Innovation & Technology Transfer 2/94

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SPRINT: An Innovative Programme Profiled

+ 'WHITE PAPER': INFRASTRUCTURE TASK FORCES • VALUE NEWS • ESPRIT CASE STUDY • AND MORE

DG XIII-D

Directorate for Dissemination and Exploitation of RTD Results, Technology Transfer and Innovation

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Management Changes for SPRINT and VALUE

Technology transfer, innovation, exploitation and dissemination are seen much more clearly to be vital components.

DR. A. S. STRUB, THE COMMISSION'S *Director responsible for Dissemination and Exploitation of RTD Results, Technology Transfer and Innovation, transferred to a new post on 15 March. He is now Chief Adviser to the Director-General for Industry (DG III).*

DR. STRUB BECAME THE DIRECTOR *for Dissemination and Exploitation in 1987, following a distinguished career in the Science, Research and Development Directorate-General (DG XII), where he played the key role in creating the renewable energy programme, which became a major theme in the European Community's R&D programme. He has also held posts at the Joint Research Centre and in the Cabinets of Members of the Commission responsible for research.*

AS DIRECTOR FOR DISSEMINATION AND EXPLOITATION, *Dr. Strub has had overall responsibility for the SPRINT and VALUE programmes. He has been instrumental in building these programmes up to the prominent position which they occupy today. Dr. Strub is a dedicated, and vocal, partisan of the view that research on its own is not enough. Through his advocacy, technology transfer, innovation, exploitation and dissemination are seen much more clearly to be vital components which must be built into any research policy worthy of the name. He now has the satisfaction of seeing that one of the four main Activities of the Fourth Framework programme (see issue 1/94) is founded on the ideas which he has promulgated (although the financial resources allocated to them are likely to prove less than he would have wished).*

DR. STRUB HAS BEEN A POPULAR DIRECTOR, BOTH *with his staff and with the wider innovation and technology transfer community. All who have been in contact with him have been impressed by his enthusiasm and his breadth of knowledge and experience of the European R&D scene.*

DR. G. GRATA, PREVIOUSLY CHIEF ADVISER IN THE *Information Technologies Directorate of DG III, has replaced Dr. Strub. Dr. Grata has also been Head of the Unit responsible for the microelectronics part of the ESPRIT Programme.* ■

► TRANS-EUROPEAN NETWORKS

Modern Infrastructure for Growth

Commission President Jacques Delors' White Paper (1), published at the end of last year, is already making an impact on European Union (EU) policy and planning.

Clear evidence of this is the establishment of two task forces under the chairmanship of Commissioner Martin Bangemann (Industrial Affairs, Information Technologies and Telecommunications) and Commissioner Henning Christophersen (Economic and Financial Affairs, Monetary Matters, Credit and Investments, Statistical Office).

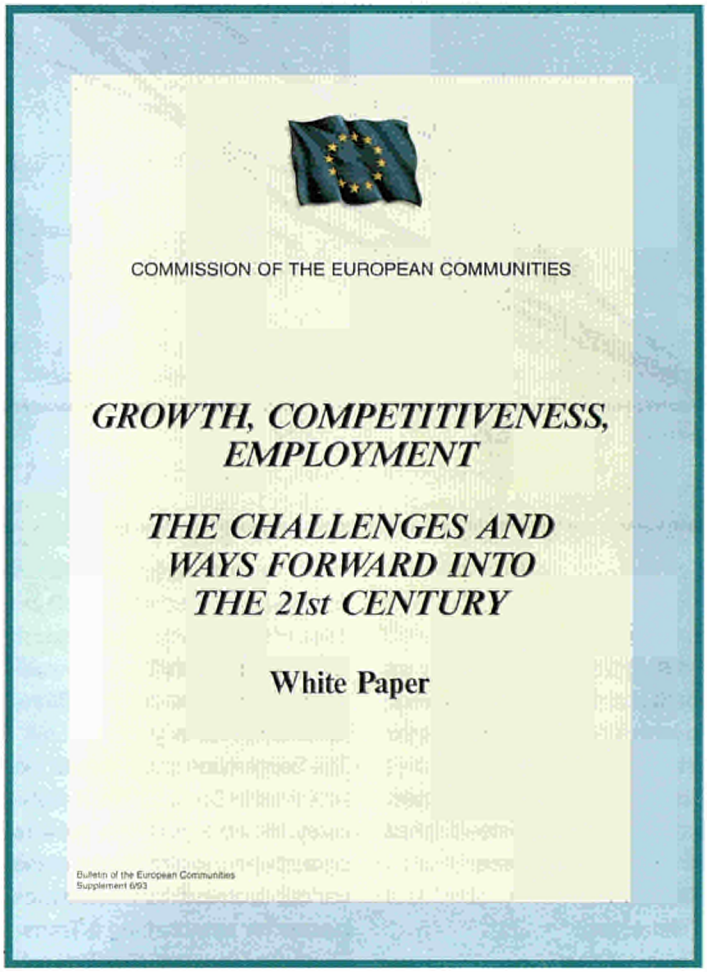
These task forces will pave the way towards the Trans-European Networks in telecommunications, transport and other infrastructure needed to help European industry effectively exploit the benefits of the Single European Market.

Economic and Social Challenges

The White Paper is the Commission's response to the EU's unemployment crisis. It envisages the creation of 15 million jobs between now and the end of the decade, by "making employment policy the centre-piece of our overall strategy".

It is a statement of economic policy which assesses the need to develop Europe-wide infrastructures embracing the most advanced information and communication technologies. The White Paper also formally reaffirms the importance of mobilising and coordinating R&D efforts towards clearly defined economic goals.

R&D and the effective use and implementation of technology, closely harnessed to macroeconomic and industrial policies, therefore form a central tenet of the report. The development of Trans-European networks, consisting of well-planned and coordinated infrastructure, lies at the heart of this approach.



The EC's 'White Paper' - Growth, Competitiveness, Employment - The Challenges and Ways Forward into the 21st Century

New Models for Development

The White Paper, while acknowledging the impact of rapid technological innovation on jobs, points to technical progress as presenting definite opportunities for growth and employment. It believes that a new development model, which takes into consideration issues such as social adjustment, the preservation of rural areas and the environment, is the sort of 'sustainable development model' that the EU should be working towards.

To achieve this the White Paper highlights the need to create a European economy which is healthy, open and decentralised. It identifies five priorities to achieve this:

- Making the most of the single market;
- Supporting the development and adaptation of small and medium-sized enterprises;
- Pursuing the social dialogue that has, to date, ensured fruitful cooperation and joint decision-making by both sides of industry;
- Creating major European infrastructure networks;
- Preparing for and laying the foundations of the information society.

Creating the Information Society

This last point - fostering an information society - is the focus of an Action Plan within the White Paper, which pinpoints five priorities:

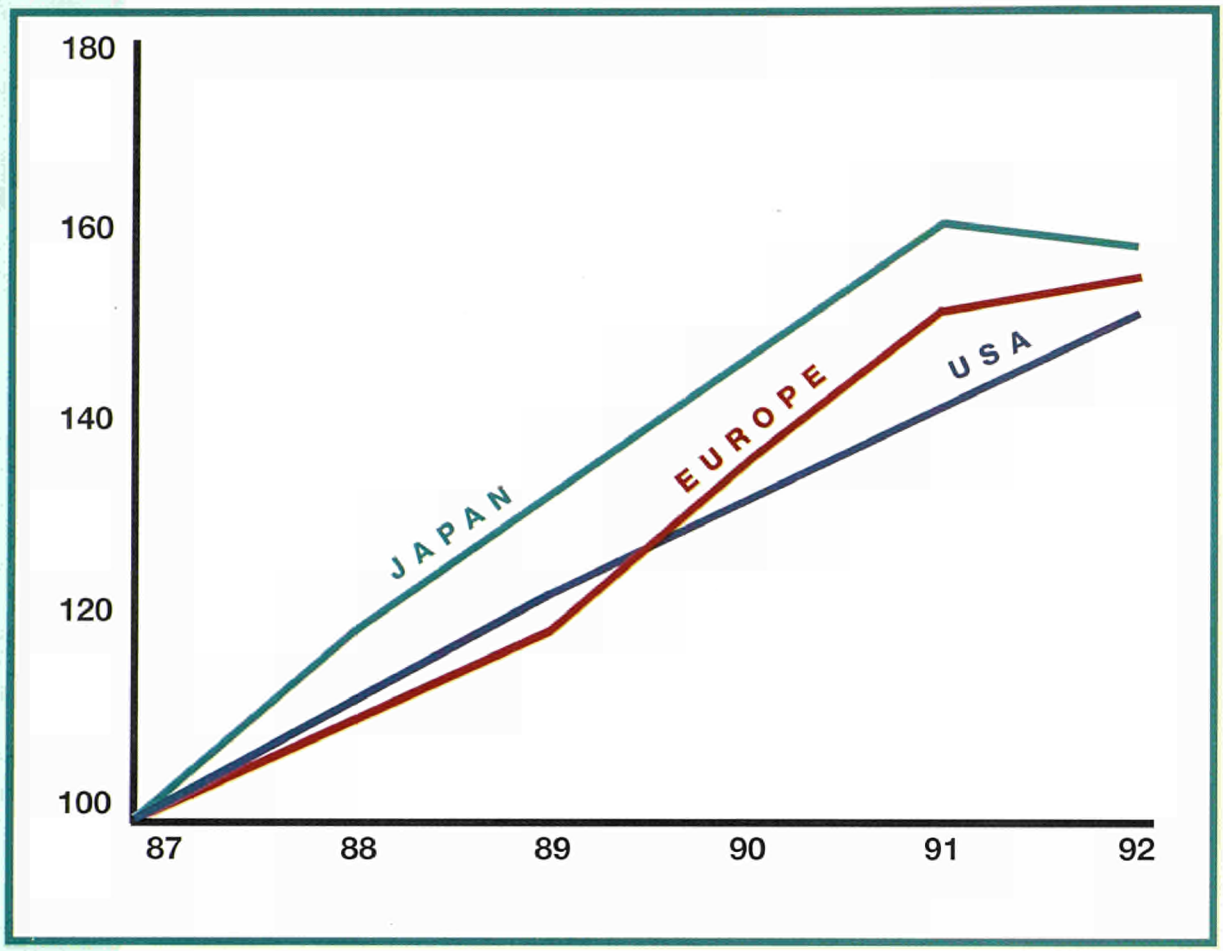
- Promote the use of information technologies;
- Provide basic trans-European services;
- Create an appropriate regulatory framework;
- Develop training in new technologies;
- Improve industrial and technological performance.

The 'Bangemann group' is the lynchpin of this strategy. This group of industrial and other experts is laying the foundations for the planned 'information highways', which are envisaged as part of the Trans-European Networks.

They seek to create information networks modelled on the same principles as a motorway system, with highways, access roads, service areas and highway users.

Telecommunications ●●●

(1) 'Growth, Competitiveness, Employment - The Challenges and Ways Forward into the 21st Century', COM (93) 700 of 5-12-1993, published as Supplement 6/93 to the Bulletin of the European Communities.



As the White Paper points out, future trends in European corporate expenditure in R&D are worrying.

●●● infrastructure, such as broadband optical fibre networks, will form the physical basis of the system.

This new information and telecommunications framework has four priority applications:

- Teleworking;
- Teletraining;
- Telemedicine;
- Links between administrations.

To make these plans a reality it is estimated that 150 billion ECU will be needed over the next ten years, with 67 billion ECU needed between 1994 and 1999 for priority projects. Most of this will come from private investors, with national and Community funding playing 'marginal' and 'incentive' roles.

The bulk of this EU funding will come from the Structural Funds, the research programme, EIB loans and European Investment Fund guarantees, as well as other new financial mechanisms.

Important Groundwork Underway

The Bangemann group met for the first time in Brussels on 15 February. A work programme was agreed upon, and the views of the various professionals on the proposals for establishing a Trans-European telecommunications network were gathered.

The group is examining issues such as the interoperability of technical standards and the accessibility of networks, taking into account intellectual property. It is also looking at how the concept of information highways is being tackled in the United States, where one of its meetings was recently held.

