Innovation & Technology Transfer

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Quick Reference Guide

to sources of information on research and innovation

Plus

Edith Cresson on the Innovation Action Plan

Benchmarking European Industry

Doing Business in the Information Society

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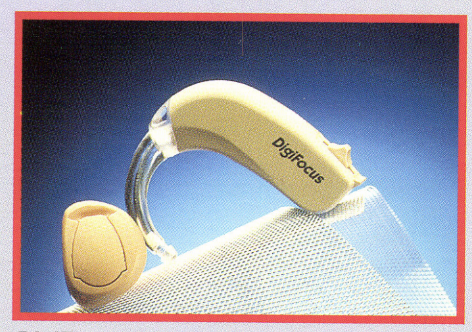

DigiFocus - award-winning technologies, *see page 22*

Magic in the Web

In November the European Commission adopted its First Action Plan for Innovation. In this issue, Edith Cresson, Member of the European Commission for research, education and human resources, discusses the action plan and identifies its main priorities. A special edition of *Innovation & Technology Transfer* published in December covered the action plan in detail.

This first issue of 1997 also includes the annual Quick Reference Guide to sources of information on innovation and European Union research. The main change since last year is the rapid rise of the World Wide Web. A striking characteristic of the Web is that it can offer information to suit all levels. Web information sources may be designed so as to offer everything from a concise overview of a topic to extensive, in-depth, data and documentation.

All manner of information on the European Commission is now easily accessible on the Web. This issue's Guide focuses in particular on the research and innovation information provided by the Web site of the Community Research and Development Information Service - CORDIS.

Since the end of October, all the CORDIS research databases, previously accessible by the traditional on-line route or on CD-ROM, are now available on the Web. Anyone with a PC and an Internet connection to the Web can easily search the databases, and thus have access to the wealth of up-to-date information and business opportunities which they offer. ■

ABOUT INNOVATION & TECHNOLOGY TRANSFER

Innovation & Technology Transfer is published six times a year in English, French and German by the European Commission's Innovation Programme, which aims to strengthen Europe's innovation infrastructure and disseminate research results to industry.
The emphasis is on timely news relevant to these objectives and in-depth 'Case Studies' of successful projects. Each issue also includes a major Dossier on one topic. Subscription is free - please fill out the request form on the back page and fax or post it back to DG XIII/D-2.

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INTERVIEW

First Action Plan Attacks Europe's 'Innovation Deficit'

The priority is to foster a genuine innovation culture in Europe, says Edith Cresson, Member of the European Commission responsible for research, education and human resources, in this interview to discuss the Commission's first action plan for innovation.

The plan follows a Green Paper on Innovation published by the Commission in December 1995, which led to a Europe-wide debate on innovation, and an invitation from the European Council, meeting at the Florence summit in June 1996, to prepare an action plan to follow-up the Green Paper.

■ The Green Paper on Innovation, published by the Commission at the end of last year, gave rise to a wide debate with all the actors concerned. What lessons emerged from this consultation, and how have they influenced the action plan?

The impressive element for me was the wide welcome given to the Green Paper. It obviously struck a chord with many people, who were appreciative of the opportunity to debate the issues we raised.

The main lessons to emerge were, firstly, there is agreement with the Commission's diagnosis of an 'innovation deficit' and, secondly, to remedy this we need to take action in a number of priority areas. In the Green Paper we also specified how we saw each particular problem being tackled - by the Commission, by the Member States, or by the regional and local authorities - taking account of the subsidiarity principle. This approach was also supported by the debate. All these factors are reflected in this first action plan.

On top of that, the many written comments that we received, the contributors to the conference-debates which we organised in the different Member States, the formal opinions of the Member States and of the other European institutions - all have helped to identify where the main priorities lie among the problems cited in the Green Paper.

Note that this innovation action plan from the Commission constitutes only the first step. It concentrates on priority actions which we can start at European Union level fairly quickly, without incurring any additional expenditure beyond what is already allocated or foreseen. It also includes some actions which have been started, without delay, in 1996, on the basis of the Green Paper consultation.

The first action plan provides an initial response to the need to boost innovation. It is the starting point for the preparation - in close collaboration with the Member States - of a more ambitious, long-term, innovation policy for Europe.

■ In innovation, Europe's performance falls below its main competitors. Europe invests 2% of its GDP in research. Japan invests 50% more, and the United States almost as much. Is our innovation deficit linked to a deficit in our research, or are there other factors?

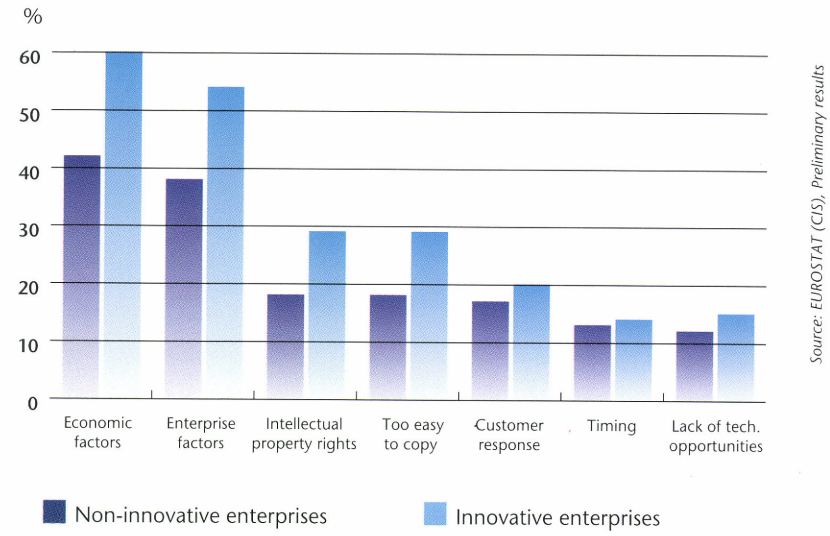
The quality of our research is certainly not deficient - there's no question about that. But our lower level of investment in research compared with our competitors is without doubt a serious handicap whose effects accumulate with the years. You can't just attribute to bad luck the fact that European production, from a base of 100 in 1985, has reached only 110 today, compared with 180 in Japan. One cannot refuse to invest in the future and then be surprised that the future slips away.

Our research is also less well planned. Each Member State programmes its own research activities, following what it perceives as its priorities. As a result the amount of coordinated research is small. Remember that the budget of the research framework programme run by the Commission amounts to only about 4% of all publicly-funded R&D in Europe.

So we have to concentrate on making the best use of the funds that we have. This means better coordination between national and EU ●●●

Edith Cresson, Member of the Commission responsible for research, education and youth

Importance of factors hampering innovation



Source: EUROSTAT (CIS), Preliminary results

research policies, and working to improve the link between research and innovation.

Innovation is however not a question of technologies alone. This was made abundantly clear in the Green Paper, and was supported by the ensuing debate. When companies are asked what hampers innovation, technical difficulties are only one of many factors that they cite. Other factors also play an important role.

Even in large companies, where you expect there to be plenty of resources for research, the R&D costs of introducing a new product tend to be overshadowed by the costs of market analysis, product development and so on.

The Green Paper gave a host of examples of barriers to innovation, such as the Byzantine procedures which entrepreneurs often have to surmount to set up a new company, the difficulties in raising finance, the obstacles to personal mobility which hinder the flow of know-how, and education and training systems ill-adapted to the needs of an innovative society.

To deal with the 'innovation deficit' we have to improve the link between research and innovation, it is true, but we also have to foster a real innovation culture, and make sure that Europe is a place where new ideas can thrive and lead to commercial successes, with jobs and prosperity the ultimate aim.

This means taking action in a wide variety of areas that up to now have not usually been linked. This is one reason why the Green Paper described innovation as 'a multi-faceted phenomenon'.

> *"The proportion of venture capital going into technology-based projects in Europe in 1993 was only 17%, compared with about 80% in the United States."*

■ In most sectors, Europe's share of patents is falling. How can new life be breathed into the patent system?

To file and maintain a patent to cover the whole of the United States costs about US $13,000, whereas to cover just eight EU Member States costs nearly ten times as much - US$120,000. The patent system in Europe has to be made less expensive. We strongly support efforts by the European Patent Office to cut the cost of filing and maintaining patents.

Patents are also far too complex, chiefly because there are three coexisting systems: the national systems, European patents administered by the European Patent Office in Munich, and the Community patent. The Community patent stems from the Luxembourg Convention of 1975. The Convention was amended in 1989, but because of delays in ratification it is still not in force.

In 1997 we will bring out a Green Paper on the whole issue of patents in Europe, taking into account the changes that have happened since 1989 that would in any case require the Convention to be adapted.

One question it will examine is whether the Luxembourg Convention should be converted into a legal instrument under the European Union Treaty. This would mean there would be a ready-made Community-level legal framework. One of the problems at present is the danger that the competent Courts in the Member States may deliver conflicting decisions on patent questions, which obviously causes difficulties for users of patents.

To encourage businesses, especially small and medium-sized enterprises, and universities, to make more use of the protection offered by patents, we propose a raft of measures to provide training and advice. Most are for implementation by Member States. The Commission will show the way, by making available to participants in the research framework programme an information and help service on intellectual property and action against counterfeits.

We will also continue to develop the Quick Scan pilot system which we run in conjunction with the European Patent Office for the benefit of researchers and firms seeking advice. This is a scheme to check the novelty of research proposals against the patent databases.

Often the results of this exercise show that a project needs to be redefined so as to take account of already existing work. It also picks out projects which are simply aiming to 're-invent the wheel'. This kind of service is very useful for small and medium-sized enterprises which are often more ignorant of patents than their counterparts in the United States and Japan.

■ The plan emphasises that innovation implies a certain culture, and culture depends largely on education and training. How do we create a real policy for training for innovation, which at present seems to be missing from our education systems?

We say in the action plan that the priority is to foster a genuine innovation culture. The key to achieving this is education and training. We urge Member States to continue to review courses and training methods with a view to stimulating creativity and the enterprise spirit.

