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Road Transport Informatics

COMMISSION OF THE EUROPEAN COMMUNITIES
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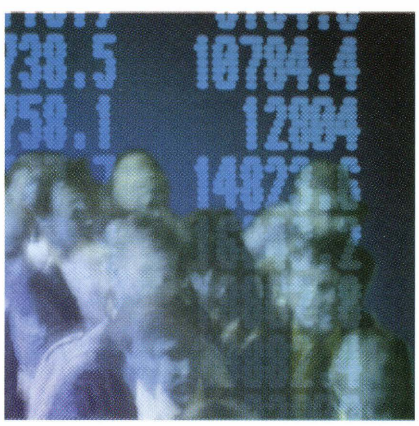

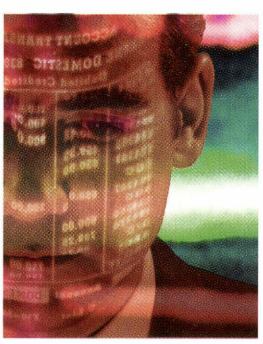

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EDITORIAL

THIS YEAR MARKS the final straight to the opening of the single European market. It is worth making a brief assessment of the period which has just ended, and drawing from it lessons as regards the present European landscape of information and communication technologies and their future development.

The last weeks of 1991 were especially eventful. The conjunction of these events is a good illustration of both the formidable challenges facing European industries in these fields and the growing political determination to see that they remain in the front rank.

The conclusion of a new treaty, giving official recognition to the underlying trends and developments in the Community, must be seen as the main event following the Maastricht summit. It can serve as the framework, for purposes both of explanation and reference, to this network of activities. Three chapters of the new treaty are especially relevant to the activities of DGXIII.

To begin with, the role of Community research and technology development (RTD), in which electronics, informatics and telecommunications are key areas, is both confirmed and strengthened. More than ever, it should be possible to improve the competitivity of European companies using Europe's scientific base. What is more, the policy of technological R&D is now viewed as an essential factor in the success of other Community policies. Two entirely new chapters clearly illustrate this complementarity.

The first deals with industrial policy. Aware of the "imperative" need to set out an industrial strategy for Europe and its enterprises, the Community's political leaders have sought to provide it with a legal basis. This concept of a "new style" industrial policy has been applied, on a priority basis, to the electronic and informatic industries, through a resolution adopted by the Council on 18 November 1991. The Council has thus recognized the importance of these industries, which are not only basically infrastructural in nature but also deploy technologies that are widely pervasive. The equipment and services connected with these industries are of use to both the economy as a whole and to society overall.

The resolution is built around three major elements:

- The creation of a favourable business environment allowing companies to face up to increasingly severe competition. For industries which are so global in nature, it is vital that European companies benefit from conditions at least comparable to those available to their American and Japanese competitors.
- An improvement in the products on offer, which requires both the adaptation and development of the RTD policy. Hence the need for projects which are fewer in number but better targetted. It is also necessary to establish a fresh balance between the pursuit of research aimed at maintaining the technological foundation of generic technologies and, in a certain number of cases, going for "structuring" projects, with a multiplier effect, fixing precise objectives.
- The importance of the demand factor, and the new aspirations of business users and the general public. This was evident during last November's Esprit conference, which showed that the role of the user is changing from that of a consumer to a shaper of technology, bringing about a far-reaching change in the nature of the informatic and electronic industries.

This last point brings us to the third chapter of the treaty, in the trilogy which very largely concerns DGXIII. It deals with trans-European networks and is closely linked to the two chapters already mentioned, those dealing with RTD and industrial policy. On the eve of the opening of the single market, the infrastructure necessary for its effective operation must be rapidly installed, particularly in the field of telecommunication networks, which still suffer from "missing links."

In this field, and in that of telematic services dependent on these networks (the so-called European Nervous System), the public authorities have a certain role to play through the combination of RTD programmes and investment incentives, with the positive impetus which that can have on European suppliers.