Two sub-groups were established to ensure that the group's recommendations would be "practical, rather than theoretical or philosophical". The first group will be headed by Mr Carlo de Benedetti (President of Olivetti), and will deal with economic aspects, such as the creation of new markets, new ways of using technologies and the development of new communication networks.

The second, headed by Mr Etienne Davignon (Société Générale, Belgium), will deal with political problems, such as the regulatory and political framework of the EU and its Member States.

The Group will report to the European Council meeting in Corfu this June.

The Christophersen Task Force consists of the personal representatives of the heads of government. Its remit is to overlook the implementation of the infrastructure programmes in the field of energy and transport, ensuring their efficiency, consistency and speed.

The Group met for the second time on 21 February in Brussels. Discussions concentrated on transfrontier projects in 'traditional' transport sectors - especially road networks.

Each Member State representative pointed to the projects they favoured, or wished to see eliminated, on the basis of cost and their country's particular interests. Initial conclusions were drawn up by Mr. Christophersen at the third meeting on 11 March, which discussed energy and telecommunications networks.

Financial issues will not be dealt with until the final lists for the three sectors are in existence. Before that, the Group is due to present an interim report at an informal meeting of Finance Ministers in Athens on 8-10 April.

R&D: A Cornerstone of Economic Growth

The White Paper also regards research and development as vital for generating economic growth and creating employment.

It is anticipated that research efforts, both at national and Community levels, will be stepped up, involving a greater degree of co-operation between companies. This, it is said "will gradually become a basic principle, not just one aspect" of Community R&D policy.

The Commission will propose that Member States implement this new form of vertical cooperation on the basis of a restricted number of large joint projects in the following fields:

- New information technologies ;
- Biotechnology;
- Ecotechnologies.

Overall coordination between the national public research bodies is emphasised. For example, a forum for concertation and exchanges between the various European research bodies and centres is suggested, as is a science and technology assembly to encourage the development of concerted strategies linked to the Community's activities.

► FOURTH FRAMEWORK PROGRAMME

Ironing Out Details

The process of reaching agreement on the Fourth R&D Framework Programme (see Policy News, issue 1/94) has moved into its final stage, involving intensive contact and negotiations between the Community's institutions.

The Fourth Framework Programme (1984-1988) is the first European instrument being developed and finalised under new procedures specified by the 'Maastricht Treaty' on European Union.

Following the Commission's original proposal, the Council of Research Ministers had arrived at a common position by mid-January, specifying an overall figure of 12 billion ECU with a reserve fund of another billion possible after a review in 1986.

The European Parliament, however, called for a budget of 12.4 billion and a guarantee of the reserve fund, as well as diverging from the Council on certain aspects of the specific programmes, the Joint Research Centre (JRC) and the distribution of funds.

On March 4, the first Research Council meeting held under the Greek Presidency failed to overcome the differences between these two positions, which are, compared to the overall figure, fairly minor.

This in turn activated the 'conciliation procedure' required by the Maastricht Treaty. Following the Research Council meeting, a Conciliation Committee involving the two institutions met in the afternoon. Although agreement was not reached, the Greek Presidency said afterwards that the basic substance of the European Parliament's proposals were acceptable. However, the Council felt that it was unwise to make more funds available in the current budgetary climate.

Commissioner Ruberti, the Commissioner responsible for Science, Research and Development, pointed out that as the Programme was originally proposed last June, it could still be finalised in record time. The gap has now been narrowed to such an extent that it is widely expected by all sides that the programme will be up and running by the end of the year. *(See "Stop Press", p. 24)*

► MISCELLANEA

Names After Maastricht

With the coming into force of the 'Maastricht' Treaty on European Union, the names of various European institutions have changed:

- The 'European Economic Community' (EEC) has become simply the 'European Community'. The names of the two other Communities - the European Coal and Steel Community (ECSC) and the European Atomic Energy Community (or Euratom) - remain unchanged.
- The name 'Commission of the European Communities', instituted under the 'fusion' Treaty which merged the executives of all three Communities in 1967, is also unchanged. However the shortened form - 'European Commission' - can be used in all but legal contexts.
- The Council has also decided to change its full name to 'Council of the European Union'.

The European Union established by the Treaty is founded on the three original European Communities (EEC, ECSC and Euratom), supplemented by further policies and forms of cooperation. These are, notably, a common foreign and security policy, and close co-operation on justice and home affairs. In the Treaty on European Union, research and technological development (RTD) are covered in the form of amendments to the EEC treaty.

► TECHNOLOGY TRANSFER DAYS

Growing Experience in Ireland and Spain

The past months have seen a wide range of Technology Transfer Days held by VALUE Relay Centres across Europe for different industrial sectors. Together they represent an impressive body of experience on promoting technology transfer.

Being regional organisations linked in a Europe-wide network, the VRCs are ideally placed to help their local industries access the wider world of European R&D. This is particularly important for SMEs.

Each Technology Transfer Day (TTD) is different, 'customised' to the varying demands of the industrial sector involved, the local business climate and traditions and so on. However, all share similar aims and use similar resources, so each VRC can learn from the others' experiences.

Biotechnology in Cork

In Ireland, for example, the Irish Science and Technology Agency (Forbairt) has recently held Technology Transfer Days on the agri-food sector (January 20) and telecommunications technologies (February 4).

The first event was held at the National Food Biotechnology Centre, in University College, Cork, and was attended by all the major agri-food producers in the country. They saw presentations by representatives from 6 projects within the EC's FLAIR Programme, ranging from the genetic manipulation of lactic acid bacteria to applying probotic bacteria to fermented milk products. Researchers came from Ireland, the Netherlands and France.

In addition, there were complementary presentations by the VRC on intellectual property issues, financing mechanisms, the VALUE Programme, FLAIR/FLOW (a specific project of the FLAIR and VALUE Programmes for disseminating results) and the Irish National Biotechnology Centre.

Forbairt staff had participated in similar events in Italy and Germany, and applied the lessons learnt there to their own TTD. These lessons included:

- focus on one sector: both the projects and the participants were carefully selected to be relevant to a specific subject;
- limit the duration of the presentations, and ensure that they follow a common, but flexible, format;
- encourage the speakers to summarise the technical details and emphasise the market and commercialisation aspects;
- limit the audience to a workable size, capable of interacting easily with the contractors;
- liaise closely with national technology transfer activities and collaborate with local high-profile bodies when preparing the event;
- provide good quality presentations in an informal atmosphere to encourage discussion;
- organise the programme to finish in one day, preferably by 4pm.

The result? According to John Brady of Forbairt, "we had hoped to limit the audience to 35, but in the end we had almost 50 participants. Fortunately, this turned out to be a reasonable figure. As for the overall reception, everyone was very pleased at the extensive coverage. However some found the sheer volume of material, presented in such a short period of time, a little overwhelming. For this reason we decided to reduce the non-project presentations in the following event."

RACEing Ahead in Dublin

Ireland is home to many major telecommunication companies, so the VRC's next event centred on developments in communications, specifically in the field of Asynchronous Transfer Mode (ATM) and network management within the EC's RACE Programme.

The 5 presentations came from such companies as Ericsson, Alcatel Bell, AT&T and others. As this event was half a day in duration, there was only a quick half hour presentation by the VRC itself on exploiting R&D results and venture capital. Once again, the audience limit had to be expanded from 30 to over 50 participants as awareness of the event spread throughout Irish industry.

One conclusion the VRC made was that although RACE has a large number of industrial participants active in the commercial area covered by the programme, this does not make the projects any more 'marketable' at Technology Transfer Days. "It is clear that the 'precompetitive' tag means that projects are frequently seen as oriented to training and skill acquisition as much as product development," Mr. Brady noted.

In both events the VRC distributed a questionnaire to gauge audience response, and in both cases the results were very positive. "In particular, we had an unusually high hit-rate with industry at the shorter event, covering almost 30 companies within the 52 participants." Mr. Brady added.

VALUE II

The VALUE Programme was extensively covered in issue 1/94 of Innovation and Technology Transfer. To contact any of the Relay Centres, consult the 'Quick Reference Guide', which was distributed within the same issue.

"They gave it a very high score, so there's no doubt that a well-focused audience concentrating on a narrow topic area in half a day is a successful formula."

"Overall, the key to raising audience interest is the calibre of the presenters," he concluded. "If the presenter cannot summon any enthusiasm for the project, then industry is hardly likely to. They must have a positive marketing approach."

Future Technology Transfer Days in Ireland include one focusing on ESPRIT projects (April 13) and another on BRITE/EURAM projects for the construction industry (April 26).

Spanish VRC: Decentralised Workshops

The second half of 1993 was a very busy six months for the Centro para el Desarollo Tecnológico Industrial (CDTI), one of the two units of the Spanish VRC, which focuses on transferring results to industry. They held three 'series' of Technology Transfer Days across Spain, focusing on BRITE/EURAM, ESPRIT and FLAIR projects, in collaboration with local organisations .

Two BRITE/EURAM projects were selected due to their suitability for the Spanish shoe industry, which consists mainly of small producers located far from regional capital cities. For this reason, the CDTI organised a 'travelling roadshow', visiting a total of eight towns and cities between July and November.

"Presenting the projects to these companies in this way was a very good idea," explained Mr. del Pozo, director of the CDTI unit. "Most of the 87 companies we saw have neither the time nor the resources to spend one or two days travelling to a city far from their factories to analyse new technologies, so we had to come to them. Only three of these companies, for example, had actually attended Tecnova, an important trade fair, although all had been invited."

The CDTI's first workshop for the shoe sector was organised during the 7-day Tecnova trade fair, in which the CDTI participated.

Other lessons included keeping both the presentations and the overall workshops short, and including demonstrations and samples to 'prove' the technological results.

The most important factor, according to Mr. del Pozo, "is to ensure the presenters speak the local language, and focus on the commercial and financial aspects of their technology, such as advantages in quality, costs and delivery time. The attendees considered these to form the core of the presentation."

Evolving Strategies

The other two series of Technology Transfer Days were held in October and December. The first presented five ESPRIT and BRITE/EURAM projects focusing on Computer Integrated Manufacturing (CIM) in Madrid, Bilbao and Barcelona. There were over 150 attendees, including representatives from 119 companies and technology transfer centres.

The second, held on December 1 and 2, presented five projects to representatives of almost 60 companies in the agri-food, wine and vegetable sector in La Rioja and Navarra. Attendee participation was high - one valorisation project has already been requested from VALUE, with at least another two likely in the near future.

All five workshops were half a day in length, and were held at local industrial development organisations. "Again, 20 to 30 minutes for each presentation was enough, and providing documentation in Spanish was a great help," noted Mr. del Pozo. "Original documents should be requested from the speakers well in advance, in order to have enough time to prepare complete information sets.

"We think it would also be useful to run a short seminar with the presenters before the event," he added. "We found that presenters tend to overestimate the importance of the technical details, minimising the time they devote to the economic aspects of the project. Such a short seminar would help them focus their presentations on what the attendees want."

The CDTI is in fact considering a new scheme to reinforce the Technology Transfer Day with a series of prescheduled, private interviews between companies and the owners of research results, as follows:

- Step 1: select a list of motivated result owners;
- Step 2: Prepare an information set for each project in the local language;
- Step 3: Run a brief workshop with the owners of the results to help them build their presentation;
- Step 4: Disseminate the resulting presentation documents to chosen companies;
- Step 5: Organise a day of interviews between companies and the projects they are interested in.

These Technology Transfer Days have produced many initial contacts between the owners of the research results and companies which may be interested in exploiting them. In the coming months these contacts will be followed up and supported, helping all parties reach positive technology transfer agreements.

► VRC PROFILE: SOUTH & CENTRAL ENGLAND

The Technology Broker

The Technology Broker (TTB) was established in 1990 as a private company specialising in technology exploitation. It became the host for the VALUE Relay Centre for South and Central England - one of the four VRCs in the United Kingdom - at the beginning of 1993, and has since trained the other VRCs in technology transfer techniques.

"Our Relay Centre's mission, in general, is to help people exploit technology," explains Maureen Firlej, who runs the English VRC. "We find homes for existing technologies, and in addition supply a variety of services designed to assist companies to exploit the results of their RTD. Becoming part of the VRC network has meant extending our horizons to encompass all of Europe."