Training is a necessity throughout life, of course, so we are also stressing the importance of lifelong learning. Last year, 1996, was the European Year of Lifelong Learning, when a great deal of experience was gained from pilot projects which are currently being assessed.

We also intend to draw attention to the many good initiatives coming from individual Member States, by setting up a 'training and innovation' forum to exchange experience and disseminate best practice.

Closely linked to education and training is the question of mobility, since the mobility of people helps spread knowledge and contributes to the flow of ideas. The action plan includes a number of measures to help counter the well-known obstacles to mobility in Europe.

In the next research framework programme we plan to increase the possibilities for transnational secondments of young researchers and engineers. They would work in businesses, particularly small and medium-sized ones, to help in the introduction of innovative projects, or in technology transfer.

Mme Cresson and Italian Research Minister Luigi Berlinguer at the 'synthesis conference', held last May in Italy, which ended the four month long consultation process on the Green Paper on Innovation. "The impressive element for me was the wide welcome given to the Green Paper."

■ What about the financing of innovation? This is often a big problem for European firms.

Yes, it's the most commonly-cited obstacle to innovation by firms. We have to encourage the direction of risk capital towards the creation of innovating companies. This applies particularly to technology-based companies which often experience difficulties in raising capital. The proportion of venture capital going into technology-based projects in Europe in 1993 was only 17%, compared with about 80% in the United States.

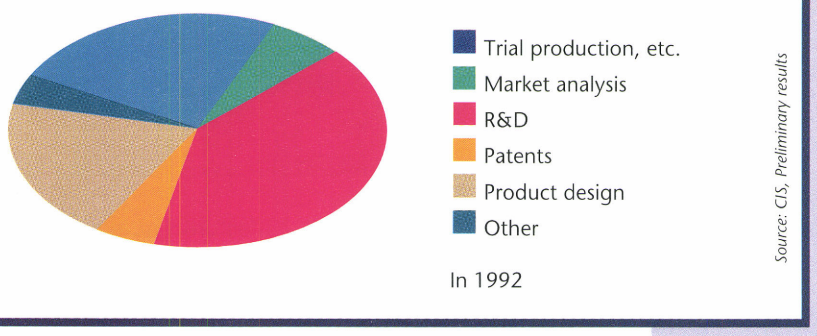
Parallel to that, we need to develop stock markets for growth enterprises. We also have to make potential investors more aware of the needs of innovators, and vice versa.

Improving the situation will depend a great deal on the financial world and on the national or regional dimension. We can help in several respects at EU level.

The Commission will support more intervention by the European Investment Fund with a view to encouraging innovation. We have in mind a pilot project directed to the promotion of early-stage finance for innovative projects, notably those derived from EU research.

We also intend to offer an information and guidance service on innovation financing to participants in the Commission's research framework programmes. Conversely, potential investors will be able to use it for information on investment opportunities arising from framework programme research. There exists here a pool of businesses and projects to draw from, so as to further future wealth and job creation.

The Commission will also look at ways of stimulating the exchange of experience in innovation financing, and encouraging the adoption of good practice.



"One cannot refuse to invest in the future and then be surprised that the future slips away."

■ Within the Member States, do the regions have a specific role in the growth of innovation?

It is at the regional level that small and medium-sized enterprises can most easily forge links with each other, and cooperate with their local university and business advisory services. Small businesses are critical to the innovation process, so the regional dimension is very important. Different regions also often have their own quite different characteristics, so an innovation model that works for one region may not necessarily work in another.

The 'technology gap' between the developed and the less-developed regions of the EU remains important. The Commission therefore proposes that the place given to innovation in the Structural Funds be strengthened.

■ Earlier you mentioned the importance of fostering a real innovation culture in Europe. How can we make the public at large aware of this?

It is very important to carry the public with us. In many cases the good sense of the measures in the action plan speak for themselves. Consumers are also of course becoming increasingly demanding, and welcome innovative products and services which improve on what went before.

Sometimes, however, there are aspects of innovation which are worrying. Not all technological advances are universally welcomed. Innovation can also mean changes in methods of work, and in social organisation.

It is absolutely vital to ensure that these questions are brought out into the open, and that employees, consumers and everyone concerned are kept fully informed and are able to participate in decision-making.

I take as an example the development of plants modified by genetic engineering. We should make a thorough appraisal - scientific and transparent - of the absence of risks to human health and to the environment of these new products. Only total transparency is likely to satisfy people.

> *"It is very important to carry the public with us ... Only total transparency is likely to satisfy people."*

Moreover, I consider it natural that the consumer should know the origin of products, and that the labelling should mention the nature of the product - whether it has been modified or not. It is not a question of damning these products but, on the contrary, of showing that, if there is no risk, manufacturers have nothing to fear by specifying the nature of the product.

I would also like to point out that, given the size and weight of the public sector in Europe, the public authorities can do a great deal to set a good example. It also means that improving performance and spreading innovation in the public sector can have a significant economic impact.

■ Much of the diagnosis of a European innovation deficit stems from a comparison with the dynamism of the USA and Japan in this area.

■ But innovating does not mean copying. In what way can a European model of the innovation spirit set out to be different from the formulae of its competitors?

Although the United States and Japan are both excellent at innovation, they have quite different characteristics. Each has achieved excellence, but by different routes. So it is not a question of Europe copying one or the other system. We will develop our own style of an innovative society, and the chances are that it will be quite different from either the United States or Japan.

Europe's strength lies in its national and regional diversity. Each Member State or region should build up its own specific approach to the promotion of innovation, according to its own particular situation. In other words, strict application of the principle of subsidiarity.

The 'European' level is ideal for exchanging experience - for identifying particularly successful innovation-fostering programmes going on in a Member State or region, looking to see whether they would work in other Member States or regions, and, if so, helping them to set up similar programmes. Thus, I hope to see the development of a European model of innovation, reflecting Europe's variety and individuality.

Such a model should of course not minimise the importance of international cooperation. Two thirds of technical innovations are at present begun or developed outside the European Union. We must take this reality into account. Cooperation within the Union and with our partners in the rest of the world is indispensable to ensure that we reap the benefits of diversity, not the drawbacks. □

The Innovation Action Plan

The Innovation Action Plan was adopted by the European Commission on November 20, 1996, at the initiative of Edith Cresson, in agreement with Commissioners Bangemann (Industry) and Papoutsis (SMEs). It identifies three areas for action:

- **fostering an innovation culture;**
- **establishing a legal, regulatory and financial framework conducive to innovation;**
- **improving the link between research and innovation.**

It sets out a range of actions to fulfil these objectives, and specifies the level at which each should be implemented (Community, national, regional and local).

It will be published in all official European Union languages, and is also being made available for downloading from the CORDIS WWW site (http://www.cordis.lu). Additionally, a special edition of *Innovation & Technology Transfer* summarising the Plan was published in English, French and German in December. For more information, contact the RTD Help Desk (see page 15).

▶ CASE STUDY: INNOVATION PROJECT

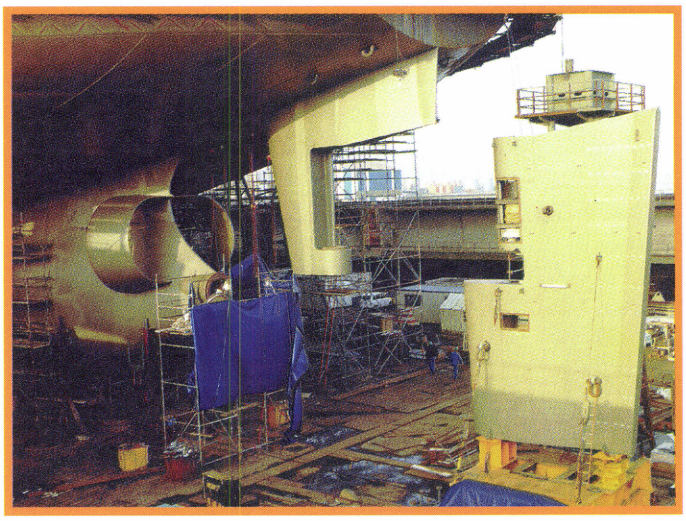
A Boost for European Heavy Industry

The involvement of the Joint Research Centre in a new Innovation Project offers Europe the chance to extend the use of laser beam welding to heavy industrial applications such as shipbuilding, dramatically improving their competitiveness.

'Robertino' is a very large 4-axis robotic handling device originally developed by the Joint Research Centre (JRC) at its site in Ispra (Italy) for the delicate manipulation of heavy components inside the vacuum vessels of advanced nuclear reactors. Innovation Project 236 - Laserobot, will equip Robertino to carry out the fully automated laser welding of plates up to 25mm in thickness.

The JRC's technology will be incorporated in a flexible and user-friendly system, making accurate and efficient laser beam welding available for the first time for large-scale steel construction applications in the energy, petrochemical and shipbuilding industries.

As Mauro Penasa of the Institute for Research on Mechanical Technology (RTM), which leads the project, explains, laser beam welding has clear advantages over conventional weld technologies. "It is quicker and cleaner, and involves a much smaller heat input, producing far less deformation. At least 25% of shipbuilding's construction costs are attributable to the reworking of plates distorted as a result of high weld temperatures. With laser welding, deformation is between 3 and 10 times lower."



Shipbuilding is a potential application for the 'laserobot' technology.

Obstacles to Exploitation

To date, however, the industrial take-up of this technology has been held back by two obstacles. First, laser weld ductility is difficult to test using traditional methods, and insurers were reluctant to certify laser welded structures until the new technology was better understood. Second, the high cost of installing dedicated tooling made laser welding viable only for large series production. For one-off or small series applications such as generator plant fabrication, laser welding was not economic.

A recent EUREKA project (EU 194) has led to the official acceptance of a new weld test methodology. JRC, RTM, and robotics specialist GAER Engineering expect the flexibility of their automated system to overcome the second obstacle.