It is from this standpoint, which testifies to a new state of mind on the part of political authorities, both pragmatic and constructive, that one must interpret the conclusion on 20 December 1991 of a Council agreement on the renewal of the HDTV directive regulating the broadcasting of high definition television signals. The EC ministers were able to surmount the divergences expressed in the course of recent months and to reach a consensus. As a result, it will be possible to avoid a legal hiatus which could have put a brake on the European momentum in this area. This momentum has been preserved, not only in the management of both the short and medium terms, but also in throwing open the field to the research needed to arrive at more long-term solutions.

All these new policy orientations, which have a legal basis, must now be addressed in the form of concrete proposals from the Commission. These are being drawn up in the context of what is described as the second "Delors package", which will set out the framework for Community actions over the period 1993 to 1997 and give rise to detailed discussions between the various Community authorities during the course of this year.

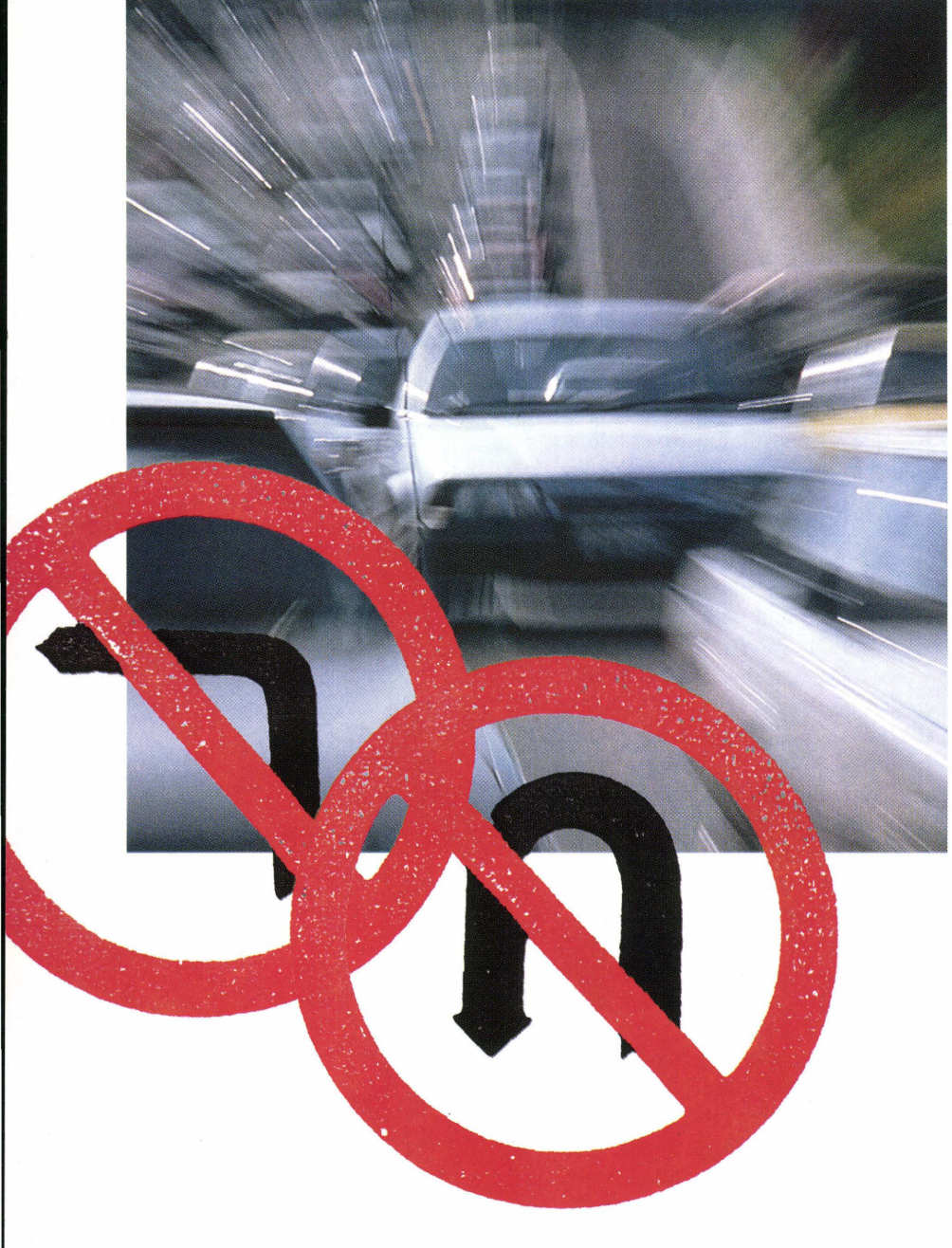
A general impetus has therefore been given. However, much remains to be done, in full awareness of how much the current slowdown in the world economy affects the European milieux in these sectors. Numerous remaining problems will also have to be taken up, whether it is a question of the shortcomings in training systems for technologies undergoing continual change or aspects concerning the cohesion between Member States.

