INPI contact several would-be partners, to assess their interest in hosting the GAPI Offices. This led to the setting up, in a two-year term, of 15 GAPIs, located in different organisations. The present network includes:

- Universities
  - IST – GALTEC (the office for supporting technology licensing)
  - Aveiro University – GrupUNAVE (a technology liaison office)
  - Coimbra University – Instituto Pedro Nunes (a technology transfer office)
  - Minho University – TecMinho (a technology transfer office)
  - Oporto University - Fundação Gomes Teixeira (a technology liaison office)
- Employers' Associations
  - AEP – Associação Empresarial de Portugal
  - AIP – Associação Industrial Portuguesa
- S&T Parks
  - Taguspark – Science and Technology Park, near Lisbon
- Technology Centres
  - CATIM/AIMMAP, on metalworking and industrial machinery industries
  - CENTIMFE, on mould-making industries
  - CITEVE, on textile and clothing industries
  - CTC/APPICAPS, on footwear industry
  - CTCOR, on cork industry
  - CTCV, on glass and chinaware industries
  - CPD, the Portuguese Design Centre.

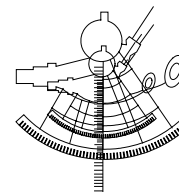
The dynamics of GAPIs depends very much on the dynamics of the host organisations as well as on their own management commitment. Most GAPIs are very active and the network is working well. The catalysing role of INPI in terms of information, specific knowledge and initiative has been key to the success of the initiative. Although it has not yet led to a significant increase in patenting, this action has a strong mobilising effect and is a good example of a coordinated and cooperative effort in promoting innovation.

### **3.4 Transferring the results of research**

Of necessity, this is a very broad area of interest. It is closely linked to activities under Action Line III.4 which includes actions which aim to promote the dissemination of knowledge between research institutions, universities and companies. This may cover the development of closer links between research and training (anticipating the needs of the productive sector); facilitating university company start-ups, legal and contractual arrangements between universities and public research organisations for the exploitation of results with industry; demonstrator projects; co-financing schemes and awards for academic/industrial research co-operation; stimulation of dialogue between the producers and users of technology (such as sectoral and inter-sectoral forums, technology clubs, etc.); creation and growth of science and technology parks, etc.

The first example provide here is another UK scheme – the Faraday Partnerships. Formerly known as Postgraduate Training Partnerships, this scheme was incorporated into the expanded and restructured Faraday Partnerships in 1999/2000. A national network of about 24 Faraday Partnerships was expected to be established by 2002-03 as a result of the commitment in the Science and Innovation White Paper to fund eight Partnerships each year, a goal that has now been realised. The rationale for its selection is set out below.

# European Trend Chart on Innovation



**Longevity:** Although the scheme has only been in existence since 1999, its initial success, coupled with the success of the Postgraduate Training Partnerships, led to a Government decision to expend considerably more resources on a rapid expansion of the scheme to produce a network of 24 Faraday Partnerships.

**Popularity:** User uptake of the scheme has been very high and has resulted in the successful expansion of the scheme to the target figure set out by Government in 2000.

**External recognition:** In June 2003, the Fraunhofer-Gesellschaft announced the start of a cooperation with the Faraday Partnerships. Both share similarities in that they work closely with industry and maintain close working relationships with leading universities and technical colleges. In addition, both focus on a range of leading edge industrial and technical research fields. Presently, a pilot collaboration is in place within a Faraday Partnership in the field of mechatronics.

## Faraday Partnerships (UK\_19)

A Faraday Partnership is an alliance of organisations and institutions, which can include Research and Technology Organisations, Universities, Professional Institutes, Trade Associations and Firms, which aims to undertake research, development, transfer and exploitation of new and improved science and technology. They cover a wide range of disciplines and industry sectors, and can be grouped as follows: major UK industry sectors (e.g. automotive and aerospace, electronics, food processing, medical devices, packaging, plastics, technical textiles); cross-cutting science and technologies applicable to a wide range of industries (e.g. bio-catalysis for manufacturing purposes, colloidal science & technologies, digital imaging, electro-optics, industrial mathematics and system engineering, mechatronics, communications and information technology, sensors); sustainable technologies (e.g. green technology for the chemical industry, waste reduction in the manufacturing industry, new and renewable energy for buildings, remediation of polluted land); and new and emerging science and technologies (e.g. farm animal genetics and genomics, satellite navigation systems applications, rapid manufacturing through powder processing, high throughput technologies and processes, industrial applications of high power radio frequency engineering).