The project's fourth partner is Framatome, a French manufacturer of generators for the nuclear industry. According to Mauro Penasa, this end-user involvement has been crucial. "Framatome has put us in touch with actual production requirements, making it clear that an automated welding system for large components must be both precise and flexible."

Double-jointed

To Robertino's 4-axis system, GAER will add a 4-axis laser manipulator carrying RTM's weld head. The complex configuration is necessary to meet Framatome's specification, allowing welding to be carried out even from inside large tubes. The weight of the manipulator - some 300kg - means that the base system must be extremely strong and stable. Designed by the JRC to position 30 tonne pieces with a tolerance of just 1mm, the present one-third scale device can handle loads of up to 6 tonnes, and works within a 3x2.5 metre frame, 6 metres in height.

The Innovation Programme In Brief

The Innovation Programme implements the Third of the four Activities of the Fourth Framework Programme (1994-1998). Run by DG XIII/D, the Innovation Programme encourages the exchange of research information and the absorption of new technologies by European companies.
See edition 1/95 for a brief profile.

Contact

■ Unit D-1: technology transfer and validation projects, JRC liaison, intellectual property
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RTM, a laser automation specialist, will focus on the welding system itself, as Mr Penasa explains. "RTM will supply all the beam transmission and focusing parts. User-friendly remote operation is especially important for large fabrication jobs, where it may not be possible for an operator to check plate alignment visually. We will also develop weld head sensors for preliminary tracking of the weld seams, as a way of speeding up the 'teach and repeat' programming procedure. In addition, on-line seam tracking will check alignment during the welding operation itself."

Strategic Dimension

Framatome expects the system to make production quicker and less labour-intensive, but its introduction needs careful planning. It is almost impossible to apply laser welding to components designed for other techniques. Happily, Framatome was already phasing out its existing generators as the project started, and will be able to redesign specifically for the new assembly methods. The company will act as an industrial demonstration site for the Laserobot technology.

The project has recently completed its definition phase, and moves into the two-year demonstration phase in January 1997. Mr Penasa is very conscious of its strategic dimension. "We know that Far Eastern shipbuilders are also investigating automated laser beam welding, so Europe needs this technology in order to remain competitive. Of course we hope that Laserobot's flexibility, which will make it an attractive solution across a wide range of heavy industries, will give Europe an extra edge."

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► PUBLICATION

Web Version on Way

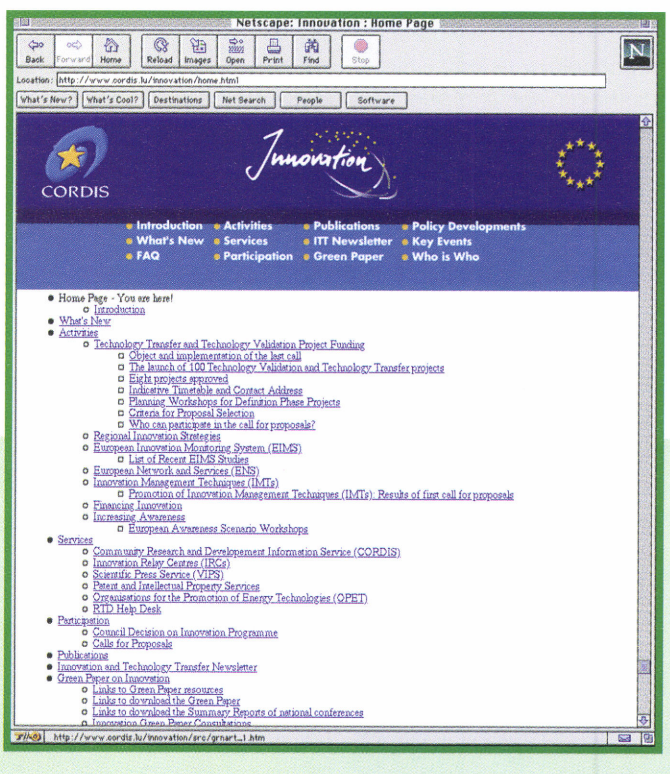
A World Wide Web (WWW) version of Innovation & Technology Transfer was being developed as this edition went to press.

The Innovation Programme plans to put all 1997 editions of *Innovation & Technology Transfer* onto the Innovation Programme's WWW site (**http://www.cordis.lu/innovation**) in all three languages. This edition should appear this month, with all subsequent editions appearing on the WWW as the printed version is distributed, if not before.

Although details of the structure were being finalised as this edition went to press, the philosophy of the site was already clear. The emphasis will be on speed and flexibility: all navigation-oriented graphics will be supplemented with textual links for users with slow connections, for example, while users will be able to browse both by edition and by theme (Innovation Programme News, Dossier, etc.).

The possibility of adding certain articles from pre-1997 issues is also being considered.

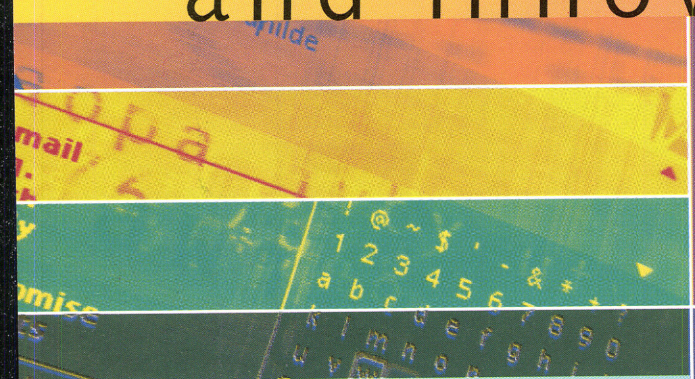
Innovation Programme News
continues on page 17.



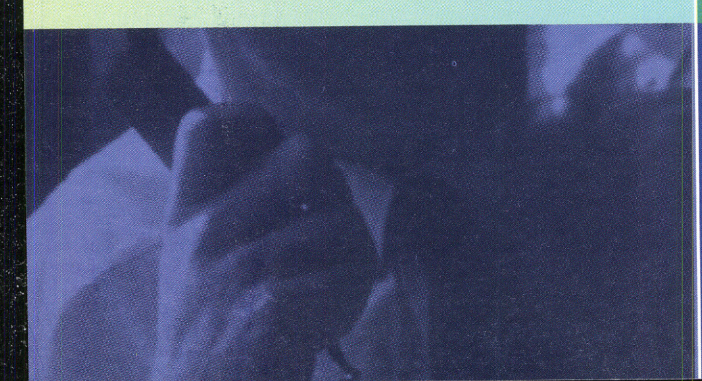
The Innovation Programme's Home Page will soon host Innovation & Technology Transfer in three languages.

Quick Reference Guide

to sources of information on research and innovation

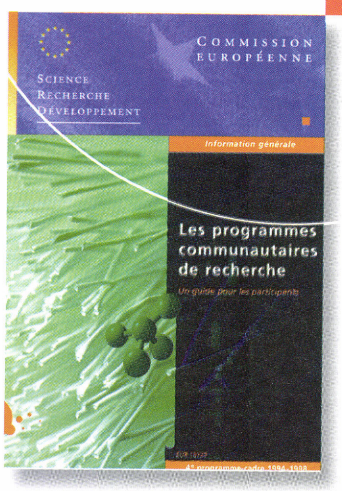


- Getting Started
- The Innovation Programme
- On-Line Resources
- Innovation Relay Centres
- Contact Points and Help Desks



Getting Started

The following booklets and newsletters are recommended as useful introductions to EU research, development and innovation.



Introductory Guides

■ EC Research Funding:

A Guide for Applicants, 4th Edition

EUR 16729, 20 ECU, 200 pages, 3 languages

Complete guide to EU research policy and activities, covering the Specific Research Programmes as well as related initiatives outside the Framework Programme. The standard participation rules are explained in simple terms and useful tips are given on preparing a project proposal. A guide to selection procedures and contract negotiation is also included, as is a detailed list of EU contacts. Available from the Communication Unit of DG XII (see page 15).

■ Research and Technology:

The Fourth Framework Programme (1994-98)

EUR 16620, 7 ECU, 3 languages

Concise, easy-to-read brochure on EU research in general and the Fourth Framework Programme in particular. Gives a description of the research areas covered and provides specific examples of projects and successes, as well as practical advice for potential participants. Available from the Communication Unit of DG XII (see page 15).

Journals and Newsletters

Keep up to date on EC research, development and innovation by subscribing to these publications:

■ *Innovation & Technology Transfer*

Published every two months in three languages (EN, FR, DE) by the Innovation Programme (see page 11), this 24-page magazine is of particular interest to the technology transfer community in industry, research institutions, universities and professional organisations.

Each issue includes an in-depth Dossier on one subject, articles on innovation policy and practice, news from the Innovation Programme, case studies of successful projects and more. Free subscriptions are available from the RTD Help Desk (see page 15), while an online version will be launched in early 1997 on the Innovation Programme's WWW site on the CORDIS server (see page 12).

■ *RTD INFO*

A quarterly newsletter (EN, FR, DE) providing updates on Community research programmes (calls for proposals, project results, events, publications, etc.), profiles of research projects and other articles on various aspects of EC research. The WWW version is available on DG XII's site on the EUROPA server (see page 13).

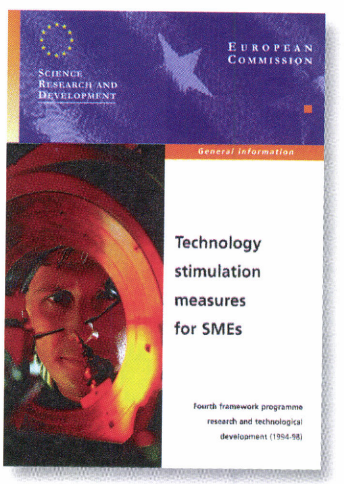
■ *CORDIS focus*

A fortnightly news service essential to everyone wishing to keep up to date with EU RTD activities. Provides details on calls for proposals and calls for tender, news from the programmes, general policy developments, new publications and upcoming events. Available in English, French and German from the CORDIS Help Desk (see page 12).