During the course of the year *XIII Magazine* will provide detailed information on all these developments. My best wishes for 1992 to all our readers. ■

Michel Carpentier *Director-General DGXIII, Commission of the European Communities*

DRIVE

European R&D cooperation in electronic systems for cleaner, safer, more efficient road transport



EUROPEANS SPEND MORE than ECU 500 billion on road transport products and services every year. The transport sector represents more than 6% of gross national product and more than 10% of the average family budget. Although car ownership steadily increased during the 1980s and there are now some 120 million cars in Europe, the level of ownership still lags substantially behind that of the USA (330 as compared with 550 cars per 1000 population), indicating that further growth can be expected.

The completion of the single European market depends very much on a transport system which will provide safe and efficient transport for people and goods. Both economically and socially, transport makes the wheels go round. Yet the transport system currently faces major deficiencies: traffic congestion, accidents and environmental problems are worsening.

Although additional roads and high quality railways are still needed to fill the missing links between the main capitals and to connect under-developed regions, there are severe obstacles to the expansion of traditional infrastructure, due to scarcity of space and resources as well as for environmental reasons. Existing approaches to solving road traffic problems, such as traffic management schemes, civil engineering improvements, engine management technology and Community directives on vehicle standards, are important but have a limited effect in the face of rapidly increasing road use.

As a response to these challenges the EC's Drive R&D programme was adopted by the Council in 1988. With a budget of ECU 60 million over three years, it aimed to improve road safety, maximize road transport efficiency and contribute to environmental improvements by using information technology, telecommunications and broadcasting. If these are brought together to provide integrated advanced communications, control and information systems, they enable more flexible and responsive forms of traffic management and safety systems to be created for the benefit of all road users.

Drive envisages a common European road transport environment in which drivers are better informed and 'intelligent' vehicles communicate and cooperate with the road infrastructure itself. The programme follows a top-down systems approach to the research and overall design of traffic management and safety systems, which will represent a significant advance over those currently available.

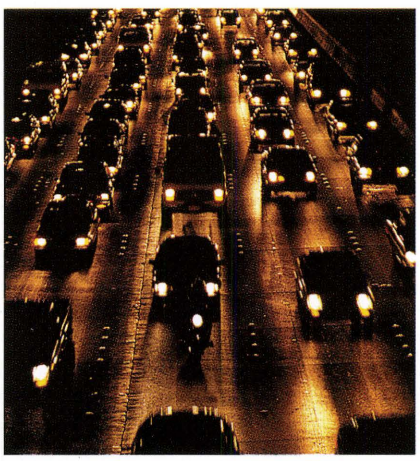
The Drive programme therefore aims to create favourable conditions for the development of this integrated road transport environment (IRTE), through pre-competitive and collaborative R&D in the field of information technology and telecommunications applied to road transport (known as road transport informatics, or RTI).

The programme entails:

- research, development and assessment of a range of RTI technologies
- the evaluation of strategic choices of candidate systems
- a significant amount of standardization work.