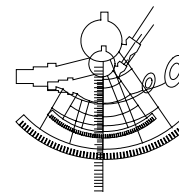
Based on their core funding, Faraday Partnerships use private capital and various Government and European schemes to conduct research, development and knowledge transfer, aiming to bring new products and processes to the market quicker, and thereby improving the competitiveness of UK industry across a wide range of sectors.

Faraday Partnerships aim to:

- be widely recognised for their technical expertise and be UK industry's first choice for help with new product and process development.
- provide better ways of exploiting R&D to create new products and processes, and provide more effective and coherent uptake of the various support mechanisms available (and provide of human and financial resources) e.g. TCS, LINK, CASE awards, SMART, International Technology Service, Eureka, European Union Framework Programmes.
- link many different organisations, each with a part to play in delivering the Partnership objectives.
- deliver the four 'Faraday Principles', namely:
  - Promoting active flows of people, science, industrial technology and innovative business concepts to and from the science & engineering base and industry.
  - Promoting the partnership ethic in industrially-relevant research organisations, business and the innovation knowledge base.
  - Promoting core research that will underpin business opportunities.
  - Promoting business-relevant post-graduate training, leading to life-long learning

Faraday Partnerships work with business support organisations such as Business Links operators, regional technology centres, trade and other professional organisations and Regional Development Agencies as well as university Industrial Liaison Officers, Science Enterprise Centres and key firms such as Technology Transfer and Innovation (tti) Limited etc., ensuring a two-way flow of information and opportunity. Business support partners add value to Partnerships' work and its wider

# European Trend Chart on Innovation



dissemination via technology clubs, networking and by providing access to services such as venture capital and help with business and management development. Technology Translators (with a broad experience of knowledge transfer) play a pivotal role in these activities – facilitating the interaction between partners.

Faraday Partnerships are reviewed in their third year of operation to evaluate whether further infrastructure funding should be awarded by the DTI.

Each Partnership receives core funding which establishes a platform from it can bid into other UK Government and EU funded schemes for research and technology transfer. This core funding comprises: a grant from DTI or other Government Department of up to £400,000 (€580,000) per year for at least three years to establish and operate the infrastructure of the Faraday Partnership; and a ring fenced grant of £1million (€1.45 million) from a Research Council or combination of Councils or from a Government Department for research projects which satisfy the twin criteria of excellent science and industrial relevance.

Core research and infrastructure funds committed to the 24 Faraday Partnerships now total £52.2 million (€75 million) and the total value of their research portfolios now in exceeds £100million (€145 million).

Government sponsors of Faraday Partnerships include: the Biotechnology and Biological Sciences Research Council, Department of Environment, Food and Rural Affairs, Engineering and Physical Sciences Research Council, Department of Trade and Industry, Particle Physics and Astronomy Research Council, Natural Environment Research Council and the Scottish Executive.

During 2002/2003, a total of 1,702 companies were actively involved in the scheme, together with 381 research teams from universities. The latter included some 270 CASE, Industrial CASE and post-doctoral students who receive industrially-relevant training and spend a significant amount of time in the non-HEI partners.

**For information and contact details:** <http://www.faradaypartnerships.org.uk/Index.html>

The second example presented here is the German programme IGF (Promotion of Joint Industrial Research) (DE\_17) which is one of the world's longest running innovation promotion schemes. The rationale for its selection is given below:

**Popularity:** The programme is still very popular among its users and receives a continuous and significant level of public funding.

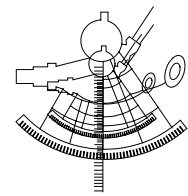
**Longevity:** Started in 1954, the scheme has now been in operation for almost 50 years, and only a few characteristics of the programme have been changed during this time.

**Innovativeness:** The scheme has been selected as an example of good policy practice not only due to its popularity and longevity. Despite its age, the programme has a number of innovative features that represent good practice in strengthening research in the SME sector and in the transfer of knowledge and expertise from public research to SMEs.