Dissemination Tools

One of the VRC's tools for disseminating information is to utilise the TTB's publication 'Portfolio'. Published throughout the year on Faxbase (see Box), it consists of one page descriptions, coded for the sake of confidentiality. Each description begins with a summary of who would be interested in the technology and its commercial benefits, allowing the potential buyer to scan the data sheet and ascertain their interest quickly. "We distribute around 5000 copies of each Portfolio worldwide," notes Maureen Firlej.

Portfolio is only one aspect of the VRC's dissemination strategy, as a glance at their 'Business Model for Downstream Activities' indicates. The VRC's network of contacts also provides feedback on technology and partner requirements. The VRC exchanges information on English industry with the other VALUE Relay Centres, creating a network of contacts throughout Europe.

How do they obtain their information on the results of EC projects? The Business Model shows that CORDIS is a source of information on both EC RTD projects and partners, as are the Specific Programmes and the VRC Coordination Unit. Using CORDIS and their own databases, they can put companies in touch with project participants both individually and through Technology Transfer Days.

According to Maureen Firlej, "we plan to hold four or more of these events in 1994. We've had a positive response and expect some good results."

Management Assistance

In 1994 the VRC will continue on from last year's success and participate in a range of seminars and hold training courses for individuals, consortia and companies. Subjects to be covered include Financing R&D, Generating Revenue from Intellectual Property, the Planning and Process of Technology Exploitation and Evaluating the Business Potential of a Technology.

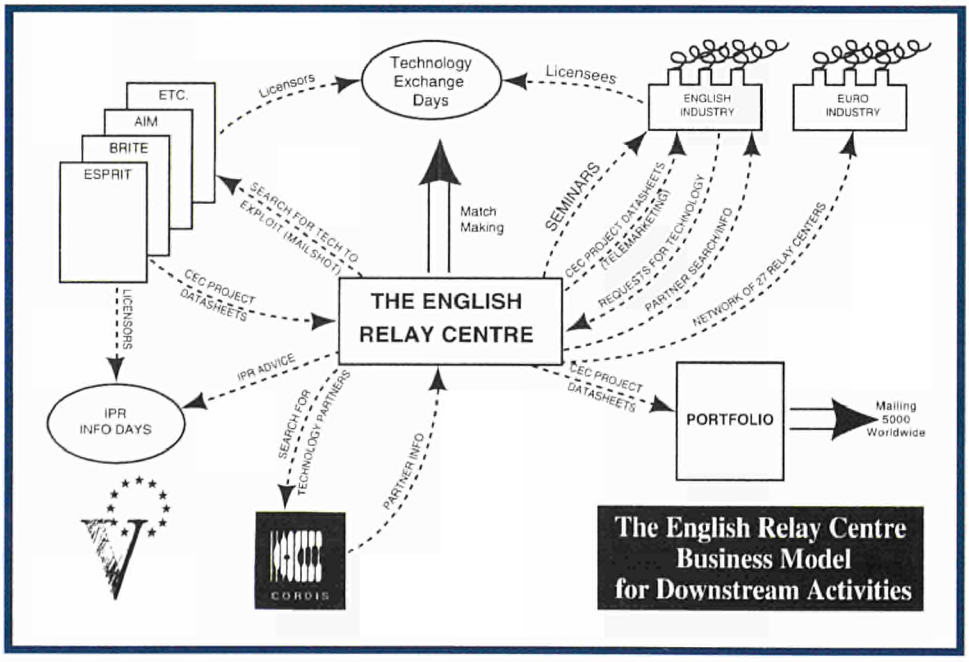
"Advice on designing and validating marketing strategies is an essential aspect of our work," Maureen Firlej concludes. "We must help our local industries, especially SMEs, to compete successfully and assist them in adopting new technologies."

PORTFOLIO ON FAXBASE

The TTB licensed Faxbase from the British company that developed it because they saw it as a useful tool for disseminating information both widely and economically. It works as follows:

- The thousands of companies on the TTB's databases regularly receive a one-page fax listing available technologies described in greater depth in the TTB's files. On this fax, each technology is described in one or two lines, and assigned a number.
- At the head of this fax is a small grid, composed of numbered boxes. Companies shade in the boxes corresponding to the listed technologies they wish further information on, and fax the sheet back.
- At the TTB's offices, a specialised computer analyses this request and faxes the company the required information automatically.

"Faxbase is an excellent tool, because it allows us to target information very precisely - companies only receive the information they need," Maureen Firlej explains. "It's also highly efficient and inexpensive, reducing manpower, printing and distribution costs."



► MANAGEMENT ASSISTANCE

Business Planning Workshops

Apart from linking local industrialists and research centres together with the EC's research programmes, the VRCs are committed to helping local companies, particularly those involved in EC R&D projects, improve their management techniques.

This emphasis reflects the difficulty of managing R&D projects, the exploitation of new technologies and the innovation process in general.

Writing a business plan, for example, is an essential step in commercialising research results. However, experience shows that many consider this phase far too late. Many research projects run for years before contact is made with commercial, production or marketing specialists.

Workshops in Wales and Belgium were recently held to help local technologists avoid this problem and prepare a viable business plan for commercialising their research results. Based on 'Preparing a Business Plan', a booklet edited by the European Commission, the workshops aimed to help project participants present a convincing case to secure financing for the start-up or expansion of a business venture.

The Flemish VRC planned to hold a single workshop on 31 January in Brussels, in collaboration with private company IAL Consultants, the other two Belgian VRCs (for the Walloon region and Brussels) as well as EG-Liaison and Zenit (Dutch and German VRCs, respectively).

The event attracted so many people, however, that a second was held 4 weeks later. A total of around 100 participants attended both workshops, which, although in English, allowed questions from participants in Dutch, French and German to be answered in full.

Near Cardiff (UK), 25 delegates followed a similar workshop on February 22, again organised by IAL Consultants for the Welsh VRC, which is part of the Welsh Development Agency.

The organisers customised the basic presentation by outlining the particular needs and resources of Welsh companies, and included two case studies of Welsh companies (Shanning Laser Systems Ltd and Oakdale Batteries) to illustrate their conclusions.

Each seminar on Preparing a Business Plan, organised recently in Brussels, attracted 50 participants.

► CONFERENCE

Innovation, Management & Patents

R&D is an investment similar to many others. Yet, while not taking out insurance on property against theft or damage is to most people unthinkable, too few companies make a similar effort to protect their R&D investment.

R&D can be protected - by patents. Recognising their strategic role in their competitiveness, more and more companies, particularly in the US and Japan, have moved patents from their legal departments to their laboratories and top management.

The Third European Congress on Innovation, Management and Patents - Patinnova '94 - is being organised by DG XIII of the EC in Copenhagen from 2-4 June. It aims to move patents to the top of European corporate agendas, and help leaders in industry and university research work together.

Conference topics include the world market in the year 2000, protecting hardware and software advantages, competition and patent law, economic models, risk management, SMEs' use of patents, ensuring R&D pays in the future, proposals for European development and more.

In addition, the afternoon of the second day will be split into three parallel sessions:

1. Strategies for all types of industrial rights, with an emphasis on brands; Pattern protection; Utility model protection.
2. Basic knowledge of the European patent, trademarks, pattern protection and utility model protection; 2 Case Studies.
3. How does one notice something usable in the laboratory? Do the results of university research benefit national industries? Japan; USA; Europe; Panel discussion.

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► PUBLICATIONS

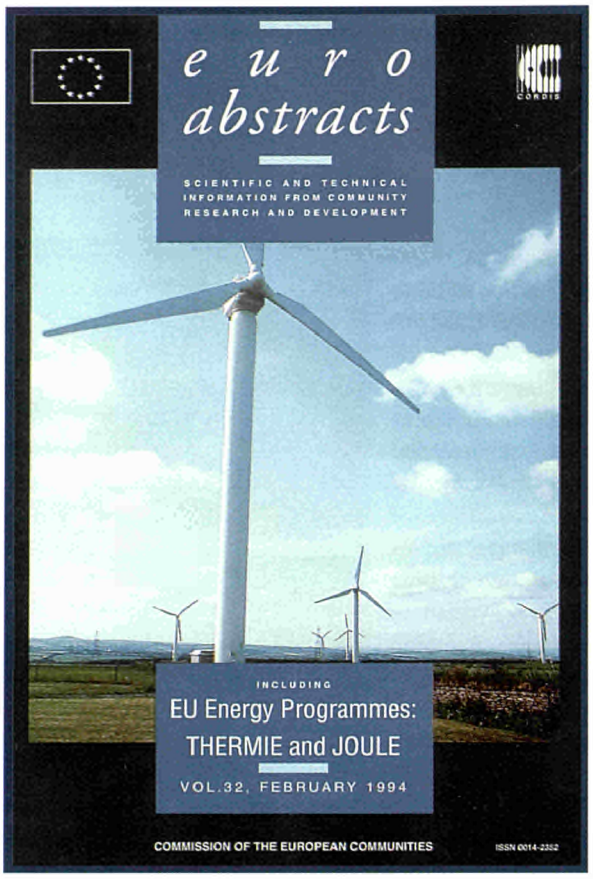
EuroAbstracts Awarded

EuroAbstracts, the monthly publication which provides abstracts of the European Commission's R&D publications, has been highly commended in the 1993 European Information Association Awards for official European Information Sources, which highlight excellence in disseminating EC information.

Each edition of EuroAbstracts provides details of 100-200 RTD-oriented EC publications each month. It was granted the award following the recent introduction of a new series of in-depth articles and short reviews on various aspects of EC R&D. Recent articles include 'EU Energy Programmes: THERMIE and JOULE', 'Focus on EUREKA', 'Update on Relay Centres' and 'Marine Science and Technology'.

Future editions will feature the following articles:

- The ESPRIT Programme (May);
- The Biomedical and Health Research Programme (June);
- The COST Programme (July).



The February edition of EuroAbstracts featured a 12-page article on the EU's Energy R&D Programmes.

The European Information Association is an independent, professional association for people who provide, or who are interested in, information services with a European dimension. The overall winner in the official documentation category was the three volume 'Portrait of the Regions', by Eurostat and DG XVI (Regional Policies).

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VRC AGENDA

The following events are an incomplete selection from the VRC Network's 'Calendar of Events'. Contact your local VRC(s) for more information on their planned activities.

13-14 APRIL, ATHENS (GR)
'Technology Transfer Day for Biotechnology Research'.
Programmes: BIOTECH, FLAIR, AIR, ECLAIR, CAMAR, VALUE.
Contact: Mr. E. Galanos,
Tel: +30 172 49 029;
Fax: +30 172 46 824

20-21 APRIL, LISBON (PT)
'Cork: Production and Manufacturing Technologies'.
Programmes: VALUE II.
Contact: Mr. Perdigoto,
Tel: +351 1 727 1365;
Fax: +351 1 727 1733

22 APRIL, PALERMO (IT)
'TTD Addressed to the Agro-industrial Sector'.
Programmes: AIR.
Contact: Mr. F. Tuzzolino,
Tel: +39 91 640 4501;
Fax: +39 91 640 6200

4 MAY, PORTO (PT)
'Technology Transfer Workshop: Technologies for the Shoe Industry'.
Programmes: BRITE/EURAM.
Contact: Ms. Bibiana Dantas,
Tel: +351 2 610 3359;
Fax: +351 2 610 3361

19 MAY, ROME (IT)
'Technology Transfer Day on EC Microelectronics Research'
Programmes: ESPRIT III Microelectronics.
Contact: Mrs. Gandini,
Tel: +39 6 3048 4147;
Fax: +39 6 3048 3825

23-27 MAY, PALERMO (IT)
'Technological Showcase of Multimedia Results'.
Programmes: IMPACT, ESPRIT, COMETT, DELTA.
Contact: Mr. F. Tuzzolino,
Tel: +39 91 640 4501;
Fax: +39 91 640 6200

8 JUNE, BOLOGNA (IT)
'Technology Transfer for Research Results in Information Market Area'.
Programmes: IMPACT.
Contact: Mrs. Gandini,
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'Technology Transfer Day on Information Technology Research'.
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SPRINT: An Innovative Programme for Technology Transfer

The Strategic Programme for Innovation & Technology Transfer (SPRINT) aims to improve Europe's ability to innovate and transfer technology, both between business sectors and different regions.