In addition, ***CORDIS*** *focus* supplements are published 6-8 times per year on specific topics. The November 1996 supplement, for example, covered the EC's research activities specifically aimed at Europe's Small and Medium Sized Enterprises (SMEs).

■ *In Addition ...*

several other CORDIS publications are available (see pages 12-13), as are newsletters and brochures from some of the Specific RTD Programmes (see page 16 for contact details). ■



Each research programme has a contact person specialised in the needs of Small and Medium-Sized Enterprises. Details can be found in this introduction to SME-oriented initiatives, available from the SME coordination unit (see page 16).

The Innovation Programme

Many information resources on EU RTD activities are managed by the EC's Innovation Programme.

'Innovating in Europe': a 24-page guide to the Programme's current and planned activities.

Part of the Innovation Programme is devoted to the dissemination and exploitation of European research results. Supplementing the research dissemination and exploitation actions of the Specific Programmes, the Innovation Programme promotes the exchange of research information, the absorption of new technologies and the uptake of best management practices by European companies, especially SMEs.

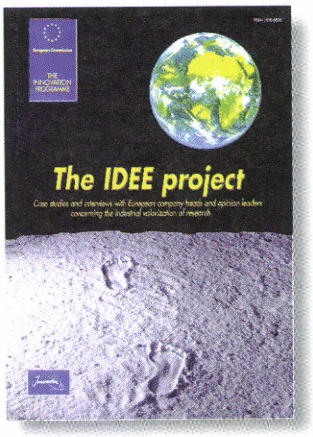
One of its key objectives is to ensure a continued supply of new information in areas such as best practice, commercial innovations, and partnerships between European companies. The most important avenues for disseminating this information are undoubtedly the Programme's Community R&D Information Service (CORDIS, see page 12), and its network of Innovation Relay Centres (IRCs, see page 14).

Project Management, Innovation and More

In addition, the Programme has a wide variety of other activities, including supporting technology transfer projects and analysing regional innovation infrastructures. Between them, these activities have resulted in a publication list - even ignoring those produced by CORDIS and the IRCs - too long to reprint here.

For example:

- the Innovation Programme's technology transfer and validation projects have yielded valuable lessons in project management. A number of publications and guides related to successful project management are therefore available, including software on structuring projects, videos on running project planning workshops, and more;
- the European Innovation Monitoring System (EIMS) supports various studies, surveys and workshops aimed at strengthening our understanding of Europe's innovation infrastructure. Well over 20 reports on company performance, innovation for business, public policies, supporting innovation infrastructures, regional aspects of innovation and much more are available;
- country-specific innovation resource books have been produced to provide information on all sources of research and innovation support in one country. Guides covering Greece, Ireland, Italy, the Netherlands and the UK are now available;
- other publications include a guide to medical research in Europe, a CD-ROM/brochure package on using 'Awareness Scenario Workshops' to promote understanding of science and technology among the general public, and more;
- the Programme's OPET Network (Organisations for the Promotion of Energy Technology), finally, aims at helping the market penetration of efficient and innovative energy technologies, particularly those stemming from the Specific RTD Programme on non-nuclear energies.



'Innovation Development in European Enterprises' (IDEE) - one of many studies into Europe's innovation culture and infrastructure by the Innovation Programme.

A full list of Innovation Programme publications can be found on the Programme's WWW site, while all publications can be obtained from the RTD Help Desk (see page 15). ■

Contact

- **Unit D-1:**
  Technology transfer and validation projects, JRC liaison, intellectual property
  Fx. +352 4301 34129
- **Unit D-2:**
  Community Information and Dissemination Service (CORDIS)
  Fax: +352 4301 34989
- **Unit D-3:**
  Relay Centres and other services
  Fax: +352 4301 34129
- **Unit D-4:**
  Innovation policy, regional aspects, financing, EIMS
  Fax: +352 4301 34544

Http://www.cordis.lu/innovation/home.html

CORDIS

EU R&D Information

The Community Research and Development Information Service - CORDIS - provides easy access to a wealth of information on European Union R&D. Its nine databases can now be accessed through the extensive CORDIS Web site. Conventional on-line access to the databases is also available, as well as a CD-ROM service and paper-based publications.

Help and Subscriptions

■ For more information on using CORDIS:

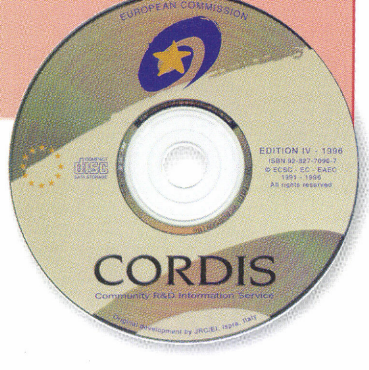
CORDIS Help Desk
Tl. +352 40116 2240
Fx. +352 40116 2248
E-m. helpdesk@cordis.lu

■ For information on submitting information to CORDIS:

CORDIS Information Collection Unit
Tl. +32 2 280 17 44
Fx. +32 2 280 17 49
E-m. cordis-icu@cordis.lu

■ To subscribe to the CD-ROM:

EUR-OP, OP4C-OFL
Tl. +352 2929 420 17
Fx. +352 2929 420 27
E-m. offline@opoce.cec.be



Managed by the Innovation Programme, CORDIS is a central information source on EU R&D and innovation activities. The core of the 'CORDIS Information Space' is a set of nine databases documenting all aspects of EU-funded research:

■ **R&D-News:** a daily update on all EU R&D-related issues, including calls for proposals, tenders, legislation and policy, events, publications, etc. Available in English, German and French;

■ **R&D-Programmes:** provides comprehensive details of nearly 500 on-going and completed R&D-oriented programmes;

■ **R&D-Partners:** a partner-search service which enables researchers to locate suitable partners for participation in EU research programmes or for other types of collaboration, including commercial exploitation;

■ **R&D-Projects:** information on individual projects being carried out under the R&D programmes;

■ **R&D-Results:** provides access to information on exploitable research results and technology offers arising from EU and some non-EU programmes;

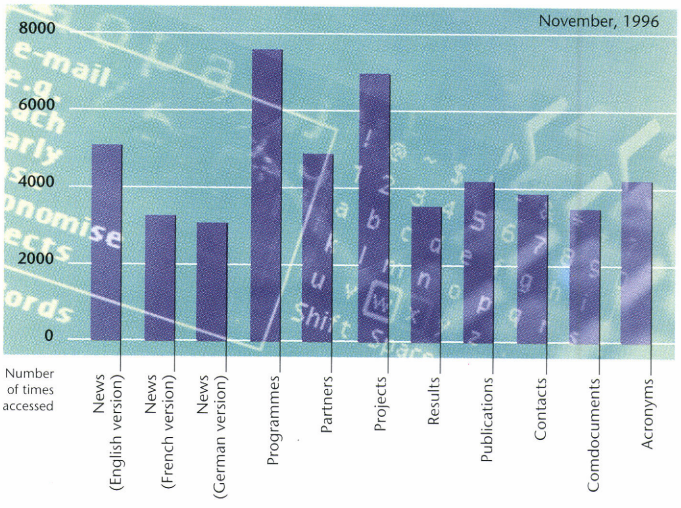
■ **R&D-Publications:** contains abstracts and bibliographic details of over 72,000 publications, reports and scientific papers;

■ **R&D-Contacts:** a directory of official contact points providing information, assistance or advice on EU and national R&D-related activities;

■ **R&D-Comdocuments:** summaries of key Commission R&D-oriented documents;

■ **R&D-Acronyms:** a dictionary of both EU and non-EU R&D-related acronyms and abbreviations.

WWW Database Access



The nine CORDIS databases were accessed almost 50,000 times during November 1996, the first month they were made accessible through the WWW. While Programmes was accessed the largest number of times, users actually spent the greatest length of time viewing the Projects database (1,144 hours, compared with 730).

On-Line Access

All CORDIS database services have been fully accessible via its WWW server (**http://www.cordis.lu/**) since November 1996. Detailed searches can be made on each database using user-friendly forms, while 'global searches' across all databases for a few user-specified search terms are also possible.

The WWW site also provides many other services:

■ **On-line forms** for submitting information to the CORDIS Partners and Results databases;

■ **Document Library:** a wide range of full text documents

on the WWW

Other Web Resources

are available to browse and download, including general policy documents, such as the Innovation Action Plan, and calls for proposals and work programmes for the specific research programmes.

■ **Innovation Relay Centre Network:** a guide to the Innovation Programme's network of IRCs (see page 14), as well as contact information and links to individual IRC sites.

■ **European Union RTD:** a wide variety of information on general EU RTD policy, the current Fourth Framework Programme, the research/industry Task Forces and the preparation of the next Framework Programme.

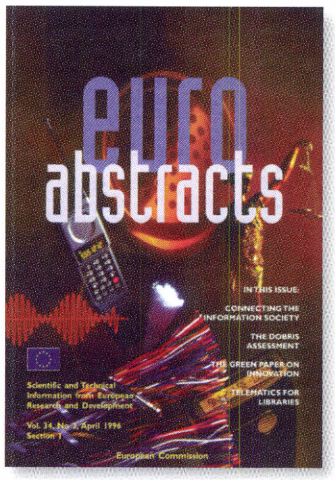
■ **RTD links:** contains links to the Home Pages of the Specific Programmes hosted on the CORDIS server, as well as RTD information on other WWW servers.

The CORDIS databases can also be directly accessed by connecting to the host computer. Access details can be obtained from the CORDIS Help Desk.

Off-line Access

A number of other services exist to make the CORDIS information service available to those without access to the internet or other electronic networks:

■ **CD-ROM:** all nine CORDIS databases are available on a CD-ROM, published quarterly on a subscription basis (annual subscription 250 ECU, single edition 100 ECU).