## IGF Programme - Promotion of Joint Industrial Research (DE\_17)

The IGF ("Industrielle Gemeinschafts-Forschung") programme offers direct grants for R&D projects which are carried out by sectoral research institutions, or on behalf of these institutions, by consortia of companies and/or research organisations. The programme is solely accessible to sectoral research institutions that are members of the Association of Joint Industrial Research (AiF). These institutions have been founded since the 1950s by SMEs from different manufacturing sectors in order to carry out R&D that is in the joint interest of the membership firms. A main feature of all IGFs is that they cooperate closely with universities and public sector research establishments that are active in their

# European Trend Chart on Innovation



respective fields of technology. The vast majority of external R&D contracts by IfGs goes to public research organisations making the IfGs, and hence the IGF programme, a major instrument for knowledge and technology transfer between SMEs and the science sector.

The ultimate goal of IGF is to strengthen R&D activities for SMEs, foster technology spill-overs among SMEs and between public research and SMEs, and increase innovation activities by SMEs in technology clusters.

The IGF programme is financed by the Federal Ministry of Economics and Labour (BMWA) and is administered by the AiF. The AiF, founded in 1954, is a self-organised institution of the German enterprise sector. It is the umbrella organisation for 106 IfGs, the latter having about 50,000 SMEs as their members. The IfGs are either research institutes (i.e. they have research facilities and staff, and carry out R&D by themselves), or they are organisations that co-ordinate R&D activities among their member firms, first of all by commissioning R&D projects to research organisations and universities or to a group of membership firms. The basic costs of IfGs for organisational purposes are covered by the membership firms. Funding for R&D projects comes from membership firms, too, complemented by IGF funds and other public funds such as R&D grants within thematic programmes (DE\_67 to DE\_71).

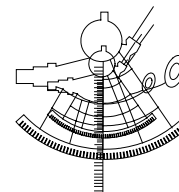
The IGF funds R&D which is directed towards the introduction of new products and/or services but is located in a pre-competitive stage. R&D projects must be applied by a membership organisation (IfG) of the AiF. The transfer of R&D results to firms and thus to the market must be ensured. The R&D projects may cover the full depth and length of scientific-technological questions of interest to companies. The items of subsidy cover all costs of R&D projects.

R&D project proposals by IfGs are typically developed in a bottom-up way. Firms and research institutions may deliver their project ideas to an IfG, who then forward project applications to the AiF. The AiF evaluates proposals and decides on public funding. R&D projects may be carried out by the IfG themselves or by third parties (public or private research organisations). Research themes may also derive from technology problems that are communicated by SMEs to their respective IfG. The IfG will then use its network to research institutions to find partners for solving the technology problem.

The IGF programme is one of the longest running innovation programmes in the world. Since its start in 1954, the principal features of the programme have proved to be effective and have not changed significantly. A critical success factor is the idea of bringing SMEs within a certain industrial sector or field of technology together in order to jointly formulate their research needs. The IfG allow for bundling research themes and projects to scale-efficient size, for following a long-term strategy in sector-specific technology development that is relevant to SMEs, for making use of new scientific findings, and for establishing long-term cooperations with public research institutes. All of this would be highly difficult, cost intensive or impossible for individual SMEs. Through the membership network, new research findings and technology developments can be disseminated quickly to the SMEs in the respective sector, thus contributing to a high rate of technology diffusion and a high level of technology in the SME sector. The unification of these 106 IfGs within the AiF-network furthermore allows for jointly formulating the needs of SMEs in innovation to other actors in the innovation system, first of all to policy makers. The AiF-network may thus be regarded as a major stimulator for R&D activities in the SME sector and for encouraging R&D co-operation between SMEs and public research.

One potential shortcoming of the IGF scheme is its strong sector focus. The sectoral or technology specific definition of the IfGs may displace R&D projects that are at the border of several traditional technology sectors. In order to provide an incentive to IfGs to pro-actively get into these areas of research, a special sub-scheme of IGF was introduced in 2001, called ZUTECH (Future Technologies for SMEs). ZUTECH aims at developing new solutions for the structural renewal of the SME sector of the German economy on the base of high-grade technologies. ZUTECH has a strong interdisciplinary and cross-cutting focus. Cooperation of research institutions from various disciplines is strongly encouraged by the programme. Another goal of ZUTECH is to accelerate the transfer of new research results to SMEs and to speed up the process between R&D and commercial application. Special emphasis is laid on the development of new production technologies.

# European Trend Chart on Innovation



For further information, see: <http://www.aif.de> (in German language only).