

# *Innovation & Technology Transfer*

2/98

## **The Community Innovation Survey Mapping the Innovation Universe**

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better protection of  
workers and the  
environment**
- **IRC Newsletter**
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# Women in science

Last year, the first ever study on sexual discrimination in the scientific world (*Nature*, vol. 387, p. 341) revealed that Swedish women scientists have to be 2.5 times more productive than their male counterparts in order to win equal recognition from their peers.

Women and men with a comparable publication impact saw their scientific skills assessed very differently. The study's authors did not believe that the peers consciously discriminated, but rather tended to over-value men's achievements and undervalue women's.

This echoes the conclusions reached at a major conference organised by the Commission five years ago: there are no formal barriers against women in the scientific field, and consequently no miracle remedy for the flagrant discrimination found in the workplace.

A key element in the new direction taken by the 5th Framework Programme is the promotion of equal opportunities in the scientific sector. The conference entitled "Women and science", to be held on 28 and 29 April next, will be taking a deeper look at this subject.

Things must change. Equal opportunity is not a luxury. If we prevent more than half Europe's population from building a career in science, it is European society as a whole which will suffer the consequences. This is why the conference will be seeking to develop concrete actions - actions which will make a real difference in the years to come.

Edith Cresson

## INNOVATION & TECHNOLOGY TRANSFER



The European Commission's Innovation Programme is under the responsibility of Edith Cresson, Member of the Commission responsible for Research, Innovation, Education, Training and Youth.

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## ► BUSINESS CREATION

# Innovation, Entrepreneurship and Jobs

***New high-tech companies are emerging at a reasonable rate in Europe, but too few ever grow big enough to be a force on world markets and a major source of new jobs.***

In response, Edith Cresson, the Member of the European Commission responsible for research, innovation and education, is calling on financiers, entrepreneurs, researchers and public authorities to help find new ways to create jobs out of the EU's potential for innovation.

In December she brought together 100 key players in the field of technological innovation for a round-table discussion in Paris. The points raised are now being analysed in depth by working groups set up to examine the different stages in the creation of a new business:

- first steps - finding ideas for new businesses, planning the business, legal issues, seed capital;
- getting the business going - start-up capital, business incubators, support services, managing a new business;
- growth - financing and managing growth, diversification, moving to international markets.

One of the key issues is likely to be that new businesses have different needs at each stage of development. In the area of management, for example, the initiator of a new high-tech company, often from a research background, may have to be willing to pass the reins to an experienced entrepreneur as the business gets off the ground. Later the entrepreneur may in turn have to

take a back seat in favour of a team of motivated managers with the skills to grow the business into a significant company on an international scale.

The working groups will look for barriers and problems arising at each stage of a new business, collect examples of 'good practice', and propose possible solutions, particularly for implementation at the European level.

## Conference in May

Their ideas and findings will be examined at a conference in Luxembourg on 18-19 May. The results of the work will then be presented to a panel of entrepreneurs during the first European forum for new technology-based enterprises, which the Commission is planning to hold in Vienna towards the end of the year, in cooperation with the Austrian Presidency of the EU Council.

The Paris round-table was held a year after the European Commission launched its First Action Plan for Innovation in Europe<sup>(1)</sup>. In January Mme Cresson published the Commission's first report on the implementation of the Action Plan<sup>(2)</sup>, which confirmed that issues such as intellectual property, access to financing, administrative simplification, and developing the enterprise spirit continue to be priorities for the Commission.

This was underlined directly after the round-table, when the first contracts under the I-TEC pilot project<sup>(3)</sup>, launched by the Commission in collaboration with the European Investment Fund (EIF), were signed between the Commission and nine venture capital funds.

The funds will be helped to develop the expertise necessary to evaluate high-tech investment opportunities, and to



**Edith Cresson speaking at the Paris meeting.**



**Robert Verrue, Director-General for Telecommunications, Information Market and Exploitation of Research (left) and Michael Meyer, CEO of Technostart Beratung für Beteiligungsfonds, signing an I-TEC agreement during the Paris round-table.**

participate in the management of the businesses which they decide to invest in. In return, each has agreed to build up their investments in the early stages of technologically innovative companies. □

(1) See Special Edition of *Innovation & Technology Transfer*, December 1996.

(2) The report was distributed to *Innovation & Technology Transfer* subscribers, as a supplement, in February. For further copies, see Contact details.

(3) See edition 1/98.

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## ► INTELLECTUAL PROPERTY

# European Patents On-Line

**A searchable database of 25 million European patent documents will be made available via the Internet later this year. Linking together 20 servers to provide 20 terabytes of data, it will eclipse all other patent information sites in sheer size.**

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As its working title - "Distributed Internet Patent Services" - implies, the World Wide Web (WWW) patent database is a triumph of European cooperation. It will link together the servers of the 18 national members of the European Patent Organisation with those of the European Patent Office (EPO) and the Intellectual Property Rights Help Desk of the EC's Innovation Programme<sup>(1)</sup>. First demonstrations are planned for the middle of the

year, while the full service is planned to go on-line after the summer.

Each national server, naturally, will provide national patent information, while the EPO server takes care of European patents, both those granted directly by the EPO and granted to non-European inventors on the basis of international applications filed under the Patent Cooperation Treaty. Together, these servers will create a searchable database of 25 million documents, 'weighing in' at 20 terabytes of data - 1,000 times larger than the US and Japanese equivalents.

The Innovation Programme server, finally, will provide multilingual search facilities, along with extensive tutorials on intellectual property as part of its IPR Help Desk services, which are scheduled to be launched in September in parallel with the WWW database.

## World-wide Search

Most users will access the database via their national office's server, which provides an interface in the country's language(s). Each server will use the same, harmonised interface to provide the same search services, and will transmit the user's queries to the other 19 nodes. In this way the entire 25 million patent documents from around the world can be searched using one simple query.

The service is therefore, in essence, using new technolo-

gies to make patent information - already publicly available via the EPO's ESPACE series of CD-ROMs - more accessible, particularly to SMEs who do not need to access patent information on a daily basis. The EPO underlines that only basic search services will be provided. The most popular search will probably be a simple 'free text' search of the patent abstract, perhaps combined with bibliographic criteria such as country, year, and so on. The body of the patent document is retrieved as an image file.

This may not replace the 'value-added' services provided by patent experts, but it does represent a massive saving for European industry, particularly SMEs. Even when the EPO waived royalty rights and charged just enough to cover costs, their CD-ROMs cost each user several hundred ECU each year. It is also, of course, much more up to date and easier to use.

Seeing whether a technical innovation has already been developed will therefore become significantly easier, helping European companies avoid wasting their resources 'reinventing the wheel'. □



**Published by the Innovation Programme, this study examines the current provisions for patent protection in the EU and compares the situation with that of the USA and Japan. Deficiencies of the present system are highlighted by a number of empirical studies. It concludes that the EU should transfer both the European Patent Convention (EPC) and the Agreement relating to Community Patents (ACP) into the Community legal order.**

(1) See last issue for the Call for Tender.



► INNOVATION PROJECTS

# Technology – the Healthy Alternative

*New, clean technologies are vital if Europe is to combine economic growth with effective protection of its environment and its people. Three current Innovation projects are ensuring that promising technologies are adopted as rapidly and as widely as possible.*

Many of today's environmental and health problems are the result of yesterday's industrial development. But economic growth and environmental protection are not alternatives. Both are necessary, and we must turn to technology itself for solutions to the problems which technology has caused.

In the future, 'polluter pays' taxation may force industry to adopt cleaner technologies —

or to meet the long-term costs of its activities, currently borne by society as a whole. But the market itself may be starting to produce a similar effect. In industries which use polluting or hazardous chemicals, for example, companies are faced with growing clean-up and health insurance costs.

Unfortunately, the connection between a specific technology and its long-term costs is not always obvious. Industry is

understandably reluctant to invest in cleaner or less hazardous alternatives to a tried and tested technology, until the real savings are clearly demonstrated.

The three projects examined here are all working not simply to develop clean technologies, but to promote their rapid and widespread adoption by demonstrating both operational feasibility and long-term cost-effectiveness.

## I. Rational Wastewater Management

Cost is critical in the management of urban wastewater, according to Berislav Tomicic of the Danish Hydraulic Institute (DHI).

Ever stricter environmental standards are stretching the financial resources of European cities as they struggle to reduce contamination of the rivers, lakes and seas into which their wastewater flows.

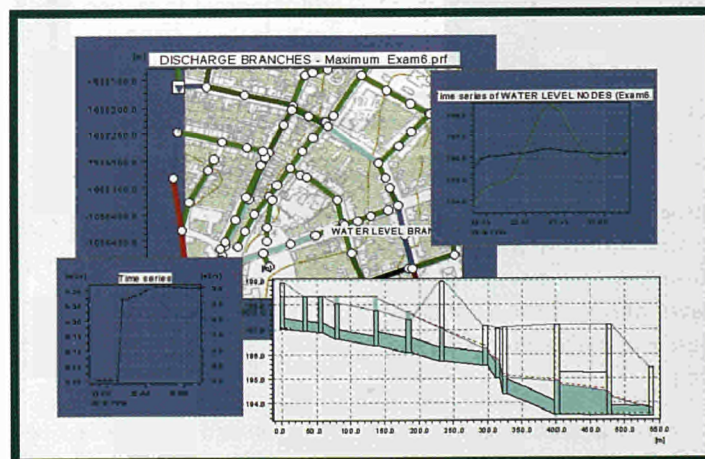
Mr Tomicic is the co-ordinator of the Integrated Wastewater project, which will develop improved decision-support and control systems and install them at eight demonstrator sites, from Oldham in the UK to Venice in Northern Italy.

"The traditional approach to the regulation of urban water pollution is simply to define the maximum levels of pollutants permitted in outflows," he says. "But the capacity of receiving waters to absorb pollution varies widely from city to city. We believe that standards

based on the impact of emissions on receiving waters would allow water authorities to make better use of their resources, achieving a given level of environmental protection at lower cost, or reducing environmental impacts with the same investment."

### Integrated Catchment Modelling

Some authorities, notably those in Denmark and the United Kingdom, are already moving towards a more holistic regulatory framework. But ●●●



## 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.

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**Innovation Home Page**  
[Http://www.cordis.lu/innovation/home.html](http://www.cordis.lu/innovation/home.html)

*On-screen visualisation of sewerage water levels using DHI's MOUSE software.*





in order to realise the cost-savings or the improved environmental protection which this makes possible, both the design and the management of wastewater systems must be fully integrated. By contrast, sewers, treatment plants and receiving waters are conventionally operated as three independent systems.

The Integrated Wastewater project is developing software which will enable water authorities to plan, test, manage and control these elements as a single system. DHI and its British partner, WRc, have pioneered the use of advanced computer-based wastewater simulation and management tools. Developed over the past

10 years, WRc's STOAT, for treatment plants, and DHI's MOUSE and MIKE II, for sewerage and receiving waters respectively, are all proven packages.

Now the Innovation project has given the partners the opportunity to both link these components to create an 'integrated catchment modelling' tool, and to demonstrate the economic and environmental benefits of this new approach in eight locations with widely differing needs.

Starting from accurate information about the real physical structure of a system, the software builds mathematical descriptions of water flows, pollutant transportation and other system processes. These can be presented on-screen,

allowing managers to visualise system response to a range of simulated rainfall events, and to evaluate a variety of operational strategies.

"Many authorities already carry out integrated modelling studies," Mr Tomicic concedes. "For example, when a system has to be upgraded, accurate specification is crucial. If you install pipes and tanks that are too big, money is wasted. If they are too small, the system fails to comply with the regulations. You cannot measure actual performance until the work has been completed, so at the design stage you have to use a mathematical model. But in the past this has been difficult, time-consuming and unreliable."

Integrated catchment model-

ling will allow water authorities to test different design and management strategies, under a range of conditions, at the touch of a button.

### Pilot Projects

Integration of the existing software and the collection of structural data at the eight pilot sites will be completed by mid-1998. Each site's model will be validated by comparing the responses of the physical system and the model to equivalent events. The software will then be applied in off-line mode, simulating performance under different conditions to test compliance with regulations. In Venice, for example, the aim of the pilot study is to assess the effects of installing large retention tanks on water quality in the lagoon, currently in a critical state due to problems of eutrophication.

The project's final phase will focus on on-line applications, designed to support operational control. In Bordeaux and Helsingborg real-time data from sensors within the system itself will be fed into the model, to provide operators with detailed forecasts of system behaviour across the entire catchment, and predictive decision-support. Ultimately, the partners plan to introduce automated real-time control systems.