■ **CORDIS** focus, a fortnightly printed digest of the latest items from the CORDIS News Service, is available in English, French and German (see page 10).

■ **CORDIS** focus **Results supplement**, a quarterly selection of items extracted from the CORDIS Results Service, divided into seven sections: Industry and Technology, Energy, Biological Sciences, Protecting Man and the Environment, Agricultural and Marine Resources and Products, Measurements and Standards, and Physical and Exact Sciences.

■ **Euroabstracts,** published six times a year, provides abstracts of about 300 R&D-oriented publications from the EU per issue, using the CORDIS Publications Service as source material. It also includes reviews and feature articles on EU RTD programmes. 63 ECU/year

■ **Acronyms,** a 300 page dictionary of acronyms relating to EC research and development, extracted from the CORDIS Acronyms Service. EUR 17004, 25 ECU. ■

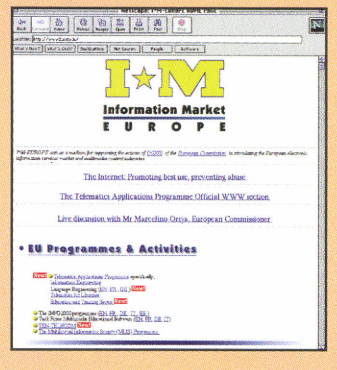
In addition to CORDIS, there are a number of other WWW sites carrying useful information on EU RTD activities. Most of them are associated with specific EC offices, and are therefore covered under 'Contact Points' (see pages 15-16).

EUROPA

The central WWW server of the European Union contains information on the EU's goals, policies and activities. Many of the Commission's Directorates-General now have information sites on EUROPA, including DG XII (Science, Research and Development), EUR-OP and the Euro Information Centres (see pages 15-16).

Contact:
http://europa.eu.int/

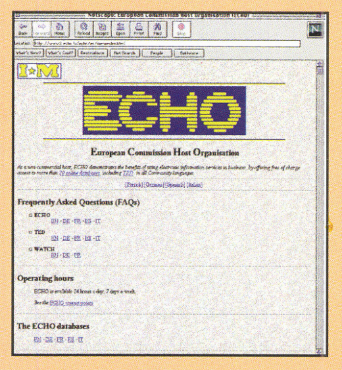
I'M Europe



Details on the various programmes and activities managed by the European Commission to stimulate the European electronic information services market and multimedia content industry. Programmes covered include Telematics Applications, INFO2000 and Multilingual Information Society.

Contact:
http://www.echo.lu/

ECHO - European Commission Host Organisation

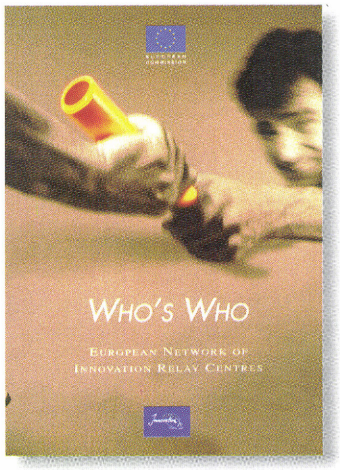


Running on the same server as I'M Europe (above), ECHO offers telnet access to around 20 databases covering research and development, the electronic information market, industry and economy, language technology and more.

Contact:
http://www.echo.lu/echo/en/menuecho.html

The IRC Network

The network of Innovation Relay Centres (IRCs), a service provided by the Innovation Programme, is your regional window on research, development and innovation across the EU.



The recently updated 'Who's Who' for the IRC network describes the services offered by the different IRCs, their contact details, geographical coverage, profile and main areas of expertise. Currently available from the IRC Coordination Unit in English, French and German, with the other eight language versions appearing later this year.

Located across the European Union and in Norway and Iceland (see map), each of the 52 IRCs is dedicated to promoting innovation by bringing research and technology closer to European companies, especially SMEs. This is achieved by promoting technology transfer and the exploitation of results, as well as assisting the participation of industry, research centres and universities in the Specific R&D Programmes.

Each IRC is an independent business and technology consulting office, partly funded by the Innovation Programme. They are staffed by professionals with in-depth knowledge of the technology needs of businesses in their region.

Acting individually and through the network, IRCs offer three main types of service:

■ **Inward technology transfer services**, through which the IRCs help local industry identify its new technology needs, use IRC network resources to identify partners for providing these new technologies, and give assistance in negotiating agreements and in the implementation of technology transfer;

■ **Outward technology transfer services**, through which the IRCs help local industry and research centres identify which of their technologies are suitable for transfer to other regions or industries, promote these innovative ideas across Europe through the IRC network, provide assistance in the negotiation of agreements and help in the implementation of technology transfer;

■ **Partner search and other services**: advice and training in innovation, technology transfer and exploitation of research results, information on EU RTD programmes as well as assistance in the preparation of proposals and partner searches, plus information on relevant Community and national support schemes for innovation.

The IRC Calendar of Events, providing up-to-date details of events being organised by the different IRCs, can be obtained from the IRC Coordination Unit (send a fax or look at the WWW site). ■

Contact:

IRC Coordination Unit
Tl. +352 34 20 21 600
Fx. +352 34 80 30
Http://www.cordis.lu/irc/home.html

Contact & Points Help Desks

A number of other EC offices and institutions can provide information on European research and development.

■ EUR-OP

The Office for Official Publications of the European Communities (EUR-OP) is the official publisher of the EU institutions, and therefore produces a great deal of information on EC research programmes and projects. They are the source of many of the publications listed in *Innovation & Technology Transfer* (see 'Obtaining Publications').

Its world-wide network of Sales Agents only handles publications which have a price listed in ECUs (customers pay in local currencies). Its WWW site contains additional information, an on-line catalogue system and the text of *EUR-OP News*, its newsletter.

Address details of your local Sales Agent can be obtained from EUR-OP, the WWW site and in the back of almost any EU-sponsored publication.

Contact

W. Bray, EUR-OP
Fx. +352 29 29 427 63
Http://europa.eu.int/en/comm/opoce/wel.html

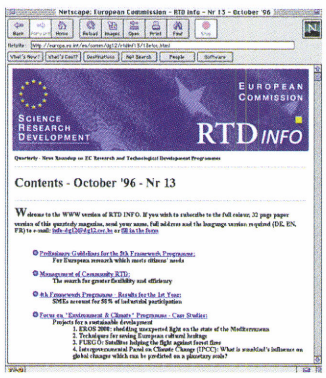
■ RTD Help Desk

The RTD Help Desk can assist in locating sources of information on EC research (e.g. publications and contact persons).

Contact

RTD Help Desk, DG XIII/D-2
Tl. +352 4301 33161
Fx. +352 4301 32084

■ DG XII (Science, Research and Development)



DG XII's WWW site now hosts RTD Info in three languages.

DG XII administers most of the EC's Specific Research Programmes. Its Communication Unit disseminates general information on the Specific Research Programmes run by DG XII. Information includes press releases, brochures, booklets and the quarterly magazine *RTD Info* (see page 10).

All of this information is available through DG XII's WWW site, which also provides further details on the DG XII research programmes, contact details, summaries of publications and an electronic document ordering service.

Contact

M. Claessens
Tl. +32 2 299 18 65
Fx. +32 2 295 82 20
E-m. michel.claessens@dg12.cec.be; stephen.gosden@dg12.cec.be
http://europa.eu.int/en/comm/dg12/dg12tst2.html

■ Joint Research Centre

The JRC is the EU's scientific and technical research centre. The five research sites in Belgium, Germany, Italy, the Netherlands and Spain house the Institutes for the Environment; Advanced Materials; Reference Materials and Measurements; Systems, Informatics and Safety; Transuranium Elements; Space Applications; and Prospective Technological Studies.

Each Institute focuses on research which can best be done by pooling the EU's resources, resulting in world-class facilities and expertise. Its newly revamped WWW site covers each Institute, describing their general activities, specific research units, projects and facilities, as well as the possibilities for collaboration with European industry.

Contact

JRC Public Relations Office
Tl. +39 332 78 91 80
Fx. +39 332 78 58 18
E-m. prp@jrc.it
Http://www.jrc.org

■ Information Society Project Office

ISPO is the Commission's 'one stop shop' for everything concerning the Information Society. It helps industry and users in the field to use existing EU instruments and resources, acts as a broker in information and ideas, creates awareness of the potential impact of the Information Society and helps launch relevant international actions. ISPO publishes *IS Trends* and *IS News* - two newsletters providing up-dates on Information Society-related issues.

Its WWW site is a comprehensive repository of informa-

Obtaining Publications

Generally, to obtain a publication or journal:

- unless mentioned otherwise, the publication or journal is free;
- a name and fax number is often supplied for obtaining the publication;
- if not, for any EC publication with a price listed in ECU, contact your nearest Sales Agent (see EUR-OP);
- otherwise, the RTD Help Desk may be able to supply the document, or tell you who can;
- note that some publications can be viewed and/or ordered via the EC's various WWW sites (see page 13);
- lastly, note that the catalogue number or 'EUR number' help enormously in obtaining EC publications.

Specific RTD Programmes

General Information on each Specific Programme can be obtained by contacting (where available, e-mail is preferable):

The ISPO WWW site contains a wealth of information on EU and international initiatives to stimulate the Information Society.

tion on the development of the Information society both in Europe and around the world, providing descriptions of policies, initiatives and programmes (including RTD) and news. Many full text documents can be browsed or downloaded, including *IS Trends* and *IS News*.

Contact

Tl. +32 2 296 88 00 / 89 00
Fx. +32 2 299 41 70 / 80
E-m. ispo@ispo.cec.be
Http://www.ispo.cec.be/

■ Euro Info Centres

The 250 EICs across Europe are responsible for informing local companies, especially SMEs, about EU activities and initiatives, including RTD and technology transfer programmes.