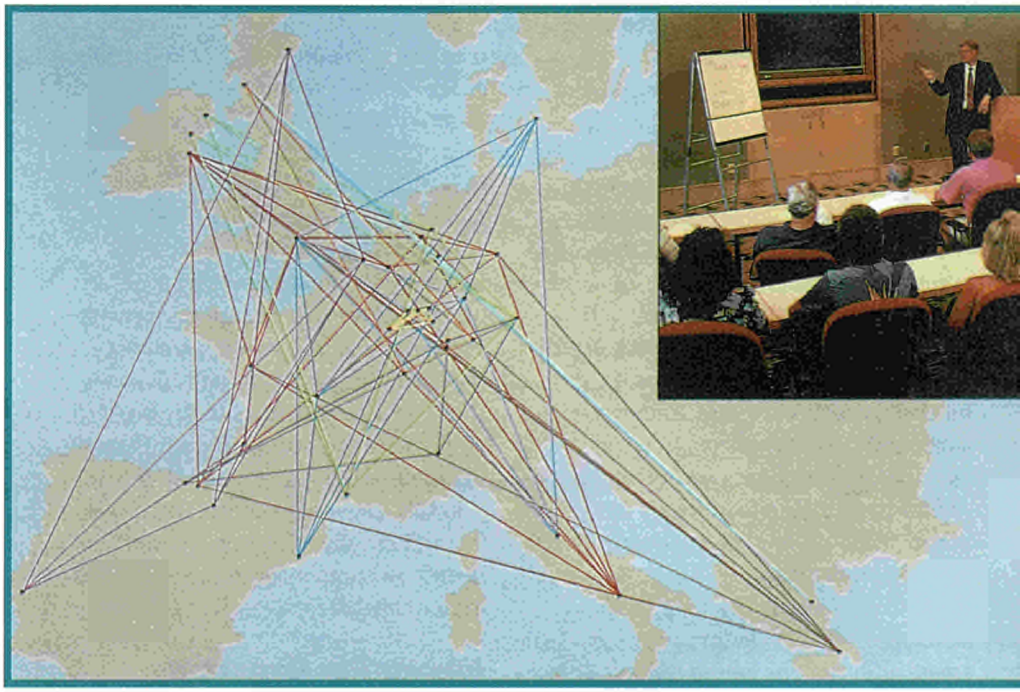
Europe's future industrial competitiveness relies on innovation - developing better products and processes to compete in increasingly global markets. Unfortunately, although European companies may be part of a Single Market, they are separated by barriers of language, tradition and lack of information, hindering the transfer of technology vital to innovation.

To overcome these barriers, a special effort is needed to improve the environment for innovative European firms, particularly SMEs. Such an effort must recognise that innovation is a complex, interactive and cumulative process that transcends traditional boundaries.

This is the focus of the Strategic Programme for Innovation and Technology Transfer - SPRINT - which aims to improve the access of European companies to advanced technologies and help them adopt them successfully.

These goals are reflected throughout SPRINT's many activities, which can be divided into five main groups:

- Infrastructure for Innovation
- Network Support
- Specific Projects
- Innovation Management
- The European Innovation Monitoring System (EIMS)



SPRINT's networks: breaking down the barriers to technology transfer across Europe.

1. INFRASTRUCTURE FOR INNOVATION

One of SPRINT's major priorities is to set up and encourage a trans-European infrastructure. The aim is to overcome the traditional restrictions of geography, language and scientific discipline that stop European companies finding the technologies they need.

SPRINT's first action was to establish a number of inter-firm cooperation networks - **'C-Networks'** - linking together technology transfer brokers in all Member States. In the process, the Programme made a significant contribution to developing the technology transfer broker profession.

Each 'participant node' of these networks aims to find technological needs and resources among local firms. These are then transmitted throughout the network, allowing other participant nodes to find a match with organisations in their area.

Today there are 37 such networks linking around 200 organisations. The nodes are almost equally split between private brokers and public agencies, such as Chambers of Commerce and regional development organisations.

SPRINT is currently developing workplans specifically designed for these different organisations, reflecting their methods and priorities. A series of 'Best Practice' seminars throughout the EU are also planned.

Another type of network supported by SPRINT links **Industrial Research and Technology Organisations** (or RTOs) together across Europe. These organisations are technological service providers, and are often funded by specific industrial sectors, so they are ideally placed to help transfer technology. Examples of RTOs include the Industrial Research

Associations in the UK, Centres Techniques Industriels (France) and Forschungsgemeinschaften (Germany).

The RTO networks function differently to the C-Networks: when one Research Association recognises that a nearby company has developed a useful technology, it transfers this technology to other interested RTOs in the network, who then transfer it to local companies.

The networks focus on four types of work:

- certification, testing, measurement;
- diffusion of new techniques;
- diffusion of innovation management techniques (quality, design, etc);
- evaluating new products and processes.

Science Parks

Science Parks are an important mechanism for promoting innovation, transferring technologies and helping 'start-up' companies grow and attracting industrial investment.

So far over 100 'Science Park Consultancies' have been carried out by a network of experts chosen and funded by SPRINT. These studies aim to assist both the managers of current Science Parks and the promoters of new ones ensure their effectiveness by improving their market orientation, design and viability.

This is of particular benefit to the developers of Parks in less advanced areas, or in regions where there is little history of these kinds of developments. In addition, SPRINT began a pilot training programme for Science Park managers in 1992.

As reported in issue 1/94, SPRINT has also just launched RITTs - the Regional Innovation and Technology Transfer audits initiative. Each RITTs audit focuses on the effectiveness of one regional innovation system, and devises a strategy to improve the efficiency of the technology transfer organisations.

Lastly, SPRINT will soon finish evaluating the SPNET concept, where networks will be established between Science Parks and local companies. Apart from the creation of human networks between the Parks and their tenants, the intensive use of telematics systems is being considered, with Science Parks acting as 'telematics windows' to demonstrate how these tools can be used for technology transfer.

2. NETWORK SUPPORT

Apart from developing networks, SPRINT supports other actions bringing companies, research institutes, financiers, technology transfer brokers and other players in this field together.

For example, SPRINT has set up a network through which examples of **Best Practice in Networking Methods** can be disseminated, in order to help improve the effectiveness of the various nodes in the SPRINT networks. SPRINT will soon produce a publication on this subject, in both normal and CD-ROM formats.

Since 1990, SPRINT has also been organising **Technology Transfer Days** (TTDs) at the rate of around ten per year. They are usually run by one of the organisations within a C-network, and may in the future become an integral part of some networks' activities.

Each TTD focuses on transferring technology from around Europe to a number of firms in one specific region. The organisation running the event selects these companies and circulates their requests and offers to the brokers, who attend the event to present details of potential partners from their region.

In this way the companies receive a focused presentation, relevant to their needs, on companies and technologies from many different parts of Europe.

Innovation Financing

Traditional sources of finance are often unable to fund the innovation process due to its length, complexity and uncertainty, so finding investors who understand the needs of innovative companies, particularly SMEs, is difficult and time-consuming.

The exceptions are seed and venture capitalists. Both forms of capital are also known as risk financing, and are long-term equity investments in the company. As there is no guarantee of getting the money back it is a 'hands-on' investment, with the seed and venture capitalists bringing managerial experience, credibility and financial skills to the company as well as funds.

To help innovative companies make contact with this important source of financing, SPRINT runs **Investment Fora** twice a year throughout Europe. In addition, SPRINT contributed to the creation of the European Venture Capital Association (EVCA), which currently groups together over 300 members from 22 countries.

Usually organised by EVCA or a national innovation agency, such as ANVAR (France) or CDTI (Spain), each Investment Forum presents innovative companies to around 50 investors. The companies are selected and prepared by the organisers to the high standards these investors demand, and the best three presentations are recognised by the SPRINT Forum Award.

Results have been impressive, with the first three 'pilot phase' Fora raising several million ECUs within six months.

Technology Performance Financing (TPF) is another SPRINT scheme focusing on financing innovative companies. TPF is a pilot scheme aiming to help traditional industries acquire high technology processes, services and equipment, benefiting both hi-tech suppliers and traditional industry.

TPF responds to the difficulties traditional companies face in investing in new equipment by linking payment for the equipment to its performance. Initially, they pay only a small fraction of the price, paying more as it meets pre-defined performance-related milestones.

The suppliers can take this risk because they are supported by a financial institution, which advances them a portion of the equipment cost after delivery. The institution then shares in the performance payments, after getting their initial advance back. SPRINT, in turn, supplies a 'partial safety net' to the financial institutions, as well as additional support. Currently, there are 10 financial institutions examining the scheme.

3. SPECIFIC PROJECTS

Developing a Europe-wide infrastructure to enable and encourage technology transfer is only one of SPRINT's activities. Another significant approach is the 'Specific Projects' action line, where practical methods for overcoming the barriers preventing technology transfer are investigated and demonstrated.

Specific Projects are large-scale (up to 1 MECU) technology transfer projects, typically lasting 2-3 years and involving anything from 3 to 16 partners across Europe. Each of the 21 Specific Projects begun so far addresses the human,

organisational and business processes which are crucial to the successful transfer of advanced technologies. Consensus building and the participation of all partners concerned through training and management are as important as the technology.

Each project builds on an existing technological development that requires no further R&D. Projects involve many technologies and industrial sectors, although there is a focus on:

- modernising SMEs and traditional industries (e.g., foundry, textile, shipbuilding);
- environmentally positive technologies (e.g., water and sewage treatment);
- developments with strong social benefits (e.g., integrating disabled people into society, increasing safety and health in the workplace).

Specific Projects begin with a Call for Proposals to carry out a definition study. Partnerships granted this funding create a plan for implementing their Specific Project, which is judged by SPRINT and external experts.

Successful projects then begin their implementation phase, which usually involves the original partners and a number of organisations who wish to adopt the technology. Intermediary bodies, such as industrial associations in other countries, technology transfer brokers and observers, often join to spread the technology across more regions and industrial sectors.

The October 1993 edition of Technopolis International examines the SPRINT Science Park Consultancy Scheme and its impact on nine science parks in France, Greece, Italy, Spain and the UK.

Specific Projects are not just about transferring technology, however. Following the successful implementation of the technology, the case study is disseminated widely throughout the relevant European industries, enabling other organisations to learn from the experience. A wide range of mechanisms for this phase are used, including publications, exhibitions, videos and group training visits.

In 1994, several Specific Projects are being extended (see issue 1/94), and a greater focus will be placed on disseminating the results.

4. INNOVATION MANAGEMENT

Because introducing new technologies often affects a company's organisational structures and strategies, successful technology transfer often depends on proper management as much as the technology itself. For this reason SPRINT also focuses on identifying, developing, assessing and promoting advanced, 'innovation-friendly' management techniques.

One such technique is **Value Analysis**. Traditionally, improving productivity concentrated mostly on individually examining, and reducing to a minimum, the cost of each single production process.

Value Analysis, however, involves rethinking the product or service from scratch. The only 'untouchable' is the product's final purpose, which is to fulfil the customer's needs for the lowest possible price.

SPRINT has commissioned a range of surveys, studies and handbooks examining Value Analysis in Europe. As a result, five publications have been published, addressing how Value Analysis works, who is performing it, what results have been achieved, how it can be spread throughout European industry and more. ●●●

Case Study: Investment Fora

A French pharmaceutical company is developing a new generation of drugs aimed at brain nerve regeneration. The new compounds will be suitable for treating patients with Alzheimer's disease, which currently afflicts 8 million people worldwide, and other brain disorders.

The company was set up in 1989 with the support of two French venture capital funds, and attended the Lyon Investment Forum in March 1991 as they needed further funding for pre-clinical research. They were particularly interested in foreign venture capital investors, in order to further 'Europeanise' the company's capital structure.

Following their presentation, negotiations were started with three venture capital companies. A deal was signed at the end of November 1992.

SPRINT Investment Fora: Bringing innovative companies and venture capitalists together.

Case Study: Specific Projects

Technology developed in Denmark to protect rivers from pollution and minimise the risk of urban flooding is being transferred to sites in Italy, Spain and the UK in Specific Project SP 226.

The computerised, real-time control system ensures that sewer capacity is always used to best effect, avoiding overflows in local rivers or urban flooding. It monitors a wide range of parameters, including rainfall in real-time. Successful implementation of the software package will allow its future commercialisation throughout Europe.

The main implementation phase is well underway, with positive, tangible results already visible. Spills to local watercourses near Bolton (UK) and to lakes near Mantova (Italy) are being reduced, for example, while the increased understanding of the drainage system in Vitoria (Spain) has led to improved water quality in the Zadorra river.

Another Specific Project - SP 011 - is combining various software tools, developed throughout Europe for the design of systems to prevent coastal erosion, with human expertise to create a Knowledge Based System, which is being implemented in pilot companies in France, Denmark and Greece.

Managing Quality and Design

In management terms, a 'quality' product is more than just a very good one - it must completely satisfy user needs. Total Quality Management (TQM) became a watchword in the 1980s as firms, particularly in Japan and the US, began to continually examine customer requirements and their ability to meet them.

While many smaller European companies have not adopted TQM yet, this must change if they are to survive in the long-term. SPRINT runs a number of activities to promote the introduction of Quality Management techniques, including:

- In 1991, SPRINT selected some of the RTO Networks to form 'Quality Network Projects'. Gathering together more than 60 RTOs, these projects promote both general quality management issues and specific topics (quality certification and control, interpreting international quality standards, etc) to companies in their area;
- A Pilot Study is currently examining and assessing 'Quality Award' initiatives for the service sector in three Member States;
- The Seminar on Quality Promotion towards SMEs, held in Aachen last April, examined how to improve the effectiveness of Quality Promotion Organisations, which can help SMEs implement quality management. The seminar proceedings are available, and a second conference on Quality Diffusion is planned for 1995.

Another essential element in developing better products and processes is proper **design.** SPRINT is working with different design promotion agencies to raise awareness of good design, improve design management and promote the opportunities offered by new technologies and trans-national cooperation.

For example, the European Community Design Prize will be awarded for the fourth time this June by a jury of designers, industrialists and design promoters. Any European company with a maximum of 2,000 employees that has shown an excellent use of design as a management tool is eligible.

A Design Guide Book will also be published this September, containing information on the Design profession in each Member State, design organisations, publications, colleges and more.

Managing Integration of New Technologies

This experimental scheme, also known as MINT, was launched in the middle of last year to promote the absorption of new technologies by SMEs.

Over 100 MINT 'assignments' have already taken place. In each assignment, one of SPRINT's 16 MINT consultants spends a few days at the company, 'diagnosing' the way they use technology and the potential for integrating new technologies and management techniques.

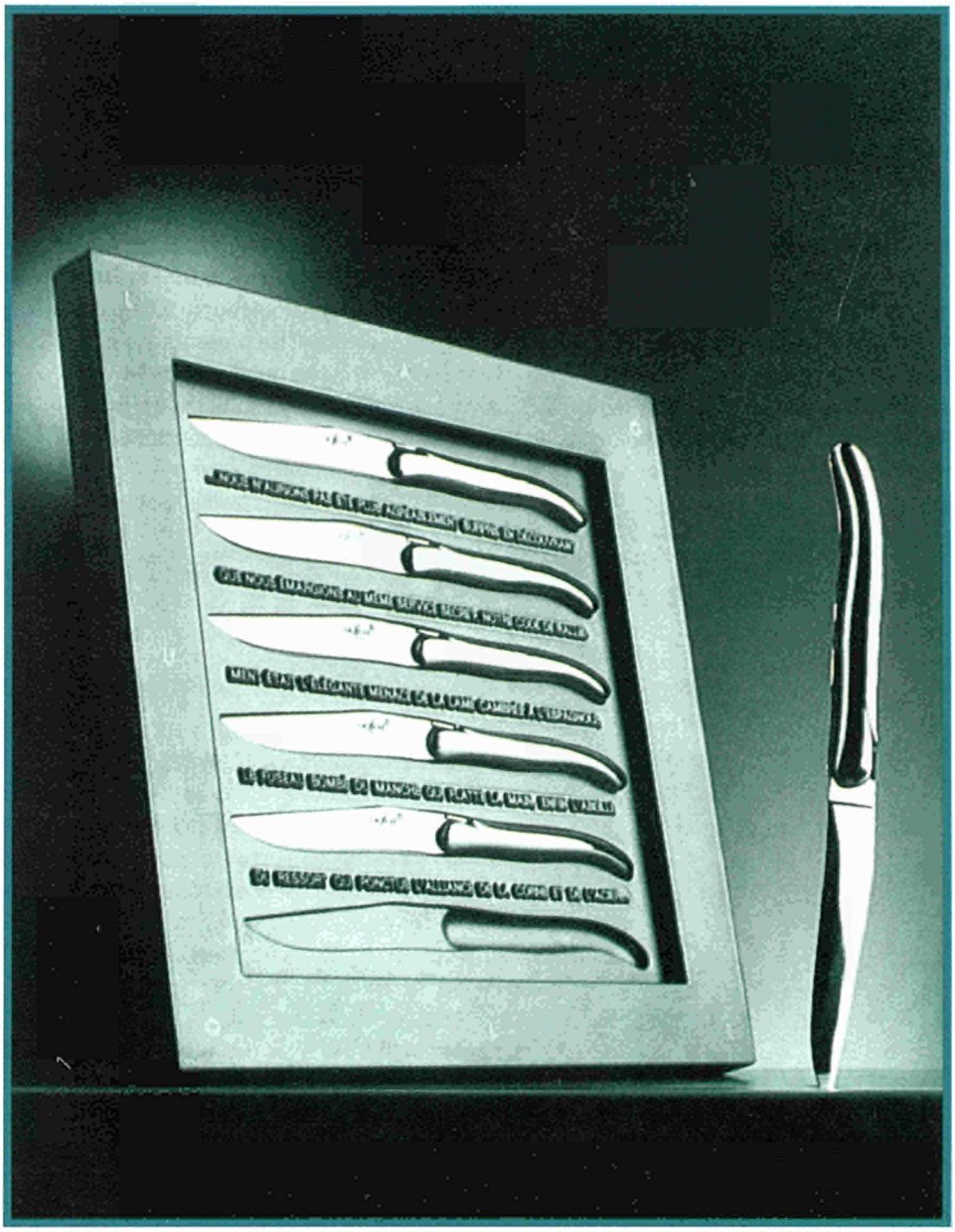
To begin with, MINT focused on manufacturing SMEs with around 50 employees. Following the Second Contractors Workshop last January, which assessed the pilot phase favourably, the lower size limit has been reduced to 25 and the scheme has been extended to service companies.

Other new developments include the selection, testing and dissemination of a small number of diagnostic tools. These will be granted a MINT label, recognising their proven usefulness, to aid in their Europe-wide dissemination. MINT may also be extended to various EFTA countries.

5. INNOVATION MONITORING

SPRINT also runs the European Innovation Monitoring System (EIMS), which performs studies to provide policy makers with the information and understanding they need to improve Innovation and Technology Transfer (ITT) in Europe. In 1994, for example:

- EIMS will evaluate a number of SPRINT's activities, and draw lessons for future activities in the Fourth Framework Programme;
- Results from the Commission Innovation Survey (see issue 1/94) and PACE (Policy, Appropriation and Competitiveness among Multinationals in Europe, Japan and the USA) study will be used to analyse how firms profit from innovation, the interactions between large and small firms, managing innovation in SMEs and more;



One of the three winners of the 1992 European Community Design Prize was French company Laguiole, which redesigned and revived the traditional clasp knife of the village of Laguiole.

Case Study: MINT Consultancy

In 1993, three different firms in Italy were merged, forming a fruit picking and packing co-operative with a turnover of 45,000 ECU and 55 employees. Exports make up a high percentage of production.

The merger produced organisational problems regarding the assignment of management duties and responsibilities. It was decided to implement a Quality System, conforming to the ISO 9000 standard, to reorganise the firm and improve its image. The firm is also trying to increase its product range to optimise the utilisation of its processing plants and decrease employee turnover.

The MINT assignment was to study the feasibility plan for implementing the new Quality System. The resulting diagnosis suggested that although the company works according to established procedures, controls incoming material well, is technologically well equipped and controls the whole production process, it had managerial problems.

For example:

- there was no-one in charge of some functions (e.g. production, quality);
- delegation was based on personal feeling, not on skills and responsibility;
- production planning was lacking;
- communication and data recording was inefficient.

The consultant made several suggestions, including Quality working groups and workshops, management training and procedures definition.

●●● ■ Studies on Europe's ITT infrastructure will continue. Examinations of consulting engineering services, technology brokers and Regional Technology Advisory Centres will be finished, while studies on Science Parks and Regional Technology Diffusion Networks will be launched.

■ The regional aspects of ITT will be studied, with EIMS providing technical assistance to DG XVI (Regional Policies) for the launching and monitoring of Regional Technology Plans, and continuing analyses already launched into regional innovation capabilities.

■ The two studies EIMS launched into the financing of innovation - Exit Mechanisms for companies backed by venture capital and 'Securitisation' as a means to mobilise private capital for financing R&D and SMEs in general - will continue. The results of a survey into national schemes in the latter area will be presented in a workshop in the last quarter of 1994.

■ Through a recently established network of national correspondents, EIMS will systematically monitor ITT activities, both in the EU and outside. A forum for regularly exchanging information and experience on public ITT support schemes will be provided, and the development of a European ITT policy will continue.

■ Lastly, EIMS will continue to review its own methodologies and promote a wider diffusion of results through publications, such as a newsletter, papers, studies and a 'report on the state and development of innovation in Europe'. □

SPRINTing Ahead

Interview with Mr. Robin Miège, head of SPRINT since 1984

Mr. Robin Miège, Head of SPRINT.

■ Which achievements do you think are SPRINT's most significant in its first, five-year main phase?

Mr. Robin Miège: Two come to mind. Firstly, the gradual build up of a Europe-wide infrastructure of innovation support services. Hundreds of transnational networks of innovation support services have been supported, such as research and technology organisations, regional technology advisory centres, technology brokers, science parks and seed and venture capital companies. A number of these networks, such as EVCA, TII and EACRO, have established themselves as permanent building blocks of this infrastructure.

Secondly, and probably most importantly, is that SPRINT and many of its actions are becoming models for innovation and technology transfer policy throughout the EU and beyond. In France and the UK, for example, the focus is now on technology diffusion to SMEs by relying on and strengthening innovation support services. Outside the EU, the Finnish partner-link scheme has also apparently been inspired to some extent by SPRINT.

■ How will SPRINT's activities be continued in the Fourth Framework Programme, in combination with the VALUE Programme?

□ SPRINT and VALUE will together constitute the major part of the Fourth Framework Programme's Third Activity, which deals with the dissemination, exploitation and optimisation of RTD results.

We intend focusing on three areas.

Firstly, building on the innovation support service infrastructure by increasing its professionalism and European dimension.

Secondly, emphasising the adoption of new technologies by SMEs, particularly those which have to procure and integrate know-how and new technologies due to insufficient in-house R&D.

Finally, improving the European environment for financing the exploitation, adoption and dissemination of technology.

■ Will SPRINT's experimental nature be conserved in the future?

□ Certainly. SPRINT's nature allows for experimentation and, in line with the subsidiarity principle, will continue to do so. Schemes such as MINT and TPF are typical experimental actions. These are two cases where the cost of experimentation at the European level is lower than if the Member States did it themselves.

■ What new developments will SPRINT pursue, and where, in general, do you see European innovation and technology transfer heading?

□ More diffusion-oriented policies are generally required, particularly to improve both the innovative capacity of SMEs and European innovation management skills.

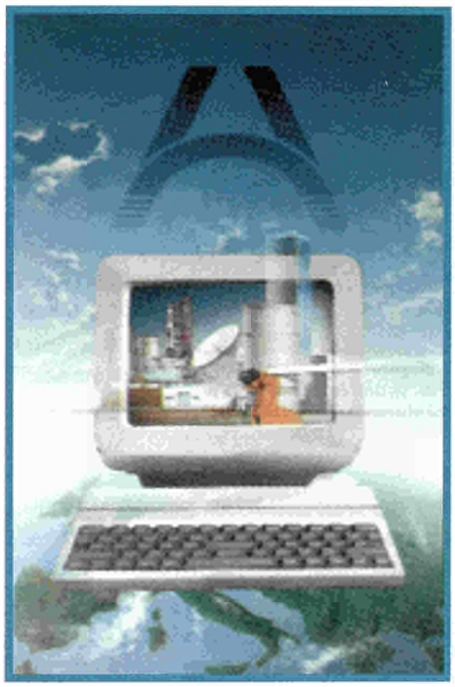
There is a need to move away from 'science-push' towards projects that recognise the multiple sources of and influences on innovation. SPRINT's Specific Projects, in my view, demonstrate all the factors - technical, commercial, organisational and human - which are needed to make technology transfer successful.

Prominent features in the evolution of European innovation and technology transfer policy are the continuing emphasis on SMEs, the growing awareness of the importance of technology diffusion as against technology development, the focus on innovation support services and regionalisation. SPRINT's actions will be increasingly oriented towards meeting these trends.

► CONTRACTS

ARCADE: Improving Programme Access

The ARCADE telematics service successfully lightens the paperwork load in answering EC Calls for Tender.



ARCADE (Ampère Remote Control Access Data Entry) is an interactive telematics system designed to:

- improve the flow of information on research programmes;
- minimise the complexity of Calls for Proposals;
- maximise the project submission rates through the system;
- put potential partners in direct contact with one another.

The major aim is to help companies, particularly SMEs and those in remote areas, submit proposals for the various EC Programmes efficiently and according to the required criteria. Through ARCADE, users can obtain all the necessary information regarding a Call and then create, edit and transmit their proposals directly to the EC.

The system links DG XII's internal management system together, smoothing the internal administrative processing of proposals by avoiding common problems such as illegible writing and cumbersome optical character recognition.

The first programmes to use ARCADE are BRITE-EURAM II and CRAFT, with other programmes joining following the validation phase. Already, the system has reduced the response times for Expressions of Interest (EOIs) from 3 weeks to 24 hours, and a 70% reduction in the period between proposal submission and contract is expected.

The 9-language system is accessible from all over Europe, and also allows companies to enter data, search for partners, order documents, request printouts and more. It requires simple, inexpensive equipment to use and ensures data security through a unilateral encryption/decryption system. □

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► INFORMATION SERVICES

IMPACT II in 1994

Following a mid-term review in 1993, the IMPACT II Programme has developed its 1994 work programme.

Improving the accessibility of information at the European level will remain IMPACT II's central strategic theme in 1994, and will be reflected in a wide range of actions designed to stimulate European activities and overcome legal, administrative and linguistic barriers.

IMO: Monitoring the Market

Under Action Line 1, the Information Market Observatory (IMO) will continue to collect and analyse market data to increase market transparency.

The IMO's Fourth Annual Report, for example, was recently published. It reviews the most important trends during the 1991/1992 period in 'classical' on-line ASCII database services, videotex services, publications on optical disk and fax-based and audiotex information services.

The full report is available from the IMO in all EU languages. Key findings include:

- although Europe is a major world force in world-wide on-line production and distribution, the international market for text and bibliographic on-line services is dominated by US vendors;
- total worldwide turnover in audiotex services in 1991 is estimated at 2.8 billion ECU, and is projected to grow annually by 25-30%. Europe's share was 765 MECU, slightly higher than the US (754) but lower than Japan (989);
- lack of standardisation and language barriers mean that Europe's videotex market is still nationally based - France remains the largest market;
- European players have begun forging strategic alliances, both within Europe and internationally, to increase their level of ●●●

IMPACT II

Information Policy ACTions.
Timescale: 1991-1995.
Budget: 64 MECU.
Aim: to establish a single market for information services.

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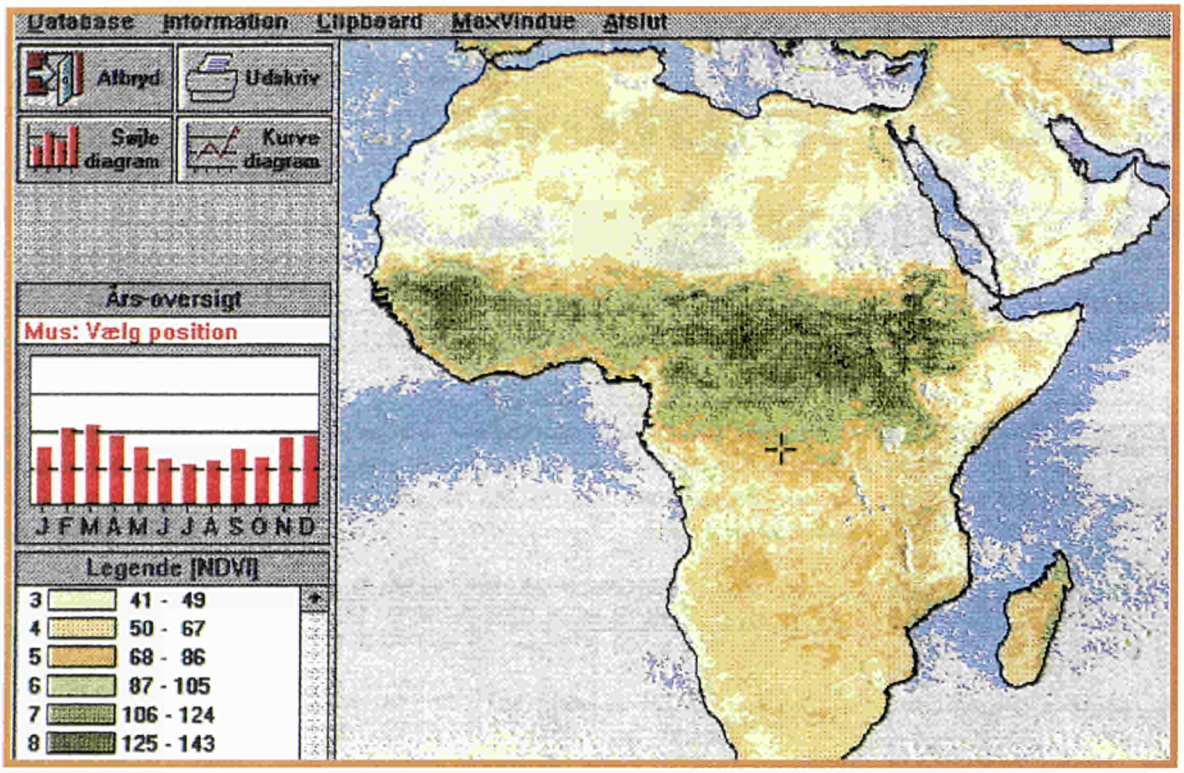


IMPACT II GIS project ENVIDUCATION involves Jydsk Telefon a/s, Danmarks Lærerhøjskole and Forlaget Systime (all of Denmark), GAMMA Ltd (Ireland) and Epsilon International (Greece).

vertical integration in their electronics, telecommunications and computing companies.

The Report concludes that:

- the significant gap between US and EC information service sector revenues (8.2 and 3.3 billion ECUs in 1991, respectively) looks like widening. Future prospects depend on the quality and performance of telecommunication infrastructures;
- Japan is not yet a major player in electronic information services, but its strength in hardware and consumer electronics will open markets in interactive media;
- Europe still has significant strengths in publishing and a rich legacy of recorded information;
- European firms are typically smaller, less vertically integrated and more nationally focused than their US counterparts. Survival will require joint ventures and alliances, and capitalising on the opportunities presented by multimedia;
- demographic and social changes in Europe are likely to lead to an increase in demand for information and communication technologies and services;
- the further development of the European information market will depend largely upon the availability of advanced information engineering technologies. Significant levels of cooperation and coordination at the European level will be needed, as the necessary investment and resources to develop generic solutions are probably beyond even the largest information industry players.

In the future, the IMO will increasingly focus on strategic issues of European information services development and monitoring structural changes in the industry. Studies will pay particular attention to analysing cross-sectoral alliances, new markets and the role of advertising in financing new products. The recently created European Information Policy Support Network will also play a role in this respect.

Laws, Standards, Awareness and Training

IMPACT II's Legal Advisory Board (LAB, under Action Line 2) will increase its contact with public sector and market actors to ensure that its legal proposals fit the real-life problems of the marketplace. LAB meetings in different Member States are a possibility in 1994, which should see the completion of discussions with the Council and Parliament regarding data protection and the legal protection of databases.

New initiatives will address the role of the consumer, quality certification and the legal problems associated with new information technologies.

The pilot information service on standards, launched in 1993 under Action Line 3, will be extended, particularly regarding the use of standards for Open Information Interchange. A reference model for all encoding standards will be developed.

Financial support for the network of National Awareness Partners, launched to improve awareness, will be increased and the number of organisations may be expanded.

Universities and similar institutions will be encouraged to include training related to electronic information in their normal curricula, and synergy will be sought with EC training programmes.

Stimulating Industry

The strategic information initiatives (Action Line 4), launched last year, will be built upon. Support will continue for the shared-cost multimedia projects selected in 1993 (see issue 1/94), while geographical information systems (GIS) projects will be selected for their main implementation phase. Support will also continue for the European Umbrella Organisation for Geographical Information (EUROGI), launched in 1993 to stimulate, encourage and support the development of GIS.

Lastly, the recently completed Call for Declarations of Intent to submit projects for pan-European information services (see issue 1/94) is currently being evaluated. Depending on budgetary considerations, a Call for Proposals may be launched later this year for shared-cost projects in 1995.

The IMPACT II workplan is available in all EU languages from the IMPACT Central Office.

► INNOVATION

Developing Local Innovation

Results of recent FAST studies have shown the diversity and importance of 'local innovation systems' throughout Europe, and identified four different types of industrialised area.

In its White Paper on 'Growth, Competitiveness and Employment' (1), the European Commission underscores *'the importance of the local level, at which all the ingredients of political action blend together most successfully and partnership networks are developing'*, and it heralds the virtues of a *'decentralised approach'* for combating unemployment and improving European living standards.

'Local innovation systems' are a focus of the FAST Programme. These are dense local networks of enterprises, laboratories, higher education and financial institutions, and serve as localised channels for using, developing and diffusing available competencies, initiatives and innovation capabilities throughout the system.

One of the most important aspects of local innovation systems is their ability to promote common learning processes. The efficiency of these local innovation systems is central to employment and competitiveness in cities and regions. The relationships between the actors in such a system significantly determine the nature, orientation and intensity of innovation in the companies and institutions within it.

Innovation System Diversity: A European Strength

Recent research carried out under the FAST Programme has shown enormous diversity in innovation systems throughout the Community - there appears to be no single 'best way'. This diversity emerges as an important advantage for innovation in Europe.

Despite the importance of networks and cooperation for innovation, relatively little is known about their inner dynamics. As a result there is little guidance, apart from some practical rules-of-thumb, for policy makers or local actors on choosing partners and setting up networks.

The FAST research stresses the qualitative difference in the dynamics of cooperation between two basic types of cooperative set-ups:

- bipolar cooperation, between two partners
- open, tri-polar cooperation, between three partners: 'A' (the initiator), 'B' (the intermediary) and 'C' (the receiver), where the relationship between 'A' and 'C' passes via B.

These two standard types of cooperation can either stand alone or form the nucleus of a more complex network structure. Some 20 in-depth case studies of scientific and technological cooperation concluded that:

- all cases of tri-polar cooperation involved common learning activities and innovation;
- only in some cases of bi-polar cooperation was there anything more than pure knowledge or technology transfers.

To ensure a relationship between the partners which involves common learning and innovation, it therefore seems more optimal to choose partner 'B', who has collected experiences from transfers and is making use of new knowledge and technologies, rather than partner 'A', the producer of this knowledge or technology.

Regional Differences in Innovation

In geographical terms, the study concludes that less developed regions could benefit more from cooperating with certain medium-developed regions, which are experienced in technology transfer and innovation, rather than from cooperating with the producers of the technology, which are often located in highly developed regions.

Regional studies on innovation systems have identified four main types of territories. Defining factors include the regulation of the labour market and the relationships between enterprises: whether they are regulated in terms of cooperation or market relations, and whether this regulation happens within or externally to the local area. The territories are:

- Industrial districts;
- Metropolitan areas;
- Territorial agglomerations;
- Territories in transition.

The first three systems, at least, are all highly efficient in terms of innovation. They have either very strong cooperative relations or strong market relations, and they maintain stable external relations.

The **Industrial Districts** (e.g. Baden-Württemberg (D) or Central Italy) are based on a significant capacity for collective cooperation between all the local partners, both between enterprises, institutions, associations and service centres, and between employers and employees. The civil society is a central factor, and relations with the outside are mainly characterised by market relations for final products.

These industrial districts feature a collective learning process based on common coordination of production and mastering the external market by collectively accumulating knowledge and information. They also often include the establishment of institutions offering financial, technical R&D, market research and vocational training services adapted to their needs.

The **Metropolitan Areas** (e.g. Paris or Greater London), ●●●

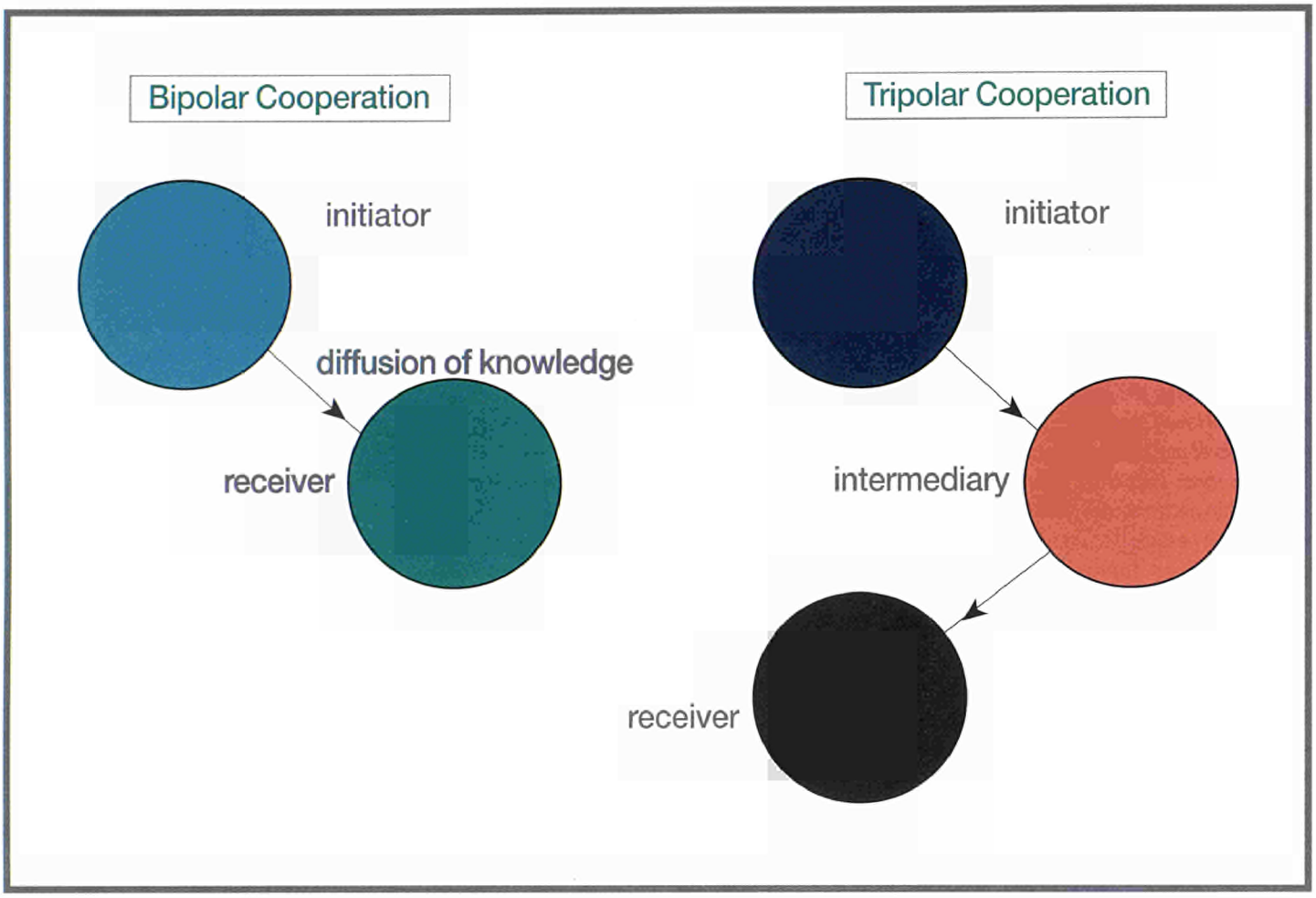
MONITOR

FAST

Forecasting and Assessment of Science and Technology

Since 1978, FAST has analysed the long term social and economic implications and consequences of scientific and technical change. Since 1989, FAST has been an integrated part of the MONITOR Programme.

(1) (COM(93)700 final), published as Supplement 6/93 to the Bulletin of the European Community (see Policy News, this issue).



FAST studies have shown that all cases of tri-polar cooperation involved common learning activities and innovation, unlike bi-polar relationships.

●●● are not characterised by any strong cooperation on a local level, but cooperate externally. Inside this area we find, on the one hand, strong, stable, market-driven transactions ensuring stable prices, salaries and a market for an often highly qualified labour force. Note that in this sense Metropolitan Areas are not only 'big cities' - areas like Silicon Valley in the USA also fall under this category.

In the **Territorial Agglomerations**, which are often peripheral (e.g. the Edinburgh-Glasgow axis (UK)), we find yet another set of relationships. Here, enterprises and laboratories can be very innovation-driven, but they almost entirely depend on relations to centres outside the area. They are therefore highly unstable in employment terms. Enterprises can move out of the area without losing their innovative capabilities.

The fourth type is **Territories in Transition**, where relationships which were mainly internal in the past are now turning towards the outside (e.g. Wales (UK) and the Turin area (I)). The external labour market is increasing in importance, together with cooperation with external enterprises. These developments are often due to changes in the strategies of dominant companies, the final products markets or the needs of enterprises, institutions and other actors in the area. They imply a continuous modification of the relationships throughout the area, which can be detrimental to the local innovation capacity.

Strategy Making in a Decentralised Economy

These results thus provide an insight into how innovation capacities in enterprises and institutions are created, used and maintained. They underscore the importance to innovation of an enterprise's external relationships, the stable and coherent organisation of co-operative relationships and the market.

In formulating their overall strategy, local enterprises should therefore be aware of the nature of the local innovation system in which they are situated, and of how this is relevant to the creation and use of the enterprise's innovation capacities. Local institutions and authorities should support and promote the local innovation system through appropriate institutions and infrastructures.

The overall aim should be to exploit to the maximum the potential for local synergies, and to embed enterprises and institutions into the regional economic and social structures, as we see in the cases of the Industrial Districts and Metropolitan Areas. □

by Anders Joest Hingel, FAST

REFERENCES:

The following publications, among others, are available from FAST:

- **Vol. 19, FOP 349: Cohérence et Diversité des Systèmes d'innovation en Europe - Rapport de Synthèse;**
- **Vol. 21, FOP 350: Etudes de Cas d'Enterprises;**
- **Vol. 27, FOP 353: Triangulation ou Bi-polarisation, quel chemin vers une plus grande cohésion en Europe;**

Contact
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Tel: +32 2 296 05 55
Fax: +32 2 296 42 99

▶ ESPRIT

Flat Panel Displays: A European Challenge

ESPRIT Project 7701, European Consortium Active Matrix (ECAM), is a large-scale, industry-led project aiming to capture a share of one of the fastest growing markets in IT peripherals - active matrix LCD displays.

The lead partner in ECAM is the Dutch electronics company Philips, which combined forces in 1992 with French companies Thomson and SAGEM. The result was 'Flat Panel Display Company', a joint venture company based in Eindhoven, the Netherlands, employing over 500 people. They have established two factories - a pilot line, where most of the new developments are tested, and a full-scale production assembly line, the largest in Europe.

"Tomorrow's market in LCDs is enormous, because they will soon move from portable computers to all sorts of consumer and industrial equipment," explains Dr. Robert Hartman of the newly established company. "We estimate a market of over 1.5 billion ECUs by 1996. Unfortunately, the world's five largest LCD companies are all Japanese. They have a strong position on the market, so if we do not invest today we will always rely on foreign sources for what will become an essential element in many new electronic systems."

Started in January 1993, the ECAM project involves a total of 19 partners from the Netherlands, France, Germany, the United Kingdom and Belgium, and is composed of 11 subprojects. The overall aim is to develop technologies and components to make feasible larger display sizes and/or higher resolutions, increase the number of potential applications of LCD technology and develop less complex designs and more cost-effective production methods.

Simpler and Cheaper Technology

Of the eleven subprojects, the most important is, '2S-3S Thin Film Transistors'. "Briefly, 2S and 3S refer to the number of steps required to produce the LCD matrix," Dr. Hartman explained. 2S technology can be used to manufacture computer monitors, while the 3S system can be used in TV projectors.

"2S and 3S were patented by SAGEM's research partner, CNET-France Telecom, the French telecommunications laboratory," he continued. "The subproject has two elements: SAGEM and CNET are transferring both 2S and 3S as 'direct view technologies' to our pilot line here in Eindhoven, and Thomson in Moirans (near Grenoble, France) are developing a 'projection' 3S display."

These new technologies are simpler than those used today and use less raw materials, adding up to a less expensive factory, both in start-up and running costs.

A Complete Project

In general, most of the other partners are involved in one or two subprojects specific to their interests. BARCO, a Belgian manufacturer of TV projectors, for example, aims to develop active matrix LCD projectors that can display video and data graphic images with XGA (1024*768 pixel) resolution.

In this way the joint venture combines specialised expertise from around Europe and ensures that the technologies have a range of marketable applications ready as soon as possible.

There are also four universities and private research laboratories contributing their expertise. The University of Dundee in the UK, for example, is contributing its knowledge of certain types of amorphous alloys to the SWITCH-MAT subproject, where materials for TFD-R (Thin-Film Diode plus Reset) devices based on amorphous silicon alloys are being developed.

The new LCD factory in the Netherlands, where new production technologies, developed within the ECAM project, are bearing fruit.

TFD-R devices hold out the promise of a low cost, high yield production process, but also have some drawbacks. The University's experience with similar alloys will help in the assessment, and perhaps the exploitation, of this potentially valuable method.

Other subprojects are developing additional applications and materials, examining future technologies, working on international standards and plotting the joint venture's R&D programmes. According to Dr. Hartman, "we are quite pleased with results so far, particularly in the important 2S-3S subproject, and expect to complete the project by the end of this year, as planned."

Contact
Dr. Robert Hartman, Flat Panel Display Co. (FPD) B.V.
Tel: +31 40 744 538
Fax: +31 40 742 220

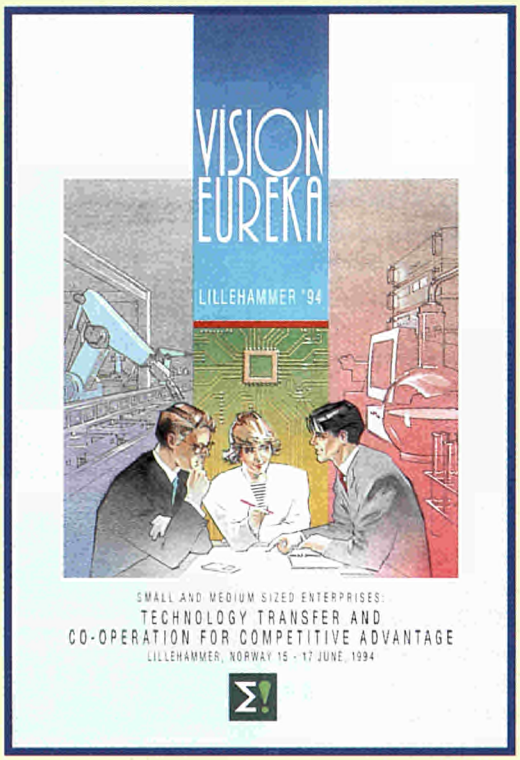
VISION EUREKA: 18 TECHNOLOGY CONFERENCES

13-17 June, Lillehammer, Norway

On June 16 the Chairmanship of EUREKA, the 21-country Initiative for stimulating cross-border and market-oriented R&D, passes from Norway to Switzerland. To celebrate, the Norwegian EUREKA Chair is hosting 18 Technology Conferences.

The conferences will bring together around 4,000 representatives of Europe's scientific and industrial community, from both the private and public sectors, to explore a wide range of technological issues and future markets. Major themes will include the construction industry and environmentally friendly technologies.

Each conference will offer participants the chance to acquaint themselves with the latest research, discuss and publicise their own results and contact potential partners. Apart from lectures, project presentations, workshops and poster exhibitions, many conferences will feature Partnering events, organised to help participants discuss possible collaborations further. One conference - 'SMEs:



Apart from presentations and discussions, this conference will feature poster exhibitions, partnering sessions and a partner-seeking forum.

Technology Transfer and Cooperation for Competitive Advantage' - aims to identify the principles and policies of vertical, horizontal and intermediary networks, giving valuable input in how to evaluate, choose and build networks to achieve competitive advantage. Among the selected speakers will be Jack Burgess of the SPRINT Technical Assistance Unit, Patrick McLoughlin (British Parliamentary Under-Secretary of State for Trade and Technology), Professor Pierre Laffitte (French senator and entrepreneur from Sophia Antipolis) and Gilbert Nicoloan (Marketing Executive of the European Business Development branch of British Technology Group Ltd).

Other conferences include 'Oil and Gas Research - Synergy with EC Programmes', 'Industrial Opportunities in Waste Management', 'The European Building and Construction Market Towards 2000' and 'Tourism: Cooperation and Application of New Technologies', and 13 others.

Contact
Elin Dahlin, Norwegian EUREKA Chairmanship Office,
Tel: +47 2203 7504;
Fax: +47 2203 7511

EPHOS '94
21-22 April 1994, Brussels, Belgium

This conference will launch the European Procurement Handbook for Open Systems (EPHOS). Designed for public administration planners and procurers of information technology and telecommunications (IT&T) equipment and services, EPHOS reports in detail on the most relevant IT&T systems that are open and conform to European and international standards.

Contact: XCOMS, Belgium,
Tel: +32 10 411 172; **Fax:** +32 10 411 742

HANOVER MESSE '94
20-27 April, Hanover, Germany

The Dissemination Unit of DG XIII will be attending Europe's biggest industrial trade fair.

Contact: Hanover Messe,
Tel: +49 511 890; **Fax:** +49 511 893 26 26

A REVIEW CONFERENCE OF TECHNOLOGY TRANSFER IN EUROPE
28-29 April 1994, Hanover, Germany

Held immediately after the Hanover Messe, this conference will mark the 10th anniversary of TII (The European Association for the Transfer of Technology, Innovation and Industrial Information) and the operational launch of the SPRINT Programme.

Conference proceedings will focus on assessing the past and future of European technology transfer and related innovation support services, as well as networking opportunities for all SPRINT professionals and network partners.

Contact: Christopher Hull, TII, Luxembourg.
Tel: +352 46 30 35; **Fax:** +352 46 21 85

INTERNATIONAL SYMPOSIUM ON MICROCHEMICAL TECHNIQUES AND SYMPOSIUM ON ANALYTICAL SCIENCES
16-20 May 1994, Montreux, Switzerland.

Supported by the BCR programme (the specific programme of RTD in the field of measurements and testing, 1990-1994), and covering many

themes, including An Overall Approach to Quality Assurance; Atomic spectroscopy; Plasma Techniques and so on through round tables, workshops etc.
Contact: D'Conference 1994.
Tel: +33 1 42 334 766; Fax: +33 1 40 419 241

UK COMETT CONFERENCE
26-27 May 1994, Nottingham, UK

'Industry and Education - Training, R&D and Financial Support from the EU' - leading figures from the EU's funding programmes will meet at The Nottingham Trent University to discuss the latest developments concerning LEONARDO and SOCRATES, the EU's planned training programmes, and the Fourth Framework Programme.
Contact: Rachelle Maxwell, EUROTEAM,
Tel: +44 602 41 84 18, Ext. 2093; **Fax:** +44 602 48 65 68

IMPACT INFORMATION DAY
30 May 1994, Paris (France)

The Fifth IMPACT Information Day will this year coincide with the IDT (Marchés et Industries de l'Information) '94 Conference and Exhibition in Paris, and will include a presentation by Mr René Mayer (chairman of the IMPACT mid-term evaluation group) on current trends and issues in global information market developments. (For more on IMPACT, see Programme Briefing).
Contact: Mr. Jean Goederich, DG XIII/E-2.
Tel: +352 4301 34858; **Fax:** +352 4301 32847

SECOND INTERNATIONAL SYMPOSIUM ON INTERWORKING
4-6 May 1994, Sophia Antipolis, France

"INTERWORKING 94" will be supported by several of the major actors in the field, including the Community's specific RTD Programme in communications technologies (RACE).
Contact: Ms. S. Steiner, Ascom Tech.
Tel: +41 31 999 4263; **Fax:** +41 31 999 3607

ESPRIT: IT AND THE TRANSFORMATION OF THE ENTERPRISE
6-8 June, Brussels, Belgium

ESPRIT's most important conference of the year will be different from previous events in a number of ways. The conference's theme - 'IT and the Transformation of the Enterprise' - reflects the Programme's recent change of focus from the IT industry to industry as a whole.
This change of focus is evident in the role of information and communication technology in the EC's White Paper for Growth and Employment, a role which will be explored by the 'Bangemann Group' (see Policy News, this issue), which will report to the Council at around the same time as the conference.
The first day will examine the various technologies being developed within the Fourth Framework Programme. Their possible contribution to the infrastructure and impact on enterprises and markets will be examined, with an emphasis on looking to the future, rather than taking stock.
The second day will bring together major business and public figures to examine the broader issues, particularly the new markets and modes of operation that the information infrastructure will bring.
The conference will culminate in the IT Forum on the last day, where a panel of leading industrial and political figures will draw on the preceding days' sessions and address how Europe's enterprises can implement and exploit the transition to a society and industry based on information infrastructure. Participants will include the CEOs of major European industries (e.g., ABB, ICL, Gruppo Fininvest), as well as major political figures.
Contact: EITC Secretariat,
Fax: +32 2 296 8397; **Email:** eitc@dg13.cec.be

INOVA '94: 10TH INTERNATIONAL INNOVATION WEEK
7-9 June 1994, Paris, France

Organised with the support of the SPRINT Programme (see Dossier), INOVA '94 will create a 3-day 'Technology Transfer Area' and hold high-quality seminars and conferences on the theory and practice of technology transfer.

Through helping companies make contacts and form networks, the Technology Transfer Area aims to help companies and industries, particularly SMEs, access the trans-European 'innovation networks' which hold the key to tapping Europe's resources.
In addition, debates will cover:
- Prospective trends and technology monitoring;
- Strategy of innovation, alliance and cooperation for acquiring and exchanging technology;
- Technology transfer: practices, methods and costs;
- The players involved in technology transfer.

Contact: Association INOVA,
Tel: +33 1 43 26 00 47; **Fax:** +33 1 43 26 22 29.

BRITE-EURAM II WORKSHOPS

The EC's Specific Programme for Industrial Technologies and Advanced Materials is running several workshops over the coming months:

ECONOMIC GEOLOGY IN EUROPE AND BEYOND
13-15 April 1994, Nottingham (UK)

Contact: Dr. P. Simpson, British Geological Survey,
Tel: +44 602 36 35 32;
Fax: +44 602 36 32 00

SECOND EUROPEAN CONFERENCE ON JOINING TECHNOLOGY - EUROJOIN '94
15-18 May 1994, Florence, (Italy)

Contact: Dr. Costa, Instituto Italiano della Saldatura,
Tel: +39 10 834 13 87;
Fax: +39 10 867 780

2ND EUROPEAN METALS CONFERENCE
14-18 June 1994, Freiberg (D)

Contact: Dr. Dornbusch, GDMB,
Tel: +49 5323 34 38;
Fax: +49 5323 78 804

CONCRETE ACROSS BORDERS - INTERNATIONAL CONFERENCE
21-25 June 1994, Odense (DK)

Contact: M. N. Meinertz Nielsen, Dansk Betoninstitut A/S,
Tel: +45 45 82 32 33;
Fax: +45 45 82 32 34

8TH CIMTEC: INTERNATIONAL CONFERENCES ON MODERN MATERIALS AND TECHNOLOGIES
29 June - 4 July 1994, Florence (Italy)

Contact: M.P. Vincenzini, Chairman,
Tel: +39 546 66 11 43;
Fax: +39 546 66 41 38

PUBLICATIONS

• CORDIS

The first edition of RTD-Results, a quarterly companion to CORDIS-focus featuring extracts from the CORDIS RTD-RESULTS database, was launched in mid-March.

Contact: RTD Help Desk.
Tel: +352 4301 33161;
Fax: +352 4301 32084

• INFORMATION & COMMUNICATION TECHNOLOGIES

■ I&T MAGAZINE

The former XIII Magazine has changed its title to I&T magazine, reflecting recent organisational changes within the EC. The 5-language magazine still focuses on information and telecommunication technologies, but is now jointly published by DG III (Industry) and DG XIII (Telecommunications, Information Market and Exploitation of Research). It is accompanied by a News Review supplement (English only).

• ENERGY

■ THERMIE Newsletter

THERMIE, the EC programme for promoting energy technologies, launched THERMIE Renewable Energy Journal - a new quarterly newsletter - at the beginning of the year.

Contact: Systemes Solaires,
Tel: +33 1 42 96 24 77;
Fax: +33 1 42 96 26 43

■ WIND; SOLAR ARCHITECTURE

£100 (EU); £120 (non-EU).

The proceedings of both the EC Wind Energy Conference and the 3rd European Conference on Architecture (Solar Energy in Architecture and Urban Planning), held in Germany and Italy (respectively) last year, are now available.

Contact: H.S. Stephens & Associates,
Pavenham Road,
Felmersham, Bedford,
MK43 7EX, England, UK

• ENVIRONMENT

■ European Cultural Heritage Newsletter on Research

A recent special issue of this newsletter, published by the Environment Programme, provides "research reports" on the STEP Programme (Protection and Conservation of European Cultural Heritage) and the Environment Programme.

Contact: Julia Acevedo
Tel: +32 2 295 20 43;
Fax: +32 2 296 30 24

• CORRECTIONS

■ On page 8 of issue 4/93, the contact information for **MLNet**, the ESPRIT Network of Excellence concerned with machine learning, was not provided. It is:

Contact: Professor Derek Sleeman,
Dept. Computing Science, University of Aberdeen
Tel: +44 224 27 22 88 / 23 04;
Fax: +44 224 27 34 22

■ The facsimile number for the Public Relations Office of the **JOINT RESEARCH CENTRE (JRC)**, given in last issue's Quick Reference Guide, should have been:

Fax: +39 332 78 58 18.

TESTING IN EUROPE: EUROLAB SYMPOSIUM AND HANDBOOK

EUROLAB, the organisation of the testing and analytical laboratories of the EU and EFTA countries, has just produced a major handbook and directory of testing activities in Europe, and is preparing its 2nd Symposium.

■ **'Testing in Europe':** The 900-page EUROLAB Directory and Handbook provides information on private and public laboratories and organisations in the 17 EUROLAB countries active in testing, analysis, product certification and technical conformity assessment. Also available on diskette.

■ **'Testing for the Year 2000':** To be held from 25-27 April, Florence (IT), the 2nd EUROLAB Symposium will focus on the development of testing activities for the next decade.

Contact: EUROLAB Secretariat
Tel: +33 1 40 43 39 18; **Fax:** +33 1 40 43 39 82

NOTE

If specific contact information for obtaining a publication is not supplied, refer to the 'Quick Reference Guide' (ITT issue 1/94). Publications are free unless otherwise stated.

▶ STOP PRESS

□ March 21: The Counciliation Procedure (see page 5) has led to agreement on the FOURTH FRAMEWORK PROGRAMME budget: 12.3 billion ECUs, with another 0,7 billion ECUs possible by June 1996 at the latest. To become law, this must be accepted by the Parliament and the Council within six weeks.

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- If you would specifically like issue 1/94, which contains the 'Quick Reference Guide to EC Information Sources' pullout, post your address label to: Mr. Parmentier, European Commission, JMO B4/81, L-2920 Luxembourg.