Integrated wastewater management tools will provide the technical basis for cost-effective compliance with a regulatory framework based on receiving water impacts. "We are certain that European legislation will adopt this more rational approach at some point," says Mr Tomicic. "By producing comprehensive guidelines for wastewater management in urban catchments, and by showing that these techniques can be effective in widely differing contexts, we hope to hasten that change."

## R&D Information Service

The trilingual 'UK Presidency R&D Information Service' WWW pages (<http://www.cordis.lu/uk/en/home.html>) were launched in London on January 8 by Edith Cresson, EU Commissioner for Research and Innovation, and John Battle, UK Minister for Science, Energy and Industry. The aim is to provide news of discussions on research policy in the Council of the European Union during the UK Presidency, which covers the first half of 1998 and will focus on the negotiations on the Fifth Framework Programme. The service also contains a wealth of information on research activities, particularly EU-funded projects, in the UK.

It can be found one mouse-click away from the reorganised CORDIS WWW Home Page (<http://www.cordis.lu/>), which now presents the entire site's information in four main



**John Battle and Edith Cresson at the launch.**



categories, and allows users to immediately access the most popular services (the News service, the RAPIDUS 'personal messenger' service, etc.).



## II. Protection from Agricultural Chemicals

The position is very similar when it comes to providing farm workers with effective protection against toxic pesticides, herbicides, fungicides and insecticides.

Exposure to airborne spray drift has long been recognised as a serious health hazard. According to a recent French study, for example, it significantly lowers life expectancy among agricultural workers, principally as a result of higher than normal incidence of stomach and lung cancers. But occupational health regulations remain inadequate.

"It may seem strange that farm workers should still have so little protection in law," says Hanns Rump of Elektronik und Technologie Rump (ETR). "But the explanation is simple. Without the technology to offer real physical protection, it has been impossible to design and enforce tighter regulations."

Now, the AGRASENS project which ETR leads has succeeded in developing such a technology, using advanced sensor and filtration systems. A prototype tractor cab fitted with an integrated filter unit won a gold medal for French manufacturer Buisard last November at the Salon International des Techniques et Equipements Viti-Vinicoles et Arboricoles agricultural fair, and is now on the market. "We have provided a practical technical solution to a serious health problem," says Mr Rump, "and we are confident that the corresponding regulations will soon follow."

### It Makes Sense

ETR has been involved in sensor technology for 15 years, and its advanced systems are now fitted in top-of-the-range models by leading German car manufacturers.

"An advanced mixed-metal oxide sensor monitors the outside air quality, and closes the air intake when excessive levels of pollutants are detected — for example, in a traffic jam,"

Mr Rump explains. "While the problem persists, air is recirculated within the car, protecting the passengers from unpleasant and dangerous fumes."

ETR was keen to transfer this proven technology to tractor cabs, in order to protect farm workers from toxic chemical spray. But the company soon found that the system would need to be considerably enhanced before it was suitable for the new application.

"In an unprotected tractor, spray is drawn into the cab as an aerosol — a fine mist of mi-

cro-droplets," says Mr Rump. "But sensors cannot detect aerosols. They are only sensitive to the chemicals when the droplets have evaporated, which occurs at temperatures of around 25°C, typical of the cab interior. Moreover, it is as a vapour that the toxins pose the greatest danger to the driver's health. So it was clear that the system would have to incorporate a filter."

ETR was joined for the AGRASENS project by two French companies. Normandy-based SME Buisard is a well-established manufacturer of advanced tractor cabins, while SP Défense is part of the BA-

COU industrial clothing and protective equipment group, and specialises in filter technology. Together with a second German company, they form a project team with all the necessary experience.

### Locked Up

SP Défense's solution employs a layer of impregnated charcoal, similar to that used in gas masks, which absorbs the droplets of chemical spray, locking the toxic vapours within a network of tiny capillaries.

If the AGRASENS unit is



based around such a filter, why is ETR's sensor technology necessary? In fact, the unit includes not one sensor, but two. "As on the car system, the tractor cab unit includes a sealable air intake controlled by an external sensor, to protect the driver against the tractor's own exhaust fumes," explains Mr Rump. "In addition, a new sensor developed in the course of the Innovation project monitors the air inside the cab for the slightest trace of dangerous vapours."

After a certain time, even a carbon filter becomes saturated and starts to release vapour into the cab. In every-

**AGRASENS: transferring award-winning pollution sensors from the automobile to agricultural industries - and winning more awards.**



●●● day use, previous filter systems have proved ineffective because farmers have failed to replace them frequently enough. In the AGRASENS unit, the interior sensor gives an immediate warning as soon as the filter is full.

Using a ceramic substrate, ETR's design incorporates dual sensors programmed to detect

around 1,000 chemicals used in agricultural sprays. A built-in microprocessor monitors the signals and continuously calculates the nature and concentration of target substances, in the range of 100-200 parts per billion. Smoke from the farmer's cigarette is ignored.

Buisard has started to fit the unit to new tractor cabs, and is

offering an easily installed kit for older vehicles. Extensive field-trials in the Mosel vineyards are being conducted for the German agricultural workers union, which has shown a keen interest. And SP Défense's international sales network will market the technology world-wide.

### III. Cleaning Up Concrete

**While AGRASENS technology protects the health of farm workers and Integrated Wastewater is creating tools to help reduce pollution, the SUMOVERA project targets both occupational health and environmental protection.**

In the construction industry, and in the manufacture of prefabricated concrete products, mould release agents are used to ensure easy, clean separation of the hardened concrete from the steel or wooden moulds into which it was poured. In Europe alone, 60,000 tonnes of these agents

are used each year.

But conventional release agents are made from mineral oils, and include volatile organic solvents. Spillages and overspray of the non-biodegradable oils cause serious contamination of the soil around construction sites. And as they evaporate, the organic solvents

pollute the air, endanger workers' health and create a fire risk.

SUMOVERA aims to stimulate the market for non-hazardous, non-polluting vegetable oil-based release agents (VERAs). It is run by a consortium of four research centres, together with the European Building and Wood Workers Union and the French construction company, Bouygues.

The project has set clear standards for the composition and performance of VERAs, and has developed guidelines for their introduction and use. It has also demonstrated that a range of different agents can meet these criteria, as well as being economically and operationally viable, both in the construction and in the prefabrication industries.

#### Skin Diseases

According to Pieter van Broeckhuizen of Chemiewinkel, who coordinates the SUMOVERA project, the dangers of release agents based on mineral oils have been overlooked for too long.

A research unit based within the University of Amsterdam, Chemiewinkel first became aware of the problem in the early 1980s, when it was advising the construction workers' union on health and safety



**SUMOVERA: promoting non-hazardous, non-polluting chemicals for the construction industry.**



issues. "The number of complaints related to mould release agents surprised us," Mr. van Broeckhuizen recalls. "Workers complained about the smell, about damage to clothing, and about skin diseases and respiratory problems."

A decade later, the Dutch Ministry of the Environment embarked on a campaign to reduce urban smog by cutting emissions of organic solvents. Mould release agents turned out to be a significant source, and Chemiewinkel was commissioned to assess alternatives to the current products based on mineral oils.

The unit had participated in a SPRINT<sup>(1)</sup> technology transfer project which had promoted the use of cleaning agents based on vegetable oil 'esters' in the printing industry, as an alternative to organic solvents. Like the earlier project, SUMOVERA set out not to develop or test a particular prod-

uct, but to promote the widest possible use of less hazardous and more environmentally-friendly alternatives.

### An Independent Assessment

Two patented VERAs were already on the market when the project was launched, but neither supplier was invited to participate.

"The project does have a technical aspect," says Mr. van Broeckhuizen. "But our main task has been to persuade users to switch to VERAs. It was essential that we were seen to be truly independent — and that we were free to highlight the shortcomings of current VERAs, as well as their strengths."

Based on experience at numerous test sites, the project has developed comprehensive guidance on the application techniques needed to optimise

the performance of different types of VERA. It has presented test results to all the major suppliers, has made an instruction video and runs training courses for construction workers, and distributes a regular newsletter.

"VERAs are non-flammable, non-irritant, odour-free, and readily and fully biodegradable," says Mr. van Broeckhuizen. "In addition, we have shown that when properly applied they can match or exceed the performance of traditional release agents in all respects, both in very cold and in very hot climates. There is a price premium, which varies from country to country. But when savings on insurance, post-construction clean-up and time lost due to sickness are taken into account, VERAs are extremely attractive, even from an economic perspective."

### Overcoming Resistance

He admits that the market for VERAs remains relatively small. "The construction industry is conservative," he says. "Change is naturally slow, and there are up-front costs. Depending on the application, new spray nozzles may have to be purchased, and we recommend re-training in all cases."

But the best evidence of the extent to which the project has stimulated the market is the response from release agent suppliers. A number of manufacturers are now developing agents based on pure vegetable oils, as opposed to the esters of the patented products. And at least one manufacturer is attempting to produce a good biodegradable release agent based on mineral oil. □

## "Innovation Management Tools: A review of selected methodologies"

Catalogue Number: CD-NA-17018-EN-C, 40 ECU

This 345-page book is based on a European Innovation Monitoring System (EIMS) study which examined the tools and methodologies used by consultants and advisors working to help SMEs manage innovation. It presents summaries and detailed appraisals of 17 Innovation Management Tools (IMTs), examples of their effective use, a classification scheme to help consultants choose the right tools, and a model to help firms understand innovation.



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▶ REGIONAL INNOVATION

# Too Many One-Stop Shops?

**A project in southern Sweden is helping sort out the 'regional mess'.**

“There are dozens of SME support organisations in southern Sweden, and every one of them will tell you that they’re an expert in everything from financing innovation to marketing,” complains Lars Holm, regional director of Sweden’s SME association. “That’s absurd - it’s a confusing, overlapping and inefficient system.

The final aim of the project is to help refocus all the players’ activities towards a ‘demand-led’ support structure. Before that could even be attempted, however, both the current supply of and demand for SME support needed to be assessed. RITTS projects always involve consultants from outside the region concerned; this analysis was performed by inno GmbH of Karlsruhe, Germany, and the French consultants EDAW-TSD.

This resulted in a series of comparisons between what the SMEs need and what they receive, divided into four ‘bundles of services’: technology, market, finance and ‘mjukvara’, or soft services such as strategy advice and support in establishing external relationships.

The data - ‘the wheel’ (Figure) - clearly showed that the gap between need and offer is greatest in market-related services, although the opacity in technology-related services was also very high. As one SME managing director put it, “It’s all a blur, why can’t these organisations simply tell us who they are and what they offer?”

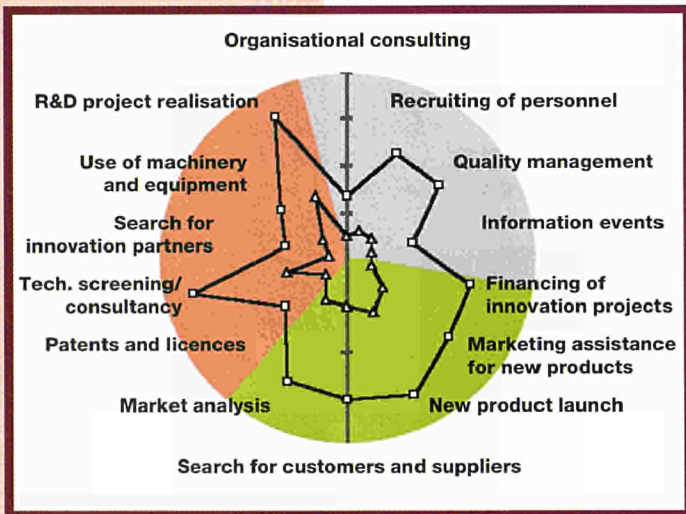
Analysing the data through looking at the SMEs by size, sector and other parameters provided more detailed pictures. Companies with graduates in the workforce, for example, tended to rate both needs and service use higher, as they tended to have both a greater awareness of what was available, and of how to obtain it.

## Questionnaire and Interviews

The SMEs’ needs were initially assessed through a six-page questionnaire. A startlingly high 30% of the 1,800 SMEs responded.

“Without a decent response rate the entire project would be flawed, so we really worked at that questionnaire,” Olofsson recalls. “It may seem trivial, but we made it look professional - well laid out, and so on. We included a brochure, ‘letters of recommendation’ from the association of entrepreneurs and the county administration, and a prepaid answering envelope.”

The questionnaire was used to analyse the companies’ needs and to spot the key issues. It was also reinforced by face-to-face interviews with a representative sample of some 50 SMEs - some of which had not responded to the questionnaire. “You don’t want to just talk to the activists - you need to know why some SMEs didn’t respond, and what their problems are, too.”