Contact

Fx. +32 2 295 7335
E-m. eichdt@belgium.eu.net
Http://europa.eu.int/en/comm/dg23/eoleweb/en/e-eole.htm

Programme	Contact
Information Technology	IT Information Desk Fx. +32 2 296 8388 E-m. esprit@dg3.cec.be
Telematics Applications	Telematics Info Desk Fx. +32 2 295 2354 E-m. telematics@dg13.cec.be
Advanced Communications Technologies and Services	ACTS Central Office Fx. +32 2 2950654 aco@postman.dg13.cec.be
Industrial and Materials Technologies	Brite-Euram Help Line Fx. +32 2 296 8046 E-m. imt-helpdesk@dg12.cec.be
Standards, Measurements and Testing	SMT Help Desk Fx. +32 2 295 8072 E-m. smt-helpdesk@dg12.cec.be
Environment and Climate	Fx. +32 2 296 3024 E-m. environ-infodesk@dg12.cec.be
Marine Science and Technology	Fx. +32 2 296 3024 E-m. mast-info@dg12.cec.be
Biotechnology	Fx. +32 2 299 1860 E-m. life-biotech@dg12.cec.be
Biomedicine and Health	A. Vanvossel Fx. +32 2 295 5365 E-m. alain.van-vossel@dg12.cec.be
Agriculture and Fisheries	X. Goenaga Fx. +32 2 296 4322
Non-Nuclear Energy	■ RTD: M. Poireau Fx. +32 2 295 0656 ■ Demonstration: W. Folkertsma Fx. +32 2 295 0577
Nuclear Fission Safety	■ W. Balz Fx. +32 2 295 4991 ■ Radiation Protection: J. Sinnaeve Fx. +32 2 296 6256
Thermonuclear Fusion	R. Saison Fx. +32 2 296 4252
Transport	Fx. +32 2 295 4349 E-m. karen.saelens@dg7.cec.be
Targeted Socio-Economic Research	TSER Central Office Fx. +32 2 296 2137 E-m. tser-secr@dg12.cec.be
Technology Stimulation Measures for SMEs	SME Coordination Unit Fx. +32 2 295 7110 E-m. marc.van-achter@dg12.cec.be
Training and Mobility of Researchers (TMR)	Fx. + 32 2 296 32 70 E-m. tmr-info@dg12.cec.be
International cooperation with third countries and international organisations (INCO)	Fx. + 32 2 296 33 08 E-m. inco-desk@dg12.cec.be

▶ CASE STUDY: INNOVATION RELAY CENTRE

Meeting Varied Technology Needs

In its first year of operation, the Innovation Relay Centre for Western and Southern Sweden has already forged strong links between dynamic but isolated regional industries and the rest of Europe.

Established in October 1995, the IRC serves an area roughly the size of Portugal, whose industrial structure is dominated by car-makers Volvo and Saab and their smaller suppliers. Clusters of SMEs also supply large regional food processing, pharmaceutical and electronics concerns. Overall, the region's 10,000 manufacturing companies export more than 50% of their output.

The IRC's services are delivered by a consortium of organisations, which between them cover a wide range of industrial sectors and technical areas. According to the IRC's co-ordinator, Max Maupoix, the reputation of the consortium's members and the expertise of their staff have been critical in establishing its profile and its client base, particularly among SMEs.

Overcoming Scepticism

"Initially, smaller companies are often sceptical about the IRC's ability to offer real help," he says. "They are reluctant to enter into partnerships, especially with companies from outside the region, and they worry about the bureaucracy involved in transnational collaborations." A key problem is that many SMEs simply do not allocate specific financial or staff resources to RTD.

The IRC's first visits to potential clients are always made by specialists with up-to-date knowledge of the relevant industrial sector. "The first contact is crucial," says Mr Maupoix. "Speaking the same technical language creates confidence and provides a basis for genuine dialogue."

Where its approach is welcomed, the IRC conducts a technology audit and makes a thorough analysis of future technology needs. To date, the strategy has succeeded in building a client base of over 100 companies. According to Mr Maupoix, their needs are extremely diverse.

"We are keen to avoid pushing anyone into inappropriate activities," he says. "We want to build lasting relationships with our clients, and that takes time. To begin with, many of them simply use the IRC as a source of information — about European benchmarking in their own industry, for example. If they see a possibility for involvement in an EC-funded research project, we can help them to identify suitable partners, and to prepare proposals. Our long-term priority is to promote the take-up of new technologies developed elsewhere in Europe — but that is a much slower process. To most clients, the benefits of upstream activities are clearer."

Raising the profile - the IRC's stand at the Scandinavian Technical Fair in Stockholm last October.

Technology Transfer Partnerships

The IRC has already carried out technology searches for over 40 companies, and is currently assisting eight of these in negotiations for the acquisition of rights. One of these, a company of just 25 employees, offers a food analysis service. The IRC's audit identified a need for new technologies to improve tests for food pathogens. A request sent out to the IRC network produced a lead in the Netherlands, and a co-operation agreement is being negotiated.

A second local SME has developed an innovative compact petrol engine for applications such as lawn-mowers, chain-saws, and out-board ●●●

Contact
M. Maupoix
Tl. +46 31 706 6193
Fx. +46 31 27 61 30
E-m. max.maupoix@mailbox.swipnet.se

motors. A prototype has been built and five patents applied for. IRC staff helped the company to formulate its key technology goals, demands and offers, and distributed these to the IRC network.

It was looking for partners for further R&D in the fields of combustion and material technologies, and also hoped to identify companies interested in joint venture and licensing agreements. Responses from IRCs in eight Member States led to contacts with 11 potential partners. Information has been exchanged and negotiations on collaboration are on-going.

National Networking

In addition to its many regional awareness actions, the IRC often collaborates with Sweden's two other Relay Centres to stage events of national interest. In October 1996 they took a joint stand in the innovation hall at the Scandinavian Technical Fair in Stockholm, which led to contacts with a total of 40 new client companies.

During the fair, the three IRCs also took part in a national seminar on support for innovation in SMEs, presenting case studies of both upstream and downstream activities. The Innovation Programme was presented by Vicente Parajon Collada, Deputy Director-General of DG XIII.

According to Mr Maupoix, such events have done much to raise the IRCs' profile in Sweden. "After only one year of operation," he says, "there is no doubt that we are recognised as key technology transfer organisations."

Exhibition Schedule

The Innovation Programme will be present at the following major exhibitions in 1997:

- **Electronics,**
  8-11 April, Utrecht (the Netherlands)
- **Hannover Fair,**
  14-19 April, Hannover (Germany)
- **Tecnova,**
  7-11 May, Madrid (Spain)
- **Achema,**
  9-14 June, Frankfurt (Germany)

PROJECT MANAGEMENT

Clarifying Objectives and Responsibilities

A leaflet has been produced to help project participants benefit from the 'Moderated Planning Workshop' approach.

No-one pretends that building a successful, multinational technology project is simple. Experience has shown that, in the majority of cases, the greatest source of problems stems from handling a disparate group of partners from widely different sectors and cultural backgrounds. The Innovation Programme has adapted Goal Oriented Project Planning techniques (*see edition 5/94*) to develop a 'Moderated Planning Workshop' approach to overcome these difficulties.

Workshops are generally held over 2-3 days and bring together all the partners in the project with a trained, neutral, workshop facilitator. The workshops help establish the roles, responsibilities and contributions of each partner, clarify project planning along structured lines, create a common understanding of the project's overall objectives and develop a good team spirit. They are useful in all types of projects and at any stage in the project's lifecycle, although they are most beneficial as a 'kick-off' meeting during the early phases of each stage (definition, implementation, etc.).

The Programme has used this technique to help the participants in its many transnational projects over the past three years - no less than 70 workshops were held last year alone. The result is a considerably refined, tested and proven formula, summarised in a four page English brochure now available from the Innovation Programme's Technical Assistance Unit.

Contact
Technical Assistance Unit.
Fx. +352 43 38 90
E-m. 101665.2271@compuserve.com

▶ INDUSTRIAL POLICY

Benchmarking European Industry

Last November the Commission released the report "The Competitiveness of European Industry" and adopted a new strategy - benchmarking.

The report(1) stresses that although Europe has made major progress in improving productivity, it still rates behind the USA and Japan on practically every yardstick. "GDP per head of population is nearly one third lower in the EU than in the US," Industry Commissioner Martin Bangemann pointed out as he presented the report to a conference on November 19. "The US improved its employment rate from 63% to 74% between 1960 and 1995, and Japan maintained its rate of 74%. The EU's employment rate, however, dropped from 67% to 60% over the same period. This is unacceptable, given our strengths in science and human capital."

"Protecting national monopolies may protect old jobs, but they stifle the creation of new ones and pass on enormous costs to both industry and every citizen." - Martin Bangemann, European Commissioner for Industry, launching the Competitiveness report last November.

High Costs for Industry

There are several major reasons for this situation. One is that many essential 'key inputs' to industry - such as telecommunication and transport services, energy and labour - cost more in Europe than elsewhere. In addition, key markets - including almost all of Europe's public procurement and utilities markets, worth around half of all GDP - are still closed to competition.

Problems with innovation are just as important. Investment in intangibles such as education is too low in Europe, the science base is not oriented enough towards the market and the innovation infrastructure is still too fragmented along national lines. Finally, pension funds and insurance companies are restricted in their ability to invest, while a restrictive labour market reduces company adaptability and discourages start-ups.

The Commission sees no miracle cures. The Internal Market must be made to work better, which implies the continued deregulation of national monopolies. Europe's free-market stance and commitment to international trade should be safeguarded. And, crucially, Europe must continuously monitor its performance with the world's best and identify the reasons why industries and economies elsewhere in the world perform better.

This last point is the starting point for "Benchmarking the competitiveness of European industry"(2), a Communication adopted by the Commission as it released the Competitiveness report. Benchmarking is a dynamic way for both companies and governments to compare their own performance with the best in the world.