Drive has brought together road users, research institutions, providers of broadcasting and telecommunications services, industry and road transportation authorities, which have worked together for a total effort of 12,500 person-months. It has developed and will maintain close links with other European actions in the domain, notably those carried out under the EUREKA framework, such as Prometheus, Carminat, and COST. In particular Drive involves Community-level action with regard to standardization and common functional specifications for advanced infrastructure systems. Such cooperation is essential in supporting the close-to-market activities of European industry and avoiding incompatibilities or unnecessary duplication of effort.

Drive projects span a representative spectrum of advanced applications in such areas as:



- Two-way communication systems (GSM, infrared, microwave).
- Integrated traffic control (strategies, applications, artificial intelligence).
- Environmental control strategies.
- Road safety (user-machine interfaces, anticollision systems, behavioural aspects).
- Advanced public transport and freight systems.
- Evaluation techniques and strategies.
- Systems integration and management techniques.

Within the programme, projects have been arranged into four groups on the basis of their areas of research and on the degree of cooperation required between them. This cooperation and grouping of projects was envisaged in the set of tasks described in the Drive workplan. The four groups are the following.

Group 1: Evaluation and Modelling

To optimize RTI (road transport informatics) applications in Europe, the Drive programme has financed the development of suitable tools to simulate and evaluate the effects of RTI implementation. The projects in this area dovetail and, where relevant, different simulations and evaluations are developed in a compatible manner across this part of the programme, particularly in transportation modelling and in evaluation guidelines.

In transportation modelling, an innovative approach is carried out in order to forecast and simulate the effects of RTI on transport demand, traffic performance and the environment. The six models developed are dynamic in character and are based on existing research on perception, and driver and household behaviour. These models explicitly include the effect of drivers having information about the road environment so that the consequences of partial and imperfect information can be modelled directly.

Group 2: Behavioural Aspects and Traffic Safety

The Drive programme offers a new approach to improving road safety through the application of RTI, as the experience of the most motorized countries shows that the traditional ways of attacking the traffic injury problem have been pushed to their limits and further investment in them now yields very little benefit.

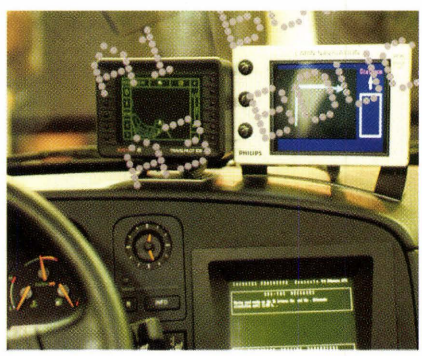
Projects in this area have researched the following:

- Hazard and accident data analysis, particularly in relation to RTI systems.
- Safety for vulnerable road users.
- Behavioural changes due to the introduction of RTI systems.
- Requirements for user-machine interfaces and collision avoidance systems.
- Data recording using a vehicle journey recorder, and systems for automatic policing.
- Impact and implementation studies.

Group 3: Traffic Control

The projects have contributed to the integrated road transport environment (IRTE) by developing either system components or by working on the integration of those components into a single system. For example, one project has defined the functional requirements and specifications for the IRTE. Another dealt with the integration of dynamic route guidance and traffic control systems. The other projects in this area dealt with the more detailed components of the IRTE.

Traffic demand projects included the development of strategies for demand management, management of off-street parking (an important element of urban traffic control) and investigation of smart cards which could be used for automatic debiting.



Implementation plan for telematics applications in road corridors of European interest and new Drive projects.

Traffic control projects concern both urban and extra-urban areas. In summary, there are projects concerning:

- The development of separate traffic control subsystems, such as for tidal flow or for tunnel control (although each subsystem must be integrated into the overall IRTE).
- The improvement of traffic signal control by making use of better origin/destination information.
- Using expert systems to advise on appropriate traffic control decisions.
- The use of artificial intelligence (AI) for data acquisition, traffic condition interpretation and prediction.
- The definition of system architectures and the building of prototypes for new road condition and weather monitoring systems.
- Freeway ramp control.
- Cooperative motorway driving.

Congestion control is really a special type of traffic control. Projects in this area concern alternative methods for general incident detection, the use of computer vision for general incident detection and strategies that should be adopted to prevent congestion.

Group 4: Services, Telecommunications, Databases

Group 4 contains a diverse set of projects concerned with the telecommunications and information flow aspects of the IRTE and the special needs of fleet operators. This concern extends to the sources of information as well as to the use of the information; so projects include information sources, such as positioning systems and digital maps, and information users, such as driver information systems. They can be arranged into five groups:

Public transport group. Two projects have developed strategies for integrated public transport management and information systems, as well as for passenger information, vehicle scheduling and control systems for public transport.

Freight management group. Two projects have developed strategies for integrated freight management and set out the functional characteristics of an RTI-based pan-European system of road freight operation in order to optimize efficiency, and economic and other types of performance.

Digital maps and databases group. Road database management structure and digital maps have been studied. These databases and digital maps will be of major importance for the operational launching of route guidance systems.

Information and broadcasting systems. Three projects have studied the full scope of operations in traffic information from gathering to dissemination, while another project has studied the use of electronic cards for portable travel and transport information.

Communications technologies, systems and architecture. Projects have examined in detail communications technologies, including the suitability of different cable systems, data acquisition and communication techniques for use in RTI systems. The use of cellular radio as the communications link for route navigation and driver information has been developed. A microwave link for automatic two-way data communication between vehicles and the roadside to be used for traffic monitoring and pricing applications has been developed. For communications architecture, the telecommunications and information processing infrastructure for RTI systems have been examined and specifications proposed.

The Drive programme: laying the groundwork for an integrated road transport environment in which drivers are better informed and 'intelligent' vehicles communicate and cooperate with the road infrastructure itself

More powerful than a horse, but not as intelligent.

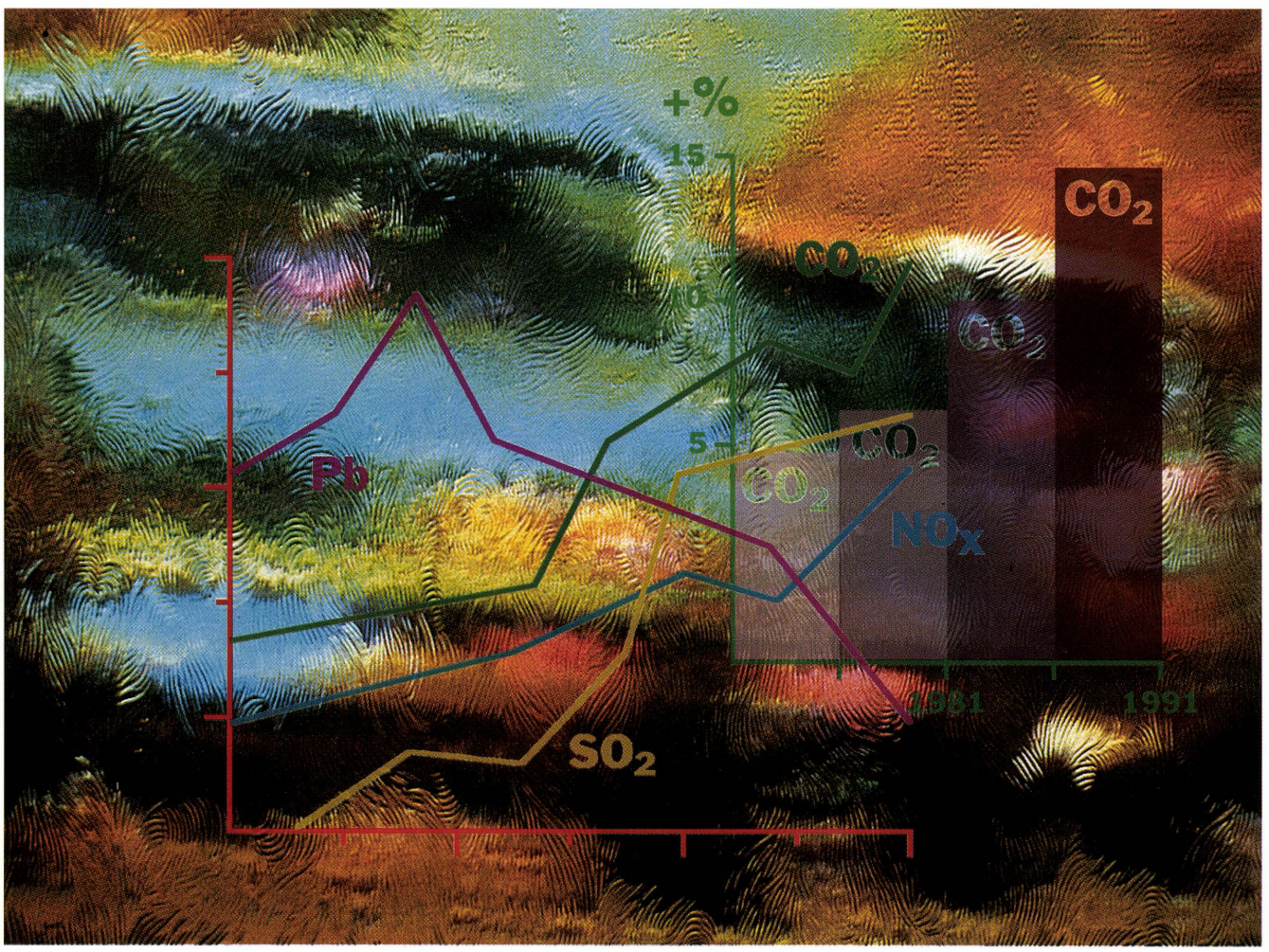
Since the Drive programme began, an important shift in perception has occurred. What seemed a futuristic vision at the beginning of the programme has matured to become a realistic opportunity. Market introduction of advanced transport telematics systems is expected within five years

Research results achieved in Drive projects must lead to effective systems integration. Given the complexity involved, this will be impossible unless an overall and consistent systems engineering approach is adopted from the outset. In addition, as a complement to technical systems engineering, there are a range of other tasks that have collectively been called consensus formation. In essence, these tasks were concerned with ensuring continual external feedback to Drive projects throughout the life of the programme with the ultimate aim of recommending a preferred implementation strategy for RTI systems. Irrespective of the quality of the research and development undertaken, Drive will not be successful without broad agreement between the sector participants that the results of the projects actually meet their requirements and will be adopted widely in the market place. Mechanisms to seek and obtain consensus at the working level were built into the Drive programme; these included regular concertation meetings (16 in total over the three years of the programme) where all Drive projects participated.

The strategy for implementation

As a top-down programme with a view on final implementation, Drive is looking towards improving understanding and cooperation between public authorities, industry and users. Various levels of activity are undertaken to promote understanding, the commitment of sector actors and short, medium and long term actions. Activities have been undertaken in the frameworks of preparing for trans-European networks (two communications to the Council by the Commission including the need for implementing Drive results), the European Conference of Ministers of Transport (two resolutions adopted in 1990 and 91 relating to Drive), the creation of a strategic consultative committee to represent the different sector actors, and the formation of an infrastructure group representing the concerns of the infrastructure providers of EC and EFTA countries.

In addition, considerable effort has been put into advancing consensus between projects on common functional specifications. As a result, a total of 26 specific items have been forwarded to standardization bodies, in particular CEN, TC 224 (machine



readable cards) and TC 278 road transport and traffic telematics). In addition, the CEPT European Radiocommunications Committee has approved frequency bands for RTI systems: 5.795-5.805 GHZ for short-term pan-European applications (and up to 5.815 to meet local requirements). Add 63-64 GHZ and 76-81 GHZ for future applications (cooperative driving, anti-collision systems).

The Drive Infrastructure Group has agreed a plan for the implementation of the basic infrastructure of an integrated road safety, information and navigation system (IRIS) as a basic trans-European network with well-defined functions, which could be further extended to cover the other transport modes.

In the preparation of the IRIS plan, as a first step the cities and corridors in Europe which present a European interest have been identified. The advanced transport telematics (ATT) systems which have to be installed in these cities and on these corridors are specified.

In the short term, ATT systems which should be installed in the cities of European interest include on-line optimized traffic signal control, public transport scheduling and control systems and passenger information, parking management and information, traffic and travel information, traffic demand management and tunnel computer control.

In the medium term, strong integration between all these systems should be developed; the traffic and travel information systems should be improved, making use of the newest technologies such as RDS/TMC and GSM; and the necessary infrastructure for route guidance should be installed.

In the short term, the motorway corridors of European interest should be equipped with basic systems for the following: a reliable emergency telephone, collection of traffic and meteorological data and for the automatic detection of incidents, traffic data exchange, a hierarchical international motorway control system and tunnel control.

In the medium term these systems will be upgraded to include automatic debiting systems, automatic motorway traffic control and corridor control, traffic and travel information making use of variable message signs, information terminals and RDS/TMC broadcasting.

The future

Since the Drive programme began, an important shift in perception has occurred. What seemed a futuristic vision at the beginning of the programme has matured to become a realistic opportunity. Market introduction of advanced transport telematics systems is expected within five years. Moreover, it has become evident, with the arrival of the VICS programme in Japan and the Intelligent Vehicle Highway Systems (IVHS) programme in the USA, that the development of ATT systems is of worldwide socio-economic and environmental significance.

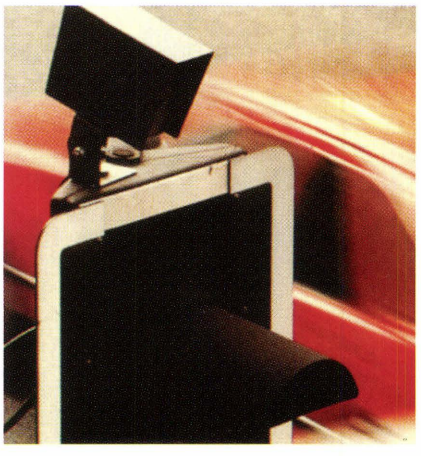
These factors were recognized in the third EC Framework Programme for research and technology development (1991-1994), which provides for the continuation of R&D in the field of telematics systems of general interest.

The new work is divided into seven areas of major operational interest and particular attention is being given to validation of the R&D results achieved so far in Europe through pilot projects. These groupings will enable complementary technologies and systems to come together and be integrated into coherent pilots. The seven areas of interest are as follows:

- Demand management.
- Traffic and travel information.
- Integrated urban traffic management.
- Integrated inter-urban traffic management.
- Driver assistance and cooperative driving.
- Freight and fleet management.
- Public transport management.

The new action is focussed on preparing for the implementation of ATT systems leading to the integrated road transport environment. This represents a shift from the initial orientation of Drive, i.e. on exploring options. The 56 new projects selected following the call of proposals will absorb almost all the financial resources made available by the Council decision. Work has already started, as of January this year. ■

F. Karamitsos, *DGXIII*

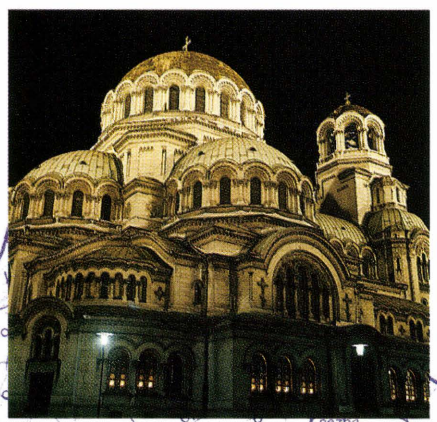


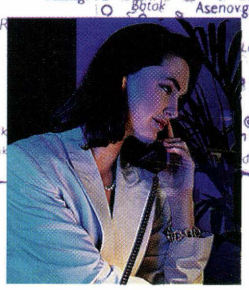
THE OTHER EUROPE
BULGARIA

BULGARIA IS LEARNING to live with both communism and the free market. Unlike some other countries in central and east Europe which have thrown off the cloak of a centrally-planned economy and leapt naked towards free enterprise, Bulgaria's official communist party is alive and well. This has not, however, prevented the country from pursuing its own free market ambitions.

In spite of recent developments, Bulgaria remains tied by history and language to the former Soviet Union. Russian is commonly spoken and until recently trade links with the Soviet states were Bulgaria's most important commerce.

The Comecon division of labour created in Bulgaria the Soviet Union's electronics workshop and computer store. With a strong emphasis on maths, physics and basic science, the country has produced a generation of skilled computer engineers and experts in robotics. At one point, Bulgaria was the world's third largest producer of robotics equipment and Comecon's largest exporter of peripherals and computers, accounting for more than 50% of trade with the Soviet Union. Other specializations included hydraulics and metal cutting.





But the collapse of the Soviet trading system meant that equipment supplies dried up and work on robotics and computers has now virtually ceased. A generation of unemployed skilled programmers has spawned east Europe's most active and successful computer hackers. According to Hamburg University's Virus Test Centre, Bulgaria is the source of almost one in three east European computer viruses.

The brain drain phenomenon common to the fledgling democracies of east Europe has appeared here: Bulgarian scientists have found work in Germany and Italy, their counterparts in Poland have gone to the United States and some from Hungary and Czechoslovakia have moved to Germany and Sweden. Sofia is urging Community support for local research in areas where Bulgaria once excelled - chemistry, biotechnology, pharmaceuticals, robotics, computers and energy storage - to staunch this haemorrhage of talent.

Bulgaria is now looking westwards to the future and to the European Community in particular. Informal talks have been held with the Commission of the European Communities and negotiations on an association agreement, like those signed last December with Poland, Hungary and Czechoslovakia, are due to begin early this year. The Commission hopes that these new association agreements, boosting trade, cooperation and political dialogue, can be concluded with Bulgaria and Romania by the summer.

As a target of support from the Community's PHARE programme, Bulgaria has already identified infrastructure, tourism, agriculture, management and the environment as priority areas for western assistance. In 1992 efforts will concentrate on telecommunications and energy.

Some of Bulgaria's environmental problems hit the headlines in 1991 with the shut-down of the ageing Soviet-designed nuclear reactor at Kolodzy. The Community has contributed emergency aid for the Kolodzy project and support to the work of the International Atomic Energy Agency in making safe other antiquated reactors. Other problems include transboundary effects of industrial installations such as the Rouse chemical installations, just over the border in Romania.

However, like all the other countries of central and east Europe, Bulgaria's drive towards a free market economy depends on the creation of an efficient and reliable telecommunications network.

Bulgaria is far more advanced than its neighbours in terms of the rate of telephone penetration: by 1990 there were 23 main lines per 100 population compared with just over 10 lines for the region as a whole. But it is victim to the same problems of ageing infrastructure. Waiting lists are extremely long, with 700,000 outstanding connections in total and 120,000 in Sofia alone, equivalent to a waiting time of up to 15 years. The network generates a small surplus, but investment levels at 25% are, although higher than in neighbouring countries, lower than the 30-35% average of west Europe. In 1989, Bulgaria invested 150 million leva (now equivalent to about 50 million dollars at the official exchange rate or 22 million dollars at the black market rate) of its 610 million leva revenue.

With the exception of international telephone and telex gateways in Sofia, digitization is negligible. The network is extremely unreliable, with an actual call failure rate higher than official estimates.

Responsibility for telecommunications lies with the Committee for Post, Telecommunications and Informatics (CPTI) and the Telecommunications Corporation (BPT), recently separated from CPTI to act as operator. Plessey has been awarded a special contract for the provision and joint operation of advanced international payphones but other private ventures are hampered by strict joint venture rules and the lack of convertibility of the lev.

Bulgaria is a major producer of telecommunications equipment manufactured by Incoms under licence from Siemens, with exports to the former Soviet Union until recently accounting for 70% of annual production