**The questionnaire data clearly shows the gaps existing between what is needed (outer line) and what is offered (inner line). Inno GmbH**

We call it the ‘regional mess’. Hopefully the RITTS<sup>(1)</sup> project will help sort it out.”

The RITTS project Mr Holm was referring to is a joint effort of the Malmö, Nösk and Kalmar regions of southern Sweden. It is being coordinated by Tomas Olofsson, European Projects Manager of Teknopol AB. “This was the first time the entire system has been examined from top to bottom,” Olofsson explains. “It has generated immense support and interest from everyone concerned. Our interim findings have already been adopted by the regional authorities, so the final impact should be considerable.”

## Clear As Mud

The RITTS partners also surveyed the support organisations themselves. It was a long list - 27 different universities, colleges and knowledge and technology transfer organisations were identified.

With so many players, one might think that every base would be covered. Far from it - there were too many support organisations competing amongst themselves, leading, inevitably, to significant duplication of the most lucrative and/or easiest

(1) Regional Innovation and Technology Transfer Strategies and Infrastructures (RITTS) are Innovation Programme projects designed to help regions analyse and improve their regional innovation support fabric. See Dossier, edition 5/97.



services. Intra-organisation co-ordination, unsurprisingly, was notable by its absence.

"There are more people networking than doing out there," Olofsson notes. "Only 3% of the SMEs rated the support fabric as transparent, meaning that they could see clearly which organisation provided what service. This compares badly - Rhône-Alpes scored 20%, for example. We can make this comparison because our French and German consultants have done similar analyses throughout Europe. It's a real benefit."

**Consensus is Crucial**

Phase Two of the project will involve a series of workshops across southern Sweden bring-

ing together the various players - SMEs, support organisations and regional authorities - to examine the data and develop a consensus of how to improve the situation.

"Consensus is crucial - you cannot impose this sort of change," Olofsson emphasises. "RITTS work because they help build that consensus as you collect the data. The SMEs are very keen to help us help them, and the support organisations certainly want to improve the way they work."

"Finally, we're fortunate because the system of regional authorities in Sweden is changing, with more power devolving away from Stockholm," he adds. "A larger, more powerful new regional authority has been created, and they have adopted the RITTS project as the pri-

mary exercise in improving innovation support. They've already started modifying their strategies. So we have support at every level."

"The timing of this project is excellent," agrees Christer Marking, Director and Assistant Under-Secretary of the Swedish Ministry of Industry and Trade. "The lessons being learnt here should be widely applicable." □

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# A New Planning Tool for Regional Strategies

*Goal-Oriented Project Planning is helping Europe's regions coordinate the development of their innovation and technology transfer strategies.*

Technology transfer can be a tricky business, but at least it is normally concerned with tangible products, services or manufacturing processes. Planning a technology transfer strategy can be much harder. "Strategies tend to be more vague than products," says Charles de Monchy of the Insight Partnership, a Dutch consultancy company, "and it's more difficult to plan something vague than something concrete."

In such a situation one useful tool is goal-oriented project planning (GOPP)(1), a technique to help ensure the success of projects by building consensus among all the people involved.

At the beginning of last year the Innovation Programme

asked GOPP experts Charles de Monchy and Frank Little to help them adapt GOPP to the requirements of its Regional Innovation and Technology Transfer Strategy (RITTS) projects(2). Just over a year later the first fruits are beginning to show in both RITTS and other EC regional projects.

**Italian Enthusiasm**

In particular, GOPP has found an enthusiastic following in Italy. "Participative planning methods like GOPP are becoming very popular here," says Rome-based freelance project consultant Federico Bussi, an Insight Partnership associate. ●●●



**GOPP meetings promote transparency, and transparency builds trust.**

(1) GOPP was profiled in detail in edition 5/94.  
 (2) See 'Reinforcing Europe's Regional Innovation Fabric', Dossier, edition 5/97.



●●● “Many local development programmes are based on co-operation between all the local actors, so a more structured method for running these projects is a good idea.”

Mr. Bussi has carried the message to the south of Italy, where GOPP is now being used in several projects in the Calabria region. One of these is ARIANE, which is funded by the Regional Information Society Initiative (RISI)<sup>(3)</sup> and promotes the information society in Calabria.

“Should we invest in schools, or use information technology to create transparency in public administration, or concentrate on SMEs?,” asks Luciano Mallamaci, ARIANE project leader at the Calabrian science park Calpark. “Budgets are limited - GOPP is helping us to build consensus among the private and public partners, so that we can agree on what should be done first.”

Calpark uses GOPP in other programmes including their Regional Innovation Strategy (RIS)<sup>(2)</sup> and ADAPT, an education scheme for employers and workers<sup>(4)</sup>. There is also a plan to link ARIANE, which is concerned with strategy, to TELCAL, a 200 MECU Calabrian technology development project. GOPP will help to manage the resulting mega-project, says Mr. Mallamaci.

### Consensus Versus Suspicion

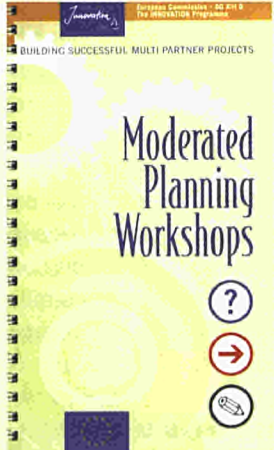
The idea of GOPP is to make sure that decisions are reached and recorded, that if anything is left undecided the reasons for this are agreed, and that team members reach a consensus on the aims and actions of the project. Key to it all is the facilitator, who remains neutral and ensures objectivity.

“In a normal meeting, what gets put down on paper?” asks Charles de Monchy. “Spoken meetings normally contain a lot of ambiguity, which makes it difficult to know what was de-

## Moderated Planning Workshops

Based on the experience of many Innovation projects in their definition phases, this short booklet explains the technique of moderated planning workshops in improving the effectiveness of transnational projects.

The workshop approach can be applied to help structure new projects, or to improve existing partner relationships by focusing on objectives, goals and consensus among participants.



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ecided and how. GOPP makes it very clear what sort of analysis is being made and what is being decided. The resulting transparency builds trust among the team members. You will get everyone on board if this is at all possible — and if it's not possible, GOPP will ensure that you notice.”

GOPP is also a methodical systems approach for managing large projects. “GOPP is not just for running meetings,” Mr. de Monchy emphasises. “It's a technique for managing projects.”

RITTS, however, presented some new challenges. Unlike those of many other EU programmes, RITTS project teams come from the same region of the same country, and speak the same language. Team members do not have the cultural problems associated with cross-national projects, but this does not mean that they always understand one another or find it easy to co-operate.

A typical project team includes government agencies,

local authorities, representatives of both large companies and SMEs, politicians and academics. “They probably know each other,” explains Mr. de Monchy, “and they may be very sensitive to real or imagined hidden agendas. The partners are often unequal; typically the government representatives have both the most power and the most experience of regional strategies.”

“RITTS is different from the other GOPP projects we have worked on because the RITTS partners have to plan a strategy, not a product,” he continues. “I am sure these strategic meetings produce more headaches than projects involving, say, industrial products. GOPP helps make sure that the headaches are a price worth paying.” □

<sup>(3)</sup> See edition 1/96.

<sup>(4)</sup> See 'EU Training Programmes', Dossier, edition 1/96.

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# Innovation Relay Centre

News letter

## Annual IRC Meeting

*This year's annual IRC get-together in Stuttgart will give IRC staff from around Europe plenty of opportunity for personal networking.*

The third annual IRC Network Meeting, organised by the Innovation Programme, will take place in Stuttgart on 23–24 April. The two-day event is an important yearly opportunity for all those involved in the IRC project to meet, gather news and exchange views on improving the network's operations.

Recognising the importance of personal networking and responding to suggestions made at last year's meeting, the organisers of this year's event have allowed more time for delegates to talk to each other. "A network is essentially people, so a good relationship between them is vital," says Professor Peter Niess, manager of the Steinbeis Europa Zentrum, the local IRC which is hosting the meeting.

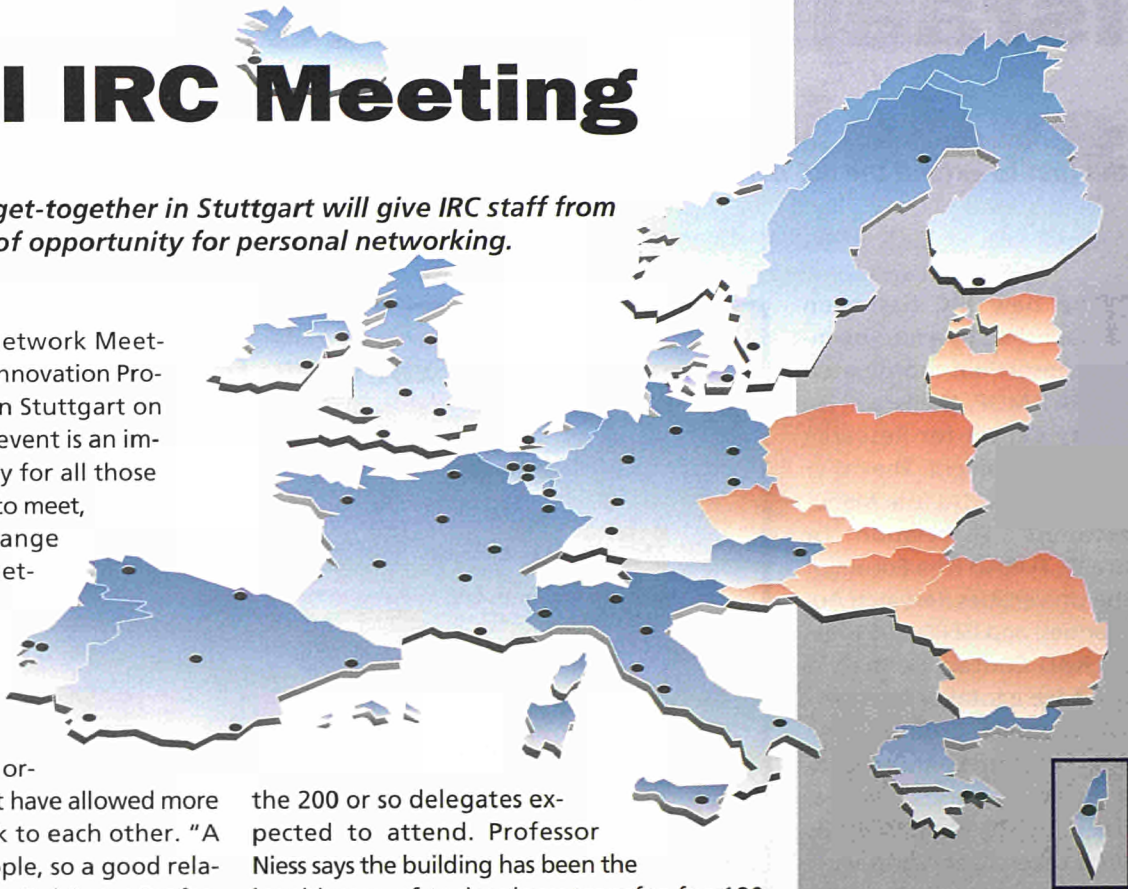
Although details of the agenda are yet to be finalised, delegates are promised a variety of plenary sessions and workshops plus an evening buffet in the great hall of Stuttgart's Neues Schloss castle.

### Information Workshops

The Steinbeis Europa Zentrum is part of the Steinbeis Foundation, which is planning an open session for local German SMEs and citizens to learn about the Fifth Framework Programme (5FP) on the first morning. This will allow not only IRCs but also other participants to discover the latest trends of 5FP.

Methodological and thematic workshops will be held in the afternoon of the first day to increase awareness of recent developments in IRC tools. These will be followed by presentations by Commission officials addressing issues such as promoting the network, improving communications and developing new activities to further improve the services offered by the IRCs.

The venue chosen for the meeting, the Haus der Wirtschaft, has a special significance for



the 200 or so delegates expected to attend. Professor Niess says the building has been the local home of technology transfer for 100 years: it was originally used to exhibit examples of British and French technology of interest to local German businesses.

In keeping with the blending of the old with the new, this year's meeting welcomes a new network member - Israel (see page 14). Along with two representatives from each of the other 52 IRCs, there will also be representatives from the ten 'Fellow Members to the IRC Network', or FEMIRCs, based in Central and Eastern Europe (see page 19).

With so many opportunities to explore and new people to meet, the event organisers hope that delegates will extend their visit and stay for a brokerage event on multimedia, scheduled for the Sunday and Monday.

### THE IRC NETWORK IN BRIEF

The Innovation Programme's network of 53 Innovation Relay Centres (IRCs) spans the EU, Iceland, Israel and Norway (see map), with 'twinning' arrangements extending it to some Central and Eastern European countries (shaded in red). Each IRC is its region's window on European innovation, helping companies and research organisations transfer technologies to and from the rest of Europe and access the EU's research programmes. See the Dossier in edition 4/97 for more details.

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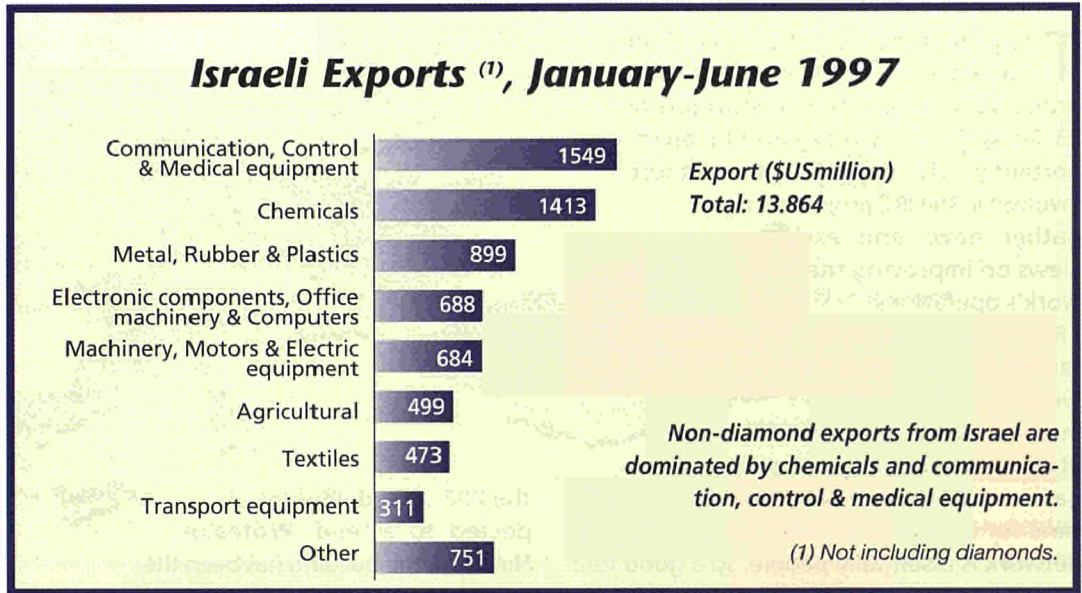
# Israel Joins IRC Network

The Innovation Relay Centre established in Tel-Aviv this January brings the total number of IRCs to 53, and is the first to extend the IRC network beyond the European Economic Area and Central and Eastern Europe.

The new IRC has been launched by a four-member consortium coordinated by MATIMOP, the Israeli Industry Centre for Research and Development. The other partners are MAI (the Manufacturers' Association of Israel), FURAD (the Forum of the Universities Research Authorities) and ISERD (the Israel EU R&D Contact Centre). It will have a total of ten staff.

A public non-profit-making agency set up by three leading manufacturers' associations in 1979, MATIMOP has since taken over world-wide co-operation in industrial R&D on behalf of the Israeli Government. It has become the focal point for the country's bilateral links with several EU Member States and manages its affiliated membership of both the EUREKA Initiative and the Fourth Framework Programme.

MATIMOP has two large databases on both R&D activ-



ities of Israeli industrial organisations and on foreign companies which are either in association with Israeli firms or have expressed an interest in R&D collaboration with Israel. It can also access the database of the Office of the Chief Scientist of the Ministry of Industry and Trade, which oversees all government support to industrial R&D in Israel. The Chief Scientist, Dr Orna Berry, will be actively involved in the IRC management.

### Building on Success

"Nearly 200 Israeli organisations have become Framework Programme partners in under 18 months," points out Yair Amitay, in charge of co-ordination at the IRC. "This considerable achievement will be reinforced by the IRC. We will identify the technology transfer needs of Israeli companies and

the sectors where European companies could profit from adopting Israeli technologies. These are expected to be areas like tele- and data communications, medical instrumentation and biotechnologies, where Israel has several major companies. We'll also help find European research partners for Israeli organisations."

Amitay hopes, however, that the IRC will also involve SMEs, as well as firms of all sizes in more traditional sectors such as food processing, agro-technology and pharmaceuticals. Within the IRC, the Manufacturers' Association will deliberately focus on encouraging these traditional industries. "These sectors are much less aware of the possibilities of technology transfer, of joining the different EU research programmes and the financial support that might be avail-

able to them in the form of venture capital or other investments," Amitay explains.

Similarly, the main role of the FURAD will be to inject its know-how on university research into the IRC's operations. According to Mr Amitay, prestigious establishments such as the Weizmann Institute and the Haifa Technion (Israel Institute of Technology) will develop their technological cooperation with Europe in fields like the life sciences and micro-electronics. So too will Tel-Aviv University, which has already joined Israeli and European firms in an electro-optics research project.

The activities of the fourth IRC partner, ISERD, will centre on the provision of information on EU activities and calls for proposals, as well as support for the preparation of proposals and the setting up of consortia.

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► IRC PROFILE: IRC-PARIS/ILE-DE-FRANCE

# Biotechnology Group: A Multiplying Initiative

*By combining the resources of the IRC network's Biotechnology and Environment Thematic Groups, the Paris-based IRC hosted almost 250 one-to-one technology transfer meetings. Many are starting to bear fruit.*

Organised in Paris last October, the POLLUTEC '97 'industrial salon' brought together around 1,700 exhibitors of industrial pollution technologies, making it an ideal forum for some focused networking. But for many it was far more than a simple exhibition.

"Well before the POLLUTEC salon, we had prepared and distributed a catalogue of 135 technology transfer proposals to the exhibitors. Each proposal had been carefully verified and submitted by at least one of the 17 IRCs participating in the event," explains Mr. Frederic Marceau of the IRC-Paris/Ile-de-France.

These efforts led to 238 face to face meetings at ETED - the European Technology Exchange Days. These encounters actually took place in meeting rooms built inside the IRC's exhibition stand, while outside casual visitors picked up general information on the IRC network.

By early 1998, about a third of these 238 meetings had advanced to the 'continuing contacts' stage, a promising start.

## At the Resource Crossroads

The effectiveness of the event reflects the large reservoir of expertise that both individual IRCs and the network's Thematic Groups (see



*POLLUTEC '97 - an ideal opportunity for focused networking.*

box, page 16) can call upon when needed. Being a member of the Biotechnology and Environment Thematic Groups, the IRC-Paris/Ile-de-France was able to call on both when it came to publicising the events, attracting technology offers and - crucially - checking their validity.

"A technology transfer agreement across national borders requires a deep understanding of different organisations with different technological needs and resources, operating in different legal and fiscal systems," Gilles Wurmser of the Paris IRC explains. "No one organisation can have all of that knowledge - we may receive technology offers and requests that we cannot thoroughly evaluate because we don't have the technological expertise, or simply because they come from another

country. So we call on the expertise of other IRCs. In this way each IRC remains locally accessible, yet can call on Europe-wide resources. Having a sub-network - the Thematic Group - focused on a particular subject like biotechnology makes using that resource easier."

## Focusing on Biotechnology

"Biotechnology spans a diverse and rapidly advancing technology sector, and the diversity of interests among the IRCs in our Group reflects this," agrees Biotechnology Group chairman David Cranston, of the Innovation Relay Centre (IRC) for Scotland. "Setting up the Thematic Group has been a major enterprise, but it's been worth it. Each member has a different background, ●●●

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Almost 250 face-to-face meetings took place inside the IRC stand during the exhibition.

●●● a different host organisation and a different regional culture, but all have good *infrastructures*. That's important, because technology transfer is a really hard job. To succeed, all the parts must be in place."

The Group members (see box) concentrated initially on organisational and administrative standards for exchanging information in this fast-developing sector. These standards included company profiles - standard forms used for offering or seeking technology transfer opportunities - as well as other networking procedures. Over 70 profiles are now in circulation throughout the Group, including nine which were circulated among the members at a Thematic Group meeting held during POLLUTEC '97.

"In only a year and a half the Biotechnology Thematic Group has become very flexible and interactive, but our resources of time and energy are limited," Cranston continues. "Consequently, our approach is to focus our efforts tightly on specific biotechnology sectors, limit the number of IRC's involved

in each, identify and invite likely EU biotechnology SMEs to participate, and then closely monitor and measure the results."

The Group has, to date, helped complete two technology transfer agreements, and more are under negotiation. One of the completed projects links the Scottish Antibody Protection Unit to Sigma-Aldrich, an American biotechnology company that sought a European partner capable of treating antibiotic solutions in a clean environment. The Unit produced the first commercial products in September last year.

The other agreement links Swedish and German SMEs, who are now working together on genetic tests for Crowns disease. The Group has also helped a number of companies and organisations assemble consortia and propose eight different research projects, several of which

have pending applications for EU funding.

"Our expanding horizon of contacts has revealed the need, in certain sectors of biotechnology, to broaden our efforts to include inward technology transfer from non-EU countries, especially the USA, when it can substantially benefit European SMEs," remarks Mr. Cranston. "Building on the momentum we have created, I expect to see a very large increase in completed technology exchanges in the near future". □

## IRC Thematic Groups - Concept and Practice

So far, seven Thematic Groups have been formed, in the automotive, biotechnology, environmental, fish technology, materials, medical technology and wood sectors. The Groups bring together limited numbers of IRCs from areas where these respective industries are clustered.

They bring a more targeted approach - and thus a higher success rate - in partner search, partner proposal matching and technology transfer. This is achieved by fostering links between academic institutions, large companies and SMEs. SMEs are also encouraged to network among themselves, enabling them to present integrated proposals when cooperating with large companies.

SMEs via EU R&D programmes;

- promote SME participation in R&D programmes.

One IRC is responsible for the Thematic Group in each of the **nine countries involved**: IRC-Denmark (EuroCentre) \* IRC-Finland (TEKES) \* IRC-Rhône-Alpes (CRCI Rhône-Alpes) \* IRC-Steinbeis (Steinbeis-Europa-Zentrum, Germany) \* IRC-Ireland (Forbairt) \* IRC-Central Italy (CIRCE) \* IRC-Netherlands (Senter) \* IRC-Central Sweden (Ytkemiska Institutet) \* IRC-Scotland (Euro Info Centre, *chair*).

### The Biotechnology Thematic Group

#### Four key aims:

- promote information and research links between biotechnology SMEs and universities and institutions;
- organise events to promote technology transfer;
- promote contacts between businesses and

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► CASE STUDY

# They're on a Roll!

*The IRC Saxony, Germany, helped a small company turn their big idea into a major international success.*

It takes confidence to set up your own company in order to develop a new idea, but in 1992, Siegfried and Ilona Ebert did just that in Freiroda, which lies north of Leipzig in Germany. Their vision of the self-adjusting ROLL-RING chain tensioner was an entirely new concept in the tensioning and damping of chain drives.

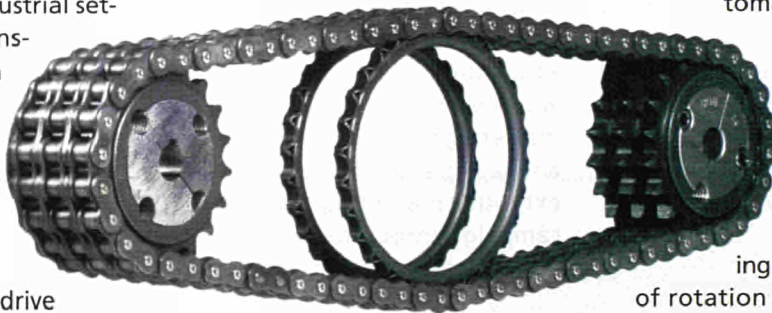
Chain drives are widely used in many industrial settings to transfer motion from, for example, a motor to a conveyor system. "Conventional chain drive

tensioners have many limitations," explains Mr. Ebert. "They are awkward to install in confined spaces, and adjustment, lubrication and maintenance are all difficult. Chain-drive systems have inherent problems. For example, as the chains wear, the slackening leads to extra vibration, noise and further wear. I had an original idea for a simple solution to overcome all of these, but I needed a lot of help to realise my ambition."

The idea was simple but elegant: to make a ring - now known as a ROLL-RING - from a specially formulated, high performance elastic polymer, and mount it between the 'force' and 'slack' runs of a chain drive (see photo). The natural diameter of the ring is greater than the distance between the two strands of chain when they are under tension,

so the ring is deformed into an ellipse. Being 'springy' in nature, it thereby supplies the tension required to ensure the drive runs smoothly.

Mr. and Mrs. Ebert developed the basic concept themselves - both in terms of the characteristics of the thermoplastic material, and the design of the ring itself - with the support of a German innovation programme. At the



end of 1994, Ebert Kettenspanntechnik GmbH was ready to go into production. A further German government programme helped them find a venture capital partner, Seed Capital GmbH, Brandenburg, and in February 1995, mass production started.

"We had achieved a great step forward in terms of a novel design using a high grade synthetic material, but we also recognised the need to make the idea accessible to a wide range of customers," Mr. Ebert remembers. "To make the most of our ring, we had to think internationally."

### International Links

Agil GmbH, coordinator of IRC-Saxony, recognised the high level of innovation of

Ebert Kettenspanntechnik and thought that the chances for promoting their new technology worldwide were good. "We were impressed by a simple answer to a perplexing problem," recalls Mr. Penzholz, their director. "All the functions are integrated into one simple-to-install, maintenance-free component - the ring itself. The tension generated keeps it in position automatically. Its

simple shape goes anywhere and its elastic nature makes it self-adjusting for all speeds of rotation of the chain drives. What could be simpler?"

Collaboration with IRC-Saxony began towards the end of 1994. The Innovation Relay Centre worked closely with Ebert Kettenspanntechnik to inform and support them during the phases of development and search for partners. Technology transfer days, workshops and staff exchange within the IRC network also involved IRC-Midlands, based in Birmingham (UK), and several other companies.

Managed Learning Ltd, a private company specialising in German/UK trade contacts, invited Ebert Kettenspanntechnik and five other German firms to the UK to participate in "Export-Initiative Großbritannien" as a result of their relationship with IRC-Saxony. Here, and at ●●●

*Innovation in its purest form - the ROLL-RING sprocketless chain tensioner and dampener is maintenance-free and can be fitted in seconds without any tools. It even reduces noise.*

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other trade fairs, they met chain-manufacturing and distribution giant, Renold.

"The product presentations organised by Managed Learning Ltd were exceptionally useful," say Mr. and Mrs. Ebert. "They also provided detailed information about the British market. We made our offer to Renold, knowing they were technical experts and had worldwide connections."

### Award-Winning Innovation

1995 got off to a good start, with the partnership between Ebert Kettenspanntechnik and Renold being cemented. The ROLL-RING trade mark was registered nationally and internationally, and the product series was accepted as complying with the European standard for chain drives. The icing on the cake was when

Ebert Kettenspanntechnik was awarded the 1995 Saxony Innovation Prize.

"We have achieved a great deal so far, and we are still going from strength to strength. It was crucial to our development that we found the right partners," says Mr. Ebert. He has reason to be pleased. A further partnership has been formed with the Imao Corporation of Japan, giving Ebert Kettenspanntechnik a global strategy for product development and marketing.

In 1996, ROLL-RING was launched in eleven EU countries and in 1997 marketing was extended to the USA and Japan. Development has also been well organised, with the company receiving DIN ISO 9001 quality certification that same year. By this time, annual sales had passed the million DM figure and were growing at over 80% a year.

### Rising Exports

The functions of production, further product development and marketing are now shared between Ebert Kettenspanntechnik, Renold and Imao, and Ebert Kettenspanntechnik is working on international patent applications. The joint distribution approach has generated worldwide success. Over 70% of Ebert Kettenspanntechnik's production is for export, and this figure is increasing.

ROLL-RING can be sold to the end user either in isolation, as an economical and efficient chain tensioner and damping element, or as part of a package involving the supply of chain, sprockets and ROLL-RINGS. Renold plc has worldwide responsibility for marketing except in Germany and Japan, and conducted an extensive marketing and PR campaign throughout 1997;

Imao is selling effectively in Japan. If customers choose the "engineered solution", they are promised high quality customer service and can expect optimum performance and less machinery down time than they experience with conventional transmission products.

Ebert Kettenspanntechnik is very happy with the way that Renold and Imao represent them. "The partnerships benefit from offering an integrated package," enthuses Mr. Ebert. "Our competitors can only offer traditional tensioning devices that cost more and have the old drawbacks. We will be leading this field for a long time. Not only that, we are looking at other markets, such as motorcycle drive chains and engine cam shafts." □

### ► FEMIRCS

# Gathering Momentum in the East



The FEMIRCS meeting in Poland.

*The network of 'Fellow Members to the IRCs' (FEMIRCS)(1) made good progress during its first eight months of operation, according to a Commission progress report.*

The progress report was presented to a FEMIRCS conference held in Warsaw last December. Overall, it concludes, the network has made a good start - all nine nodes have been very active in supplying information and advice, with several developing innovation & technology transfer activities as well.

Organised by the Polish organisation OPI (Information Processing Centre), which coordinates the Polish FEMIRCS, the conference brought together eight of the ten FEMIRCS to discuss the operation of the network and other issues of common interest. Chief among the latter was the accession of Central and



Eastern European countries to the EU and, in the shorter term, increasing their involvement in the Fifth Framework Programme (5FP).

This is proving expensive, pointed out Marek Kepka of the Polish State Committee for Scientific Research - as *Innovation & Technology Transfer* went to press only the Czech Republic, Estonia, Hungary, Poland and Slovenia had decided to contribute to the 5FP budget.

### Improving Networking Activities

Several countries approached the problem of limited funding by creating FEMIRCs which are themselves a network of significant size - and complexity. FEMIRC-



A 'Business Intelligence Seminar' conducted at Information Processing Centre, Warsaw, by Ms. Sylvie Graglia of the IRC-Paris/Ile-de-France, the IRC twinned to FEMIRC-Poland.

Poland, for example, links together no less than nine regional organisations (including OPI), ranging from the Institute of Fundamental Technological Research to

HI-TECH, a private company. Running such a consortium, commented FEMIRC-Poland coordinator Krystyna Siwek, is no easy task.

The progress report had

reached similar conclusions, identifying over-large consortia as one of the difficulties of the first year. Uros Stanic, coordinator of the seven member FEMIRC-Slovenia (see 'Fighting Fragmentation'), agrees that large consortia can be a problem, but thinks that it is a double-edged argument.

"Theoretically, linking a large number of partners together means that you pool resources - you don't have to reinvent the wheel, for example by setting up another database of SMEs or research organisations," he said. "It also gives me access to literally hundreds of research scientists, which is crucial when assessing project ideas. It is difficult to manage, but I think it's preferable to setting up yet another 'one stop shop', of which Slovenia has several."

Most of the identified difficulties, in fact, related to networking, whether it be between individual FEMIRCs and national bodies, among the FEMIRCs as a network, or between the network and the IRCs. Many of these problems should fade as the members establish themselves and gain experience.

### Closer Twins

The most important aspect, however, remains the twinning arrangements between individual FEMIRCS ●●●

(1) FEMIRCS are organisations based in ten CEEC countries (see map, page 13) funded by the International Cooperation programme to help them better integrate their science and industrial base with Western Europe. Each FEMIRC has been 'twinned' with an individual IRC, which provides concrete advice and support. All ten FEMIRCS but Romania's began operations in January 1997.

#### FEMIRC PROFILE: SLOVENIA

### Fighting Fragmentation

FEMIRC-Slovenia has concentrated its efforts in 1997 on promoting awareness of EU programmes and analysing innovation in Western Europe.

"We hit the ground running in 1997, launching a short monthly newsletter and a series of Information Days," Uros Stanic recalls. "The Days generated 126 different proposals for the INCO-COPERNICUS programme alone."

They also analysed how several EU countries organised their innovation policy and compared the situation in Slovenia. "We found several fragmented Slovenian initiatives, with no coordination" Stanic observes. "There is also little 'innovation culture' - an awareness of the importance innovation has for economic development. We are like missionaries with this message."

The latest phase in this process was 'Forum Bled '97', held in the Slovenian city last December. Bringing together around 100 research policymakers from around the world, it demonstrated that Slovenia is not alone in suffering from fragmented activities.

"A while ago I heard about a PHARE project dedicated to implementing an Innovation

Agency in Slovenia. Fortunately, I won that contract, reducing one potential duplication of effort. But other EC programmes are working with other organisations - Slovenia does, after all, have 21 Ministries - and this is breeding competition where there should be cooperation. Not to mention NATO's Partnership for Peace programme, several independently run UN agencies, COST, EUREKA and others. My aim is to link all these players together - we recently linked up with the regional offices of the Slovenian Chamber of Commerce, for example."

FEMIRC-Slovenia's next major event, in cooperation with the Austrian and Italian governments, is a conference in early May on preparing the Alpe Adria region for the 5FP.

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## Calendar of Events

and IRCs, where further improvements are necessary to help the FEMIRCs benefit from the IRCs' experience in day-to-day management, training and promoting innovation and transnational technology transfer. These links should reflect the conclusions of last year's European summit in Luxembourg, which stressed the need for candidate EU states to be familiarised with the EU's policies and working practices.

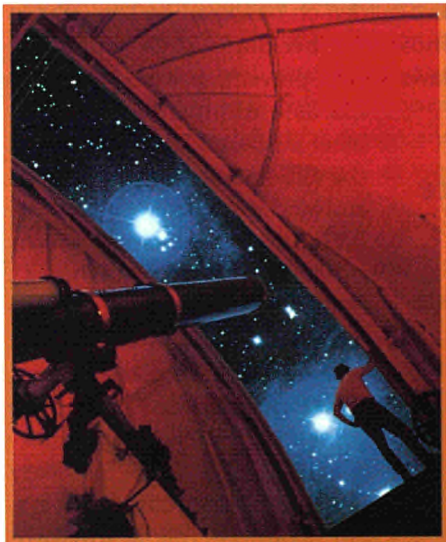
This year should hopefully see more training activities, greater participation by FEMIRCs in IRC events, greater use of the IRC's WWW facilities and more. A full-scale evaluation of the network will be undertaken later this year with a view to renewing the FEMIRCs' contracts for one to two more years. □

*HI-TECH, the private company within the FEMIRC-Poland consortium, are helping organise INTER-TECHNOLOGY'98, an international conference and trade fair focusing on new technologies, industrial design and high-tech business opportunities in Poland. Lodz, June 4-6.*