"To policy makers, benchmarking is attractive because it is policy neutral - it shows the problems, measures performances and shows the need for action, but leaves governments free to decide what action to take," explained Baron Daniel Janssen, Chairman of the European Round Table's working group on competitiveness. "Because it is a self assessment it is not authoritarian in nature - it is in fact a highly motivating experience. The Commission has a fundamental role to play here. Hence we, in industry, regard the Communication as a very important political statement."

Three Levels

The Commission wishes to promote benchmarking in Europe on three levels. To begin with, **European enterprises** must take primary responsibility for benchmarking, as they are the main beneficiaries. The Commission can assist by helping bring together a number of private and public initiatives established to promote benchmarking to companies, particularly SMEs. A truly European system should be developed with a common set of rules and calibration ●●●

(1) "The Competitiveness of European Industry". Available from EUR-OP later this year.

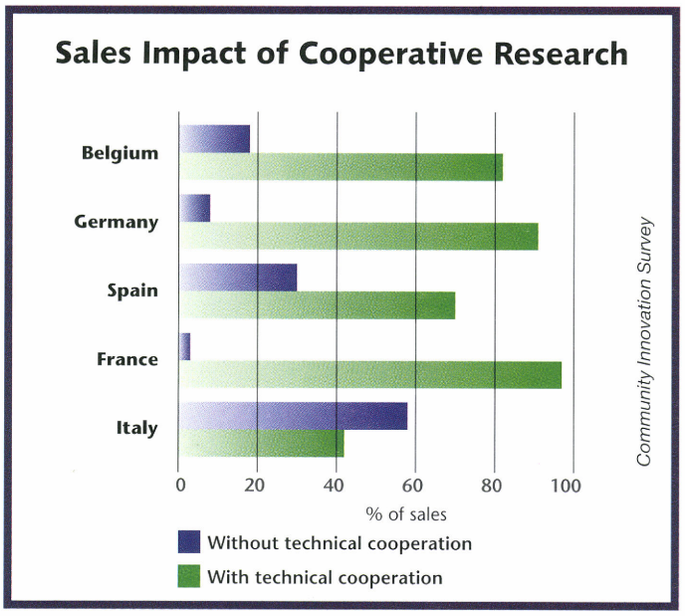
(2) A communication from the European Commission. Catalogue Number: CO-97-96-693-EN-C.

system, backed up by a European information network and data management system.

Benchmarking can also be applied to **industrial sectors**, thereby identifying measures which could lift the competitiveness of hundreds of companies. The Commission has already underlined the importance of benchmarking industrial sectors, and has already established pilot programmes, such as one that helps Europe's consumer electronics component suppliers benchmark themselves against Japanese best practices. The Commission is also planning to benchmark aspects of the automotive and information technology industries.

Finally, benchmarking can be used to analyse and compare different **'framework conditions'**, enabling evaluations to be made of how attractive Europe is as a place to do business. Key areas for benchmarking include costs (labour, capital, energy, finance, etc.), infrastructure services, skills, innovation, taxation and environmental efficiency.

A work programme is to be drawn up this year, involving pilot programmes to test the validity and feasibility of applying benchmarking to the EU level, recommend how benchmarking can be implemented on an ongoing basis and ensure the best exploitation of results.



"Firms engaged in technical cooperation with external partners have a consistently higher proportion of new or improved products in their total sales figures" - The Competitiveness of European Industry.

Contact
■ P. Smith, DG III/A-3
Tl. +32 2 295 39 94
Fx. +32 2 296 30 28
E-m. peter.martin.smith @dg3.cec.be
■ European Round Table of Industrialists
Tl. +32 2 534 31 00
Fx. +32 2 534 73 48

► FIFTH FRAMEWORK PROGRAMME

Focusing on the Market and Society

The Fifth Framework Programme will focus on technologies with the potential for positive social and economic impacts. The diffusion of innovation, particularly to SMEs, will remain a high priority.

Plans for the Fifth Framework Programme for European research and technological development (FP5) are firmly based on the lessons of the past. FP5, to be launched in 1999, will concentrate on a much smaller number of technological areas. Management will be streamlined to provide greater flexibility, to facilitate participation, and to make the relevance of the Community's research activities clearer to its citizens.

A Commission progress paper released in November gives the clearest indication yet of the likely shape of FP5. It says that FP5 should focus on technological areas with a direct impact on employment, competitiveness and quality of life - unlocking natural resources, developing a user-friendly information society and creating competitive and sustainable growth. International cooperation, innovation and SME participation, and training and skills transfer, should receive special attention.

The Commission hopes to reduce the number of rejected proposals by providing detailed information on programme priorities, and plans to offer a pre-screening service to give potential participants an early indication of their chances of funding. Flexibility and the ability to respond to unforeseen developments should be reinforced.

The Commission's full working document is due for release in January 1997, and its formal proposal for FP5 is expected in March.

▶ ESPRIT

Doing Business in the Information Society

Around 1,500 business people, researchers and policymakers attended the 1996 European Information Technology Conference (EITC '96) last November.

"We have reached the mid-point of the Esprit Programme, providing an opportunity to both take stock of progress to date and orient ourselves towards IT research until the year 2000," remarked Esprit director George Metakides as he opened the conference. "To begin with, Esprit has funded about one quarter of the 4,000 proposals received to date, with the participants roughly equally divided between research institutes, large companies and SMEs."

The figures show that projects are successfully networking SME suppliers with large user companies; that some 40% of the projects produce commercial results within two years; and that this figure rises to around 70% over five years, he added. "Moreover, Esprit dedicates around one fifth of its resources to 'accompanying measures', where promoting best practice and encouraging the take-up of new technologies and techniques, particularly by 'first users', play a particularly significant role."

What of the future? One of the three RTD activities put forward by the Commission in its proposal for a Fifth Framework Programme is 'Information Society Technologies'. The proposed Programme would, in effect, combine today's Esprit, ACTS (Advanced Communications Technologies and Services) and Telematics Programmes, reflecting both the convergence of these technologies and the wishes of industry.

Millennial Market

Central to the conference's theme - doing business in the Information Society - is electronic commerce, a concept addressed by Christian Thommessen, general manager of IBM's Global Network in Europe, the Middle East and Africa in his keynote speech.

"By 2000 there should be 500 million Internet users, making the Internet the world's largest, cheapest, fastest and most secure marketplace on Earth", he said. "People are wrong if they think electronic commerce means nothing more than home shopping - it's a paradigm shift that will see office buildings torn down and one-man companies trading internationally."

He quoted three examples of organisations using electronic commerce to improve services and reduce costs simultaneously:

- the city of Copenhagen has put around 2,000 pages on the World Wide Web and installed public kiosks to provide access. Because the pages provide answers to a whole range of questions which its public servants had previously had to answer over the phone, the number of calls has now dramatically reduced, freeing up staff for more complex tasks.
- Levi Strauss has a shop in Cincinnatti consisting solely of a computer interface. Customers enter their physical measurements and receive, around 10 days later, a pair of individually tailored jeans. "Jeans have become content," he remarked.
- IBM's new office block in Zurich has only enough space for one third of its sales and marketing staff. Every day some staff arrive, pull their own personal cabinet to one of the 'anonymous desks' ("usually the ones closest to the windows") and plug their laptop into the docking station. The rest are either on the road or working from home - like the switchboard operators.

"In Europe we need far more young entrepreneurs in the new technologies which will forever shape our future economic activity and social well-being" - Commission President Santer announcing the EITC prize winners (see next page).

Quite apart from its impact on costs, Mr Thommessen believes that the Information Society will radically change company structures. "Organisational structures evolved from the hierarchical to the decentralised as computers evolved from central mainframes to networks of desktop PCs, which disseminate information throughout the organisation," he argued. "The next logical step will be seen when computer networks allow the organisation's information to 'escape' to its partners."

Thus the 'extended enterprise' is born, able to create and disband teams to solve problems as they arrive. Companies will network together more effectively, creating more sophisticated supply chains within which each company will reposition its activities in order to focus on where they add value the most. Finally, relationships with customers will deepen and broaden.

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► CASE STUDIES

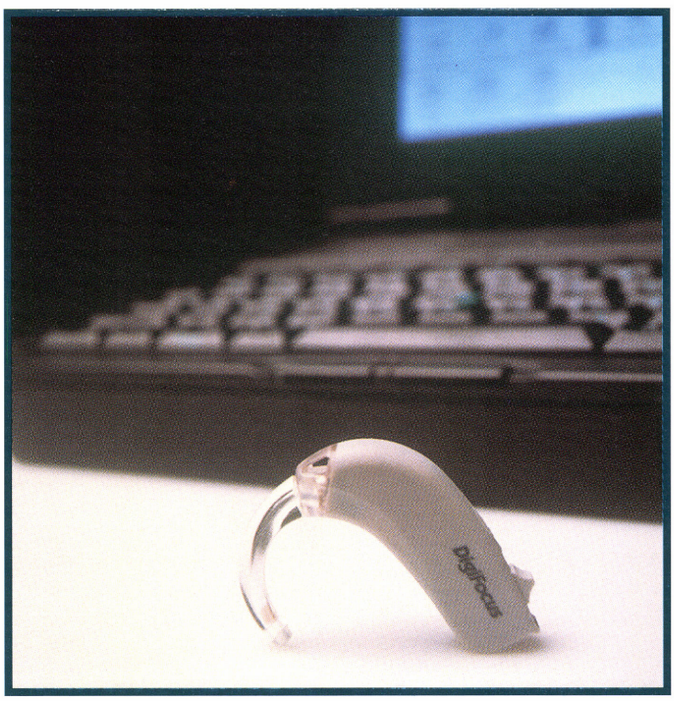
Prize-winning Technologies

During the EITC, Commission President Jacques Santer presented three companies with European Information Technology Grand Prizes, each worth 200,000 ECU.

The Prize - now in its second year - is organised jointly by Esprit and Euro-CASE, the European Council of Applied Science and Engineering. The three winners were 3D Scanners (UK), Data Fellows (Finland) and Oticon (Denmark).

3D Scanners won their prize thanks to Modelmaker, the world's first hand-held product able to scan physical objects accurately and quickly to make 3D computer models. Founded in 1991 and now with 15 employees, 3D Scanners is a virtual company - it does the R&D, leaving the sales, marketing, support, manufacturing and 'plug-in' development to its network of partners.

The company reinvests 35% of its income in R&D and is currently involved in four Esprit and ACTS projects. Activities include integrating 3D optical inspection into Computer Integrated Manufacturing, developing autonomous systems for identifying and dismantling electromechanical products and demonstrating multimedia servers in a 'virtual museum'.



The DigiFocus, the world's first digital hearing aid, is driven by a sophisticated microchip.

Digital Ears

Oticon won its award for DigiFocus, the world's first fully digital ear-level hearing aid. It is based on a tiny microchip equivalent in power to a desktop computer which has been designed to process incoming sound signals through two channels and seven frequency bands in real time.

The result is a startlingly better hearing aid. The two channels process high frequency consonants and low frequency vowels independently, improving speech understanding, while the seven frequency bands enable each DigiFocus to be customised to the specific nature of the patient's hearing loss. It also adjusts its volume control automatically to match the volume level in the surrounding environment.

With around 1,500 employees, the Oticon Group is among the world's top three hearing aid companies. It has a uniquely flat organisation structure where new products are developed by diversified, multi-disciplinary project teams operating in a paperless, highly mobile work environment. Oticon is currently involved in an Esprit demonstration project aiming to improve testing procedures for their digital hearing aid products.

Critical Cryptography

Data Fellows' 'F-Secure' family of products are an all-encompassing suite of military-grade cryptography software designed for the corporate environment (banks, public government services, information service systems, etc.).

Based on the widely used SSH cryptography technology, F-Secure is suitable for all 'virtually private networks', where secure access from home and office is essential. It is currently being used by many of the world's largest IT companies (Microsoft, Digital Equipment, Hewlett-Packard, Unisys, etc.), several major European and American telecoms operators, over half of the world's ten largest banks, practically all of the US national laboratories and supercomputing centres, NASA, the US Air Force and many more. And because it was developed in Europe, F-Secure is not affected by US export regulations.

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▶ CONFERENCES

Exploiting RTD Results
31 January, Manchester (UK)

Organised by the Institute of European Trade and Technology (IETT), the workshops aim to provide expert advice on how to satisfy the Commission's requirements for exploitation plans in proposals for RTD projects under the Fourth Framework Programme. The workshops will advise applicants for RTD funding on how to plan an effective dissemination strategy which will benefit all the partners.

Speakers at the workshop will include EC evaluators, intellectual property rights (IPR) experts and exploitation managers from companies with a successful record in exploiting the results of EC-funded projects. In addition to tutorial sessions, participants will also be able to discuss case studies and practical examples, and talk to the speakers in individual consultations.

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'Down Time to Market' Brokerage Fair
6-7 February, Eindhoven (the Netherlands)

The 'Down Time to Market-Plus' (DTTM-Plus) partnering event is aimed at manufacturing industry professionals interested in reducing their 'time to market' through developing and applying computer aided tools (design, prototyping, tooling, process planning, etc.). The event is funded and organised by the Dutch Innovation Relay Centre, with the support of Dutch national initiatives and several EC programmes.

The programme includes an overview of the EC's SME-oriented CRAFT initiative and lectures on state of the art applications (rapid prototyping, virtual machining, cellular manufacturing and cooperative manufacturing). In addition, 16 parallel workshops will be organised, each focusing on one advanced technological solution developed through national or European schemes.

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Supporting R&D in Europe
6-7 February, Bergamo (Italy)

The symposium - entitled "New approaches to support research and development within the EU" - is supported by DG XII (Science, Research and Development) of the European Commission, and aims to discuss innovative approaches to strengthening R&D in the European countries, with special emphasis on the relationships between scientific institutions and SMEs in Objective 2 (declining industrial regions) areas.

Three main topics will be covered (English and Italian):

- New financial sources for R&D programmes and facilities;
- Management of R&D and innovation funds;
- R&D human resources.

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Multimedia Conference and Exhibition
8-12 February, Cannes (France)

MILIA'97, an international multimedia exhibition and conference, will provide an international overview of the multimedia market, giving details of the latest developments. The focus of the conference will be the radically changing environment and the new international trends and strategies shaping the future of on-line and off-line content development.

The exhibition will provide exhibitors and visitors the opportunity to promote and see new multimedia products. A number of initiatives of DG XIII will also be covered, including the INFO2000 programme for the development of multimedia content and a European multimedia industry.

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Global Marketplace for SMEs
7-9 April, Bonn

The first annual conference of the G7 Information Society pilot project of the same name will focus on the theme of Electronic Commerce. It will address the practical issues of doing business electronically, and is aimed at SMEs, businesses and policy-makers with an interest in electronic commerce.

The three main themes of the conference are: Electronic commerce for SMEs in the Information Society; Building the global marketplace; and Electronic commerce at work. An exhibition will enable participants to get hands-on experience with electronic commerce applications currently available on the market.

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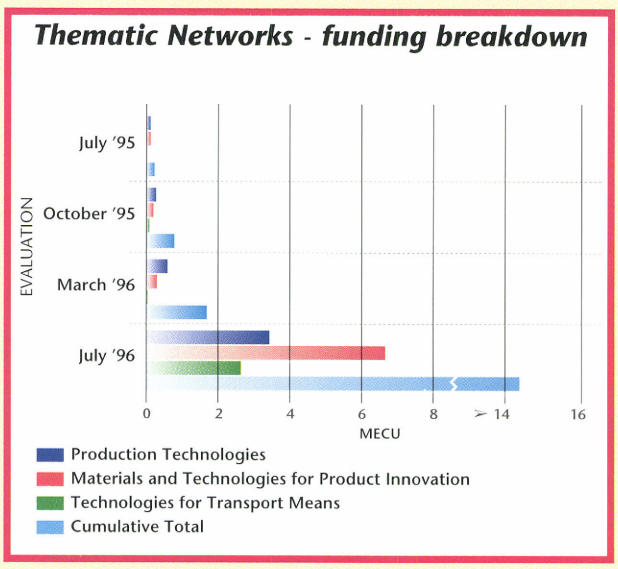
Erratum

The graph in the article on Thematic Networks in the last edition included some erroneous data. The correct data is included here.



1996 saw a sharp rise in the number and value of Thematic Networks funded under the current BRITE-EURAM Programme.

▶ PUBLICATIONS

■ LANGUAGE INDUSTRIES ATLAS AND DIRECTORY

"Language industries" includes activities such as: controlled language and speech processing; language for special purposes; technical writing; socio-linguistics; language teaching, including computer-assisted language learning and distance learning; translation and interpretation.

Prepared for DG XIII within the framework of its Multilingual Information Society (MLIS) Programme, the 2nd edition of the Atlas provides a comprehensive guide to organisations involved in the language industries in Europe, as well as some major organisations outside Europe. The full text of the Atlas may be downloaded from the I'M-Europe WWW server. It is complemented by the Language Engineering Directory.

Contact: IOS Press
Fx. +31 20 620 34 19
I'M-Europe: http://www2.echo.lu/mlis/en/atlas-intr.html

■ ENVIRONMENTAL IMPACT STUDIES

The EU's Joint Research Centre has published "An analysis of environmental impact studies of installations for the treatment and disposal of toxic and dangerous waste in the EU". The analysis, carried out at the request of DG XI (Environment), is based on environmental impact studies (EISs) requested from each Member State in 1994. The study compares the EISs from each Member State, illustrating the common approaches and main differences.

The (English only) study concludes by outlining a number of recommendations for the improvement of EISs, notably with regard to: environmental factors; environmental indicators; baseline survey; impact prediction methods; uncertainty analysis; evaluation criteria; risk assessment; and the structure and content of EISs.

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■ EUROPEAN SME OBSERVATORY, 4TH ANNUAL REPORT

65 ECU

The report shows that the completion of the Single Market has had a positive impact on European economic growth. As SMEs are most likely to actively take advantage of the new opportunities offered by the Single Market, they have been among those benefiting the most. As these SMEs have the highest potential for job creation linked to growth, they are also a key contributor to European growth overall.

The report shows that entrepreneurs have a greater importance in the European workforce, at around 12% of the total workforce, than in the USA or Japan. New European enterprises also have a better survival rate than in the USA, while more enterprises are created in Europe than in Japan.

In addition to providing an overview of the current situation and perspectives of SMEs in the European Union, this year's (English only) report contains in-depth studies on "Women in SMEs" and "Co-operatives, mutuals, associations and foundations". The report has been produced for the European Commission by the European Network for SME Research (ENSR), and coordinated by EIM Small Business Research Consultancy.

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■ INFORMATION ENGINEERING

Three new publications have been released (English only) by the Information Engineering sector of the Telematics Applications Programme. The first is 'Information Engineering Project Fact Sheets', a 50+ page brochure detailing the initiative and 19 'pilot application' projects, as well as support issues and specific actions. Each of the projects is detailed in a two-page profile describing the project's context, technology, benefits and partners.

Also available are 'Vital Signs', a leaflet providing statistics on electronic services in Europe (electronic data interchange, video telephony, etc.), and a folder entitled 'What is Information Engineering?'.

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NOTE

If specific contact information for obtaining a publication is not supplied, refer to the 'Quick Reference Guide' (1/97). Publications are free unless otherwise stated.

STOP PRESS

5/12/96. The EU Research Council allocated an extra 100 MECU to the Framework Programme. 35 MECU will be devoted to BSE research, with the rest split between areas identified as priorities earlier this year (see edition 4/96), all but the last of which are the subjects of EC Task Forces:

- Aeronautics: 20 MECU
- Educational multimedia: 12 MECU
- Transport intermodality (see Dossier, edition 4/96): 12 MECU
- Water-related environment research: 12 MECU
- Location/destruction of land mines (see edition 3/96): 9 MECU

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