25/3/98 Stuttgart (DE)	<b>Brokerage Event: Production Integrated Innovative Environmental Technology in the Surface Treatment Industry</b> Bringing prospective co-operation partners in the surface treatment industry together. Presentation of new environmental technologies, organisation of contact meetings between participants, and a small exhibition of companies and research institutions.	IRC South Germany Tel: +49 711 123 4023 Fax: +49 711 123 4011 steinbeis@seicom.net
26-27/3/98 Berlin (DE)	<b>Advanced Microsystems for Automotive Applications — International Conference</b> To stimulate discussions of all MST-relevant components for automotive applications.	IRC North Germany Tel: +49 33 28 435-242 Fax: +49 33 28 435-256 ricken@vdivde-it.de
30-31/3/-1-4/98 Coventry (UK)	<b>Take Time Out to Innovate Conference</b> The business community of the West Midlands and colleagues from universities, local authorities, business links, Chambers of Commerce, training and enterprise councils and government are getting together to find out how to make innovation work harder for their organisations.	IRC Midlands/South West England Tel: +44 1203 838143 Fax: +44 1203 221396 ricken@vdivde-it.de
1-2/4/98 Macao	<b>EUREKA [MEETS] ASIA — Technology Exhibition and Brokerage Event</b> A Eureka Brokerage Event, being held in Macao in association with a European Technology Exhibition, to bring together industrialists, researchers and entrepreneurs from Europe and Asia.	IRC Portugal (A.d.I.), Fax: +351 2 619 7255 bdantas@adj.pt
22/4/98 Amsterdam (NL)	<b>Seminar on Productivity in the Printing Industry</b> Organised by IRC-Netherlands.	IRC Netherlands A.Smeets@egl.nl
22-24/4/98 Paris (FR)	<b>JEC 98 — the 33 Composite Show Technology Transfer</b> The major European exhibition in the composite field will feature technology transfer days.	IRC Paris — Ile de France Tel: +33 1 45 08 37 94
26-29/4/98 Stuttgart (DE)	<b>Multimedia Trade Fair 'Fachmesse Multimedia Market'</b> As part of this event, Steinbeis-Europa-Zentrum is organising a Brokerage Event on 'Distributed Design, Production and Marketing - The Application of New Communication Technologies'.	IRC South Germany Tel: +49 711 123 4015 Fax: +49 711 123 4011
28-29/4/98 Troyes (FR)	<b>PACK CENTREST Business Convention</b> PACK CENTREST is the most important international business convention on packaging innovations.	IRC Centre Est Tel: +33 3 26 69 33 51 Fax: +33 3 26 69 33 69 arist.ca@wanadoo.fr
12/5/98 Brussels (BE)	<b>EUROTECHnology Transfer Days 98</b> Technology transfer days are being organised on the occasion of the EUROTECH 98 FAIR.	IRC Brussels Tel: +32 2 422 00 21 Fax: +32 2 422 00 43 jacques.evrard@technopol.be
12-13/5/98 Lyon (FR)	<b>MET - Mechanical and Plastic Technologies - An Inverted Fair</b> 'To find new clients, to select new suppliers, to identify new partners, to access new markets.'	IRC Rhône-Alpes Tel: +33 4 72 11 43 21 Fax: +33 4 72 11 43 23 csabatin-irc@arist-ra.asi.fr
12-14/5/98 Goteborg (SE)	<b>VIBEX 98, International Vehicle Industry Buyers Expo</b> A unique opportunity to find new business partners in the automotive industry and manufacturers of high quality components for cars, trucks, buses and other heavy vehicles.	IRC Western and Southern Sweden Tel: +46 31 612407 Fax: +46 31 612401
12-16/5/98 Cologne (DE)	<b>ENTSORGA Environment Exhibition in Cologne Technology Transfer Event</b> A joint IRC initiative will be held at ENTSORGA to bring together a variety of European organisations and initiatives.	IRC North Rhine-Westphalia Tel: +49 208 30004-44 Fax: +49 208 30004-61 sw@www.zse
25-26/5/98 Jurmala (LV)	<b>EUREKA Brokerage Event: Co-operation with the Baltic Countries</b> This brokerage event will focus on the fields of food and information technologies, and will provide an opportunity for companies and research organisations to meet and establish partnerships in the Baltic countries.	IRC Latvia Tel: +371 2 558 744 Fax: +371 7 310 027 eureka@edzi.lza.lv
8-9/6/98 Magdeburg (DE)	<b>NAWAROS 98 Conference for Renewable Raw Materials</b> Providing users and potential investors the possibility to discuss the newest scientific knowledge and to transfer innovative technologies.	IRC Lower Saxony/Sachsen-Anhalt Tel: +49 391 6718533 Fax: +49 391 6711213 tti-irc.md@t-online.de
18/6/98 York (UK)	<b>Medilink Live — Medical Technology Exhibition</b> Supporting the commercialisation of new medical products and technologies and raising the profile of the region's considerable clinical research and industrial strength in the medical technology field.	IRC North of England Tel: +44 114 244 5804 Fax: +44 114 256 0950 BetaTechnology@compuserve.com
18-19/6/98 Berlin (DE)	<b>First European Conference on Carrier Supply</b> Focusing on the general questions and problems of carrier supply and network systems. It is addressed to local and global carriers, service providers, carrier suppliers, marketing experts, representatives of national and regional authorities and research groups.	IRC North Germany Tel: +49 33 28 435 198 Fax: +49 33 28 435 189 mwerner@vdivde-it.de

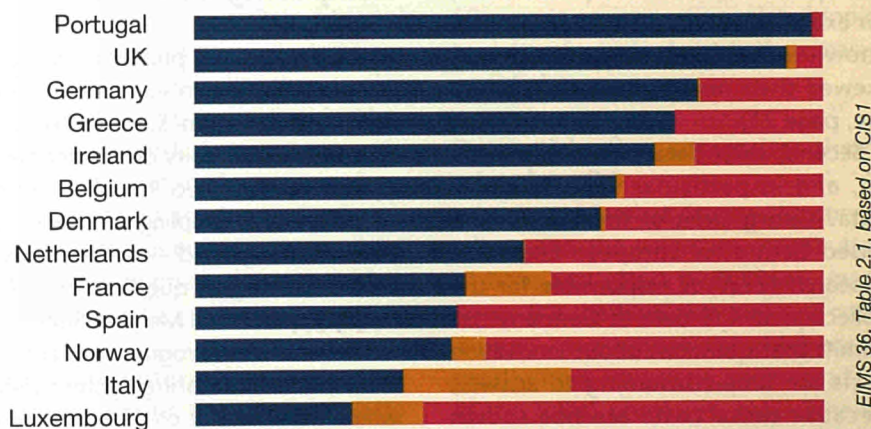


# Mapping the Innovation Universe in Europe



*The Community Innovation Survey is the first attempt ever made to collect comparable enterprise-level data on the processes and results of technological innovation across an entire economic bloc. It has made possible detailed comparative studies between sectors and regions.*

## Extent of Innovative Activity as a Percentage of the Sample, by Country, 1990-92



Innovators ■  
Intention only ■  
Non-innovators ■

*The data from the CIS1 pilot project demonstrate the importance of taking representative samples (see 'Teething Problems', page 22). This is being addressed in CIS2, the follow-up exercise.*

Technological innovation is essential if companies — and countries — are to maintain their competitiveness in global markets.

But where and how does innovation actually occur? How big and how rapid are its impacts on turnover, export sales, and employment? What are its costs? What are its key mechanisms and constraints? And how widely do these factors vary between regions and industrial activities?(1)

The effectiveness of measures to stim-

ulate or facilitate innovation depends to a very large extent on the ability of policy-makers to answer these kinds of question. Without a detailed understanding of innovation's complex processes, resources may not be directed where they will do most good. Until recently, however, both policy-makers and business and investment strategists were forced to rely on largely theoretical studies, supported by small-scale or at best national surveys of enterprises.

In the US, Japan and Southeast Asia, this remains the case. But in Europe the Commission, in collaboration with EU Member States, has embarked on a unique and ambitious project to gather data from enterprises in every region of the Union, in a common Community Innovation Survey (CIS). A pilot survey, CIS1, was conducted in 1992/93. A second, improved in the light of the pilot experience, is currently being carried out, and should be completed by mid-1998. Thereafter, the Commission intends to conduct the CIS on a regular basis, once every two or three years.

Policy-makers across Europe at all levels — EU, national, regional and local — will in future be able to base their deliberations on robust and comprehensive evidence.



# I. Developing Innovation Intelligence

**Innovation & Technology Transfer spoke to some of those who have collected, analysed and made use of the CIS data. What has been their experience of the CIS?**

In the Netherlands, a higher proportion of R&D is carried out in universities and institutes than in any other Member State. But its Ministry of Economic Affairs is keen to improve the efficiency of institutional-industrial technology transfer. Like Germany, it has for some time conducted its own national innovation survey, and has therefore had better data than most Member States. But before CIS1, inter-country comparisons were only possible at sector or macro levels.

"We wanted to know what type of innovation support structures and interactions had worked well elsewhere, in order to improve our own policy instruments," says the Ministry's Dr Theo Roelandt. "What makes the CIS database so valuable is that it enables us to compare the performance of our own structures and those of other countries, using firm-level data. That is something we have never been able to do before.

"Innovation theory told us that the interactions between a country's public knowledge infrastructure and its firms and knowledge suppliers is critical to its industrial performance. But this was an assumption rather than a fact. The actual data was scarce. The CIS confirmed the theory, and gave us a better understanding of the processes involved. The data cannot tell you exactly what to do, of course. But it stimulates constructive policy debate by highlighting areas of under-performance where policy intervention is called for, and by suggesting hypotheses which can then be researched in more detail on a case-study basis."

## Teething Problems

The Ministry used CIS data in a recent review of industrial and technological policy, which focused on initiatives to improve inter-firm collaboration. But Roelandt believes that its value would have been much greater, if not for methodological problems encountered in the pilot. "We made less use of it than we had hoped," he says. "But CIS1 was designed as a pilot, and one of its key

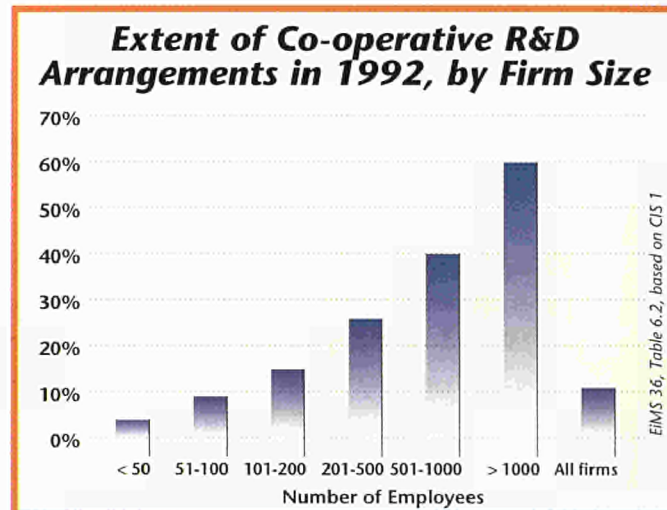
results was to highlight the difficulties of creating a single data set for all EU countries. We are very keen to see even better data coming out of the current survey."

The problems are of three kinds. First, which enterprises should be invited to participate? It is clearly important that firms of all sizes and from all sectors,

data would be improved if the CIS questionnaire omitted questions which firms have answered elsewhere," he says.

Georg Licht disagrees. "The survey does add to an already heavy administrative burden on business," he says. "But in most Member States data protection laws would prevent us from matching CIS data with that gathered for other purposes. It is essential that the CIS includes both financial and innovation data."

The third problem concerns the actual wording of the CIS questionnaire. "Take the word 'technology'," says Licht. "Not only does it have quite different meanings in German and in English. But different firms, particularly in the service sector, are likely to interpret it in different ways. For example, do a software house's products constitute 'technological innovation' or not? We should avoid a terminology which is oriented towards the manufacturing sector."



**The larger the firm, the more likely it is to be involved in collaborative R&D projects.**

both innovators and non-innovators, are represented in the sample. In CIS 1, for example, some countries focused on known innovative companies, which skewed their results upwards (see figure, page 21).

Second, what data should be collected, and in particular what financial data? Georg Licht of the Mannheim-based Centre for European Economic Research (ZEW) is responsible for the collection of CIS data in Germany. He admits that questions about innovation costs are time-consuming to answer, because these costs are not shown directly in a firm's accounts. But he says that firms themselves are acutely aware that their answers to simple multiple choice questions about their innovation activities are almost meaningless unless these are accompanied by detailed financial information.

Professor Sergio Cesaratto of the University of Rome, who used CIS data to carry out a detailed study of the impacts of innovation on employment in Italy (EIMS publication 37), believes that some financial data could more easily be acquired from accounts submitted to national authorities. "The quality of the

## Comparing Like with Like

Addressing these problems will be crucial to the long-term success of the Community Innovation Survey. The inter-country comparability demanded by policy-makers like Theo Roelandt can only be achieved if sampling methods, questionnaire design and — as far as possible — the wording of questions are all uniformly applied in all Member States.

The Innovation Programme's European Innovation Monitoring System (EIMS), which with Eurostat co-ordinates the CIS, acknowledges the shortcomings of the first survey. But it is confident that a firm foundation has been created for a European resource of steadily increasing value.

The selection of indicators in consultation with the OECD, the development of the database itself, the use of micro-aggregation as a means of anonymising enterprise-level data to safeguard commercial confidentiality, and the establishment of working methods by the EIMS, Eurostat and national statistical offices — these are solid achievements, and the difficulties revealed by the first survey are largely being addressed in CIS2.



## Context

## The CIS: Facts and Figures

### What is the Community Innovation Survey?

The CIS collects data on the innovation inputs and outputs of individual enterprises throughout the European Union. It measures the introduction of new or improved products and processes, taking into account innovations arising from industrial design and investment in new equipment, as well as those based on R&D.

### Who operates and funds the CIS?

The CIS is a joint initiative of the Statistical Office of the European Communities (Eurostat) and the European Innovation Monitoring System (EIMS), part of the Innovation Programme. Each Member State funds its own national innovation survey. EIMS and Eurostat contribute to the cost of the additional work required to ensure that data is comparable at European level.

### How is data collected?

The first pilot survey (CIS1) was carried out in 1992/93, using a common questionnaire developed by Eurostat, based on the OECD's Oslo Manual methodology. Data was collected from 40,000 enterprises in the then twelve countries of the EU, as well as in Norway and Iceland. Enterprises were selected at random from groupings made according to size and activity, and contacted directly by the national co-ordinator, normally the national Statistical Office.

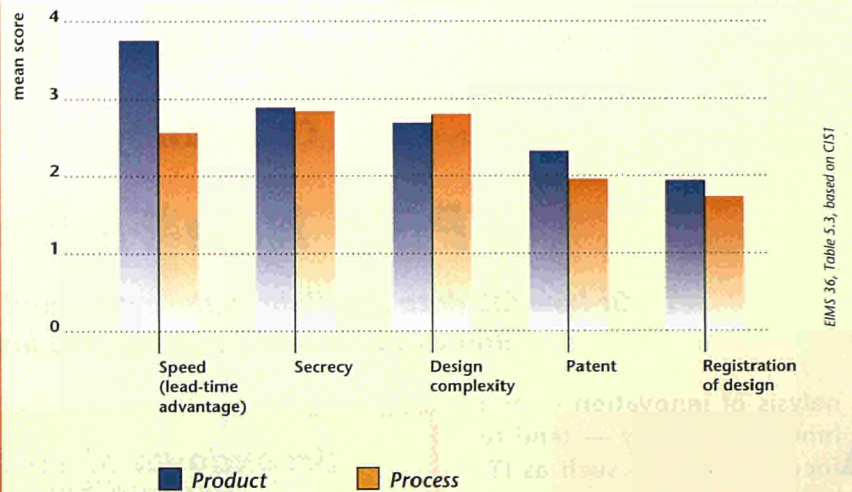
### Data on an enterprise's innovation activities could be commercially sensitive. How is confidentiality protected?

The data provided by participating enterprises is seen only by national co-ordinators and Eurostat. Before it is made available for analysis it is anonymised using a technique called *micro-aggregation*.

### How is CIS data used?

The CIS is designed principally to provide information for the development of innovation policy at EU, Member State and regional levels. The EIMS

### Effectiveness of Different Forms of Protection for Product and Process Innovation



**Speed to market is widely regarded as the most effective means of protecting the competitive advantage gained through product innovation.**

commissions studies from consultants and academics, and has published over 50 reports on innovation-related topics to date, of which about half are based on CIS data.

### Do participating enterprises themselves benefit?

In most Member States, the survey relies upon the voluntary contribution of time and effort by business managers. But the European business community as a whole should benefit greatly from improved understanding of the scale, processes, requirements and impacts of technological innovation. Successive surveys will make it possible to identify trends, to anticipate changing needs, and to improve the targeting and delivery of support.

### Are the findings of studies based on the CIS data available to anyone?

Most of the study reports are available, free of charge, from the EIMS. In addition, Eurostat can provide researchers wishing to carry out their own analyses with much of the underlying anonymised data. It has prepared a

CD-ROM with over 7,000 of the most significant data tables.

### CIS1 was a pilot. What lessons have been drawn from that experience?

Pan-European monitoring of technological innovation was found to be both feasible and worthwhile. On the other hand, further standardisation of sampling techniques, questionnaires and data processing is still required. Additionally, greater effort is needed to feed survey results back to participating enterprises.

### How will these lessons be applied in the future?

The second Community Innovation Survey (CIS2) was launched in 1997, and is currently being carried out in the 15 EU Member States, Iceland and Norway. Strict co-ordination of the work will ensure higher levels of comparability between national data.



## II. Intelligence in Demand

**How do enterprises themselves view the CIS, and what practical benefits do they hope to gain from it?**

There is no question about the demand for the CIS, either among policy-makers or in the business community itself. Data tables are requested primarily by economists, including those commissioned by EIMS to produce reports (see 'The CIS: Facts and Figures'). But the reports themselves are

not only read by universities, researchers and consultants. Over 30% of orders come from trade associations and individual firms, with interest in the sectoral studies especially strong.

Georg Licht says that although only a minority of firms will make use of such reports, many would be extremely

interested in what the CIS can tell them about their own sectors, and those of their customers. "Innovative companies in particular like to compare themselves with their European competitors, and would welcome benchmarking data — for example in relation to innovation costs. They are also keen to learn from

### Case Study

## Pulp Non-Fiction

**Or how CIS data highlighted the extent and importance of innovation in a hitherto ignored industry.**

Analysis of innovation — and innovation policy — tend to focus on sectors such as IT, biotechnology, and pharmaceuticals, which make large investments in formal R&D. Those which themselves perform little R&D are conventionally regarded as low-technology industries, and are often neglected in policy terms, although they still generate the bulk of European output and employment.

*Innovation Activities in Pulp, Paper and Paper Products in Europe*<sup>(1)</sup>, one of a growing number of sectoral studies based on CIS data, challenges the accepted view that low direct investment in R&D necessarily produces low levels of innovation.

The pulp and paper sector is technology intensive, and maintains competitiveness through innovation, even though its technological inputs come mainly from outside the industry, the report says. As a proportion of turnover, sales of products introduced in the past three years range from 20 to 45%, compared with a range of 15 to 70% for European industry as a whole.

The industry's innovation activities encompass R&D, especially in large firms, but non-R&D activities are particularly important. These include both product design and processes linked to the installation of new equipment, such as trial production, tooling up and training. The sector uses very advanced research and very advanced technologies, but does so on the basis of a com-

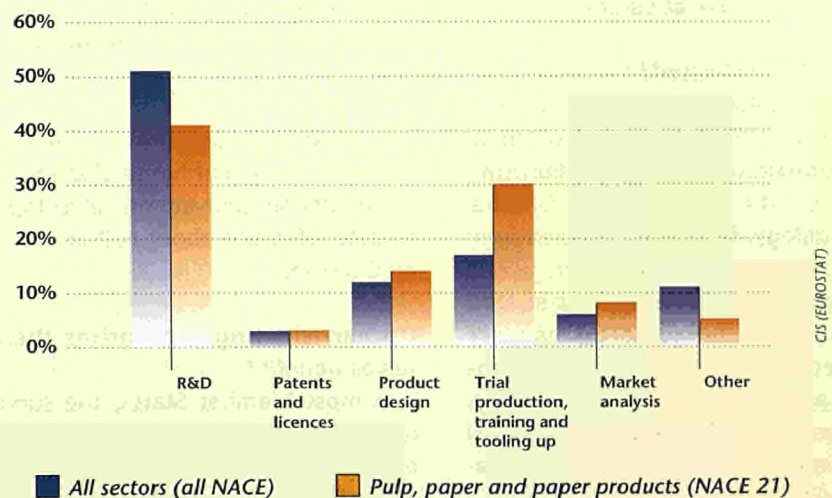
plex network of interactions — with technology suppliers such as the specialist manufacturers of process machinery, and with materials suppliers, consultants, technical institutes and universities.

Prior to the CIS, such non-R&D sources of innovation were largely hidden from policy-makers. Pulp and paper, and pulp and paper products, constitute a large and growing global market. In the years to come the industry's competitiveness will depend upon continued

technological innovation, especially as it faces increasing regulatory pressure to adopt new, environmentally sustainable technologies. The report concludes that the sector deserves greater policy attention, but that this should aim to strengthen the institutions and networks which underpin its innovative activities, rather than to support the R&D activities of specific enterprises.

(1) *Innovation Activities in Pulp, Paper and Paper Products in Europe*, (CIS) 1997, Helsinki University — EIMS publication No. 40.

**Breakdown of Total 1992 Innovation Expenditures, by Category**  
(Belgium, Denmark, Luxembourg and the Netherlands)



**The installation of new equipment accounts for a higher proportion of innovation expenditure in the pulp and paper industry than in other sectors.**



## Case Study

**Information for Innovation***What role does information play in innovation?*

**T**echnology Transfer, Information Flows and Collaboration<sup>(1)</sup> uses CIS data to explore information's critical role in innovation, and examines both competitive and collaborative technology transfer processes.

Findings included:

■ Although less important than financial barriers in most countries, lack of information is a key constraint on innovation. Lack of information about markets is generally a more significant factor than lack of information about technologies (see chart).

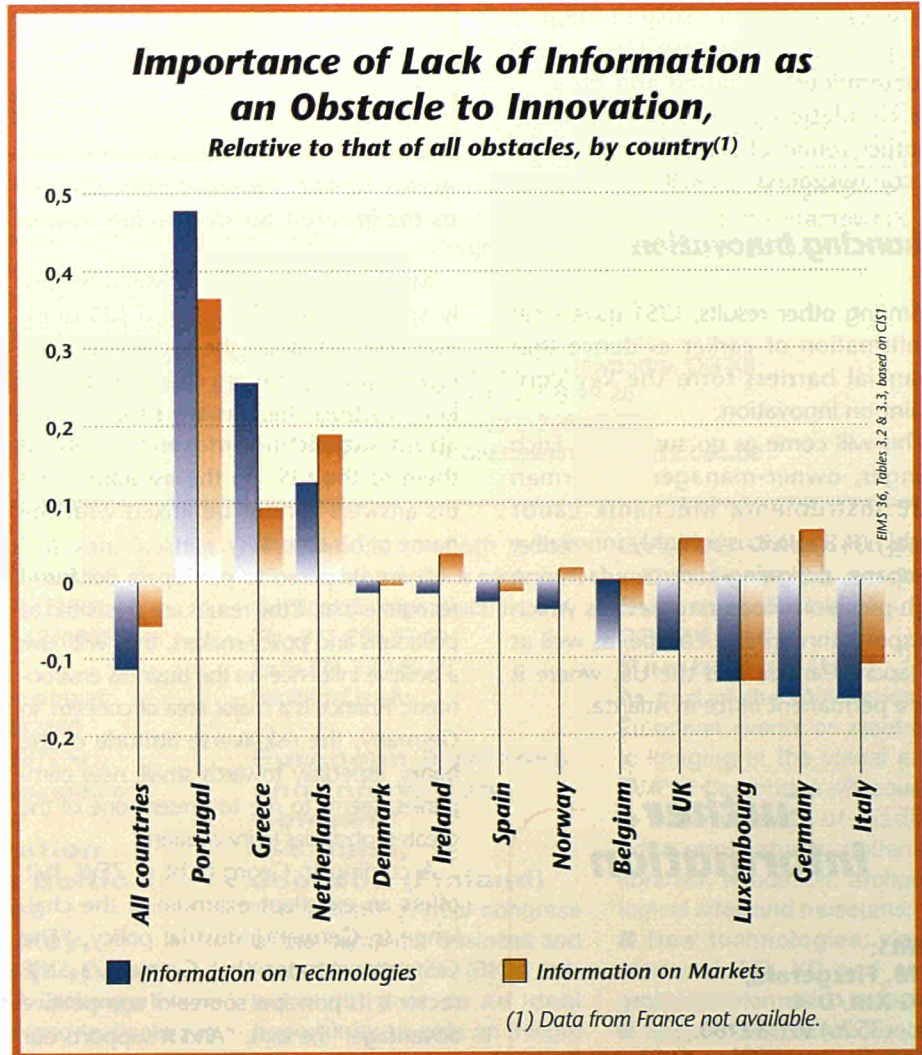
■ R&D is not the only form of expenditure relevant to innovation. Firms also invest in patents and licences, product design and market analysis. Indeed, as R&D spending rises, *non*-R&D expenditure rises even faster.

■ Suppliers of materials, equipment and components, and clients and customers, are key sources of information in support of innovation, although internal sources remain the most important. Buyer-supplier relationships are thus a significant component of successful innovation.

■ Larger firms attach greater importance to information than smaller firms, in particular making much greater use of patent disclosures as an information source.

■ The main technology transfer mechanisms are consistent between countries — the principal source of technology inflows is the purchase of equipment, and the principal mechanism for outflows is communication with, and services provided to, other enterprises. Contracted-out R&D is also a significant means of technology acquisition.

■ Innovative firms tend to be members of broad innovatory networks, rather than stand-alone units. These networks are primarily national and regional, although some countries — notably, Belgium, Luxembourg and Ireland — are better integrated into European networks than others.



**Innovative firms tend to be members of national and/or regional innovatory networks. The data show that some countries are better integrated into European networks than others.**

■ Co-operative R&D agreements are widespread, but increase with firm size. Less than 5% of firms with under 50 employees, but 60% of those with 1,000 or more, have such agreements.

■ Innovators are much more likely to be involved in collaborative R&D than non-innovators. Co-operation may stimulate (or may be stimulated by) innovation.

■ 48% of co-operative arrangements are with enterprises in the same region, 24% with those in the same country,

and 9% with those in other EU Member States.

(1) Technology Transfer, Information Flows and Collaboration (CIS), 1996, Manchester School of Management — EIMS publication No. 36.



successful innovators about which transfer mechanisms and which sources of information are most helpful for different kinds of innovation. These are outputs which the CIS is uniquely equipped to provide."

Licht believes that faster feedback of CIS results to industry, and especially to participating firms, would improve the survey response rate. The EIMS, too, recognises that increasing the value of the survey to firms is likely to improve the quality of the data they return, and is determined to hasten and broaden the circulation of results from CIS2. Another round of research studies will be commissioned in 1998.

## Financing Innovation

Among other results, CIS1 gave clear confirmation of earlier evidence that financial barriers form the key constraint on innovation.

This will come as no surprise to Erich Hunger, owner-manager of German SME Instrumenta Mechanik Labor GmbH (IML). IML is a highly innovative company, designing and manufacturing high-precision measuring devices which it exports throughout Europe, as well as to Japan, Canada and the US, where it has a permanent office in Atlanta.

## Further Information

### EIMS:

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mary.fitzgerald@lux.dg13.cec.be

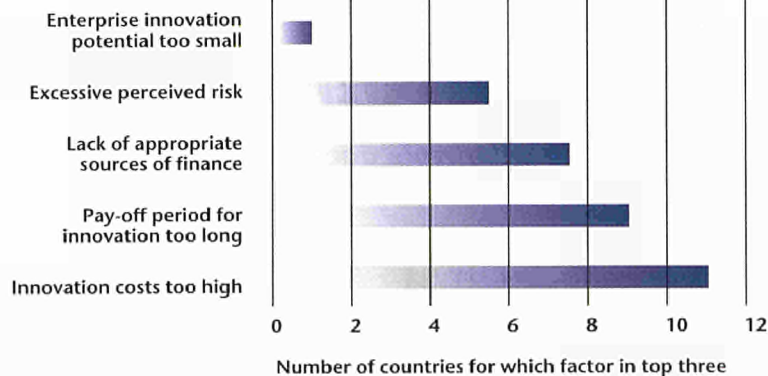
■ **EIMS Reports**  
(most are freely available):  
Fx. +352 4301 34544  
digna.amil@lux.dg13.cec.be  
<http://www.cordis.lu/eims/home.html>

### Eurostat:

■ **M. Pino**  
Fx. +352 4301 34149  
maurits.pino@eurostat.cec.be

■ **Micro-aggregated CIS data, including the CD-ROM**  
Eurostat Data Shop, Luxembourg  
Tl. +352 43 35 22 51  
Fx. +352 43 35 22 221  
agnesn@eurostat.datashop.lu  
<http://europa.eu.int/en/comm/eurostat/serven/home.htm>

## Principal Obstacles to Innovation



EIMS 36, Table 3.1, based on CIS1

**Across Europe, financial difficulties or concerns were perceived by firms as the greatest barriers to innovation.**

Mr Hunger says that he would willingly spend time completing a CIS questionnaire. Although the secrecy of IML's development plans are critical to its market position, he has no reservations about submitting information about them to the CIS, on the assurance that his answers cannot be linked with the name of his company.

"I am prepared to participate because I recognise that, if the results are presented to politicians and policy-makers, they will have a positive influence on the business environment. Finance is a major area of concern. In Germany, the risk-averse attitude of the banks, especially towards small, new companies, seems to me to present one of the greatest obstacles to innovation."

According to Georg Licht of ZEW, IML offers an excellent example of the challenge to German industrial policy. "The CIS demonstrates that Germany's SME sector is its principal source of competitive advantage," he says. "And it supports our conjecture that what prevents SMEs from innovating is primarily inadequate access to appropriate finance. The problem may be greater still in other Member States. It is clear that the financial markets do not function as well as we could wish."

Licht points out that the CIS cannot tell governments how they ought to intervene to ease the financial bottleneck, nor demonstrate that any particular intervention would actually work. But he believes that the new data provides the basis for a thorough review of the role of financial institutions in innovation. And he welcomes the Innovation Programme's recent EU-level pilot initiative, I-TEC, designed to stimulate early-stage venture capital investment in high-tech companies<sup>(2)</sup>.

"The firms which find it hardest to attract the backing they need have not usually begun to export, but are still operating in purely national markets," he says. "They look to local and national institutions for information and money. The I-TEC pilot, which will channel targeted resources also through smaller, specialist venture capital funds, is especially welcome."

## Making a Difference?

In fact, EIMS studies based on CIS data were heavily relied on by the Commission in the preparation of the Green Paper on Innovation, which in turn led to the Action Plan for Innovation, out of which the I-TEC scheme grew. The Innovation Programme will doubtless examine the results of future CIS surveys closely for evidence of the scheme's impact.

The same is true at national level, according to Theo Roelandt. "We used CIS data to get a picture of the problems faced by particular sectors," he says. "For example, we found that the Dutch construction sector has high levels of process innovation, but rather low levels of product innovation — and we would like to adjust this balance in favour of new products. CIS1 data on 1992 performance provides a very useful baseline. Now we are keen to use CIS2, and future surveys, as a source of feedback on the enterprise-level impacts of our policy initiatives." □

(1) The charts in this article illustrate the range and power of the CIS data, but are based on individual researchers' interpretations. Inter-country comparisons, in particular, should be viewed as indicative only.

(2) See edition 1/98.



## ► CONFERENCES

### **Challenges and Opportunities of the Digital Age** 6-8 April, Birmingham (UK)

The UK Department for Culture, Media and Sport and the European Commission are organizing a major European conference on audiovisual industries and policies. A highlight of the UK Presidency of the EU, the conference will provide a timely opportunity to look at new technologies and their impact, and to propose new directions.

**Contact:** BSAC Event Ltd  
 Tl. +44 171 49 94 177  
 Fx. +44 171 30 60 329  
 BSACouncil@aol.com

### **Industry / Academic Links** 14-15 May, Coventry (UK)

The UK Presidency of the Council of the EU is organising a major conference to exchange best practices, information and ideas on encouraging closer partnerships between industry and academia.

Opened by John Battle, UK Minister for Science and Technology, it will bring together some of Europe's leading policy makers, academics and industrialists. Edith Cresson, Commissioner responsible for research, innovation, education, training and youth, is expected to give the keynote address.

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 Tl. +44 171 2716523  
 Fx. +44 171 2154127  
 frances.russell@osct.dti.gov.uk

### **Innovative Technologies for Textiles** 14-15 May, Istanbul (Turkey)

Participants in this EUREKA Brokerage Event are expected to arrive with concrete ideas for future cooperative research projects, in order to ensure the best chance of successful discussions. Likely themes will include design processes and techniques, product development, production, environment and marketing.

### **Women in Science** 28-29 April, Brussels

The 'Women in Science' conference is being organised by the Commission and the European Parliament to formulate concrete actions to promote equality of opportunity in science, particularly within the Fifth Framework Programme, which will get under way this year.

After opening presentations from the Parliament and experts in the field, the first Round Table will bring together a number of eminent women scientists and engineers to outline both the problems women face pursuing a scientific career and the contributions that women can make to research.

More research presentations will follow on the second day, including one from Christine Wenneras, a member of the Swedish research team which shocked the world last year with their finding that women scientists in Sweden need to be 2.5 times more productive than their male counterparts to get the same peer review ratings.

This will be followed by a second Round Table - chaired by John Battle, UK Minister for Science, Energy and Industry - this time assembling research policymakers from around Europe. The aim will be to exchange national experiences in tackling the problem and to recommend measures to encourage equal opportunity in research. An open session, where participants can take the stand, will follow.

The conference will finish with conclusions from both the Parliament and the Commission, where Mme Cresson, the Commissioner responsible for research, education and innovation, will outline an agenda for equal opportunity in the Fifth Framework Programme (see editorial, page 2).

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 Fx. +90-312-4274305  
 ■ J. Duarte, EUREKA Secretariat  
 Tl. +32-2-2292240  
 Fx. +32-2-2187906  
 Http://www.eureka.be

### **Co-operation with the Baltic Countries** 25 - 26 May, Jurmala (Latvia)

This EUREKA Brokerage Event will focus on food technologies and information and communication (ICT) technologies. It is being supported by thirteen countries (ranging from the Baltic and Scandinavian countries to Turkey) as well as the European Commission, and aims to provide both companies and research organisations from all over Europe with the opportunity to meet and lay the foundations for future technological and business partnerships in the Baltic countries.

Thematic workshops in the food sector are oriented towards processing technologies, packaging and quality control. In the ICT workshops, the main focal points are multimedia, telecommunications services and equipment, and

IT solutions for both industries and the service sector.

**Contact:** E. Kowaltschuk, BIK  
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### **European Business and Innovation Centres**

#### 4-5 June, Joensuu (Finland)

The seventh annual congress of the European Business and Innovation Centres (BICs) network will provide an ideal opportunity to gain an insight into the current and future potential of the network, which now comprises some 150 BICs. Working methods and instruments will be reviewed and updated, and participants will have the opportunity to meet other regional and development players and to form and consolidate professional relationships.

**Contact:** Congress '98 European BIC Network  
 Fx. +32 2 772 95 74  
 http://www.citizen.be/ebn

### **EVA'98 Cambridge - Conference and Summer School** 23-24 July, Cambridge (UK)

As part of the EVA series of European events on electronic imaging in the visual arts, EVA'98 Cambridge will cover:

- Case studies of leading edge applications: galleries, libraries, education, archaeological sites and museums;
- New technologies: visual retrieval, 3D, VR and geographical information systems;
- Socio-economic and socio-technical approaches;
- Millennium projects;
- Cross-border collaborative projects: North-west Europe and Atlantic coast;
- From visual arts to the performing arts.

It will be followed by five days of summer school sessions (27-31 July), which will look at new applications and technologies and address a number of management issues. The event will include a workshop on financial investment in culture and technology.

**Contact:** VASARI Enterprises  
 Tl. +44 1252 35 07 80  
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 jamesrhemsley@cix.compulink.co.uk



► PUBLICATIONS

**PROSOMA ESPRIT: Turning Innovation into Business**

PROSOMA ESPRIT has been launched by the Information Technologies (ESPRIT) programme to improve the programme's industrial impact by promoting innovation and technology transfer of ESPRIT project results. Two showcases are now available:

■ **CD-ROM Showcase:** three CD-ROMs containing details - text, pictures, video, animations, audio and software demonstrations - on over 250 research results;

■ **Web Showcase:** based on the same information as the CD-ROM, but updated weekly and presented mainly through text and pictures. The Web showcase also allows direct links to the CORDIS RTD-Results service, which provides information on research results in all fields of Community-funded research.

**Contact:** PROSOMA ESPRIT Operations Desk  
 Tel. +352 441 012 23 00  
 Fax. +352 441 012 22 58  
 info@prosoma.lu  
 http://www.prosoma.lu/

**EC Activities for SMEs**

ISBN 92-78-27705-3; 16 ECU

The EC's fourth report on the coordination of activities to assist SMEs and the craft sector gives an overview of all EU activities, both those aimed at improving the business environment for SMEs and the programmes and measures giving support to SMEs.

These include support measures (e.g., networks for assisting SMEs), programmes which support international 'partner search' meetings, other programmes and measures which provide significant support to SMEs (e.g., the Fourth RTD Framework Programme, the Structural Funds) and the European Investment Bank (EIB).

**European Research Fellowships 1987-1993**

This booklet outlines the results of a survey carried out on the impact of European research fellowships awarded between 1987 and 1993 within the framework of the Human Capital and Mobility (HCM) programme - predecessor of the current Training and Mobility of Researchers (TMR)

programme - and by the various specific research programmes.

It provides an insight into the experiences and views of fellows, supervisors and administrators, and gives an overview of how fellowships work, on the number of people involved, and on how the fellows and their supervisors perceived the fellowships and their benefits in terms of future career opportunities.

**Contact:** DG XII/G-3  
 200 rue de la Loi (SDME 3/46)  
 B-1049 Brussels

**Proceedings: Innovation Measurement and Policies EUR 17019EN, 31.5 ECU**

The proceedings of an international conference on "Innovation measurement and policies", held in Luxembourg in May 1996 by the Innovation Programme and EUROSTAT to bring researchers, policy makers and practitioners together to discuss innovation.

The major topics included the initial results of the first Community Innovation Survey (CIS - see Dossier), the policy

Publications are free unless otherwise stated. If specific contact information for obtaining a publication is not supplied, and there is a price listed in ECU, then the publication can be purchased from the sales and subscription office in your country of the Office for Official Publications of the European Communities (Eur-OP). Addresses can be found in most EC publications, on the WWW (<http://eur-op.eu.int/en/general/s-ad.htm>) and by contacting Eur-Op (fax: +352 2929 42759).

implications of innovation research, and the types of innovation indicators needed to meet future needs. The proceedings provide an overview of the policy-relevant results which can be drawn from the CIS, demonstrating how the CIS has made a substantial contribution to innovation measurement and has provided researchers with new indicators at the firm level for firms across Europe.

**SUBSCRIPTION FORM**

**INNOVATION & TECHNOLOGY TRANSFER IS FREE**

- Keep up to date on all EC actions relevant to innovation and technology transfer: General Policy News, News from the Innovation Programme, Results and Activities of the Specific Programmes, Case Studies, Upcoming Conferences, New Publications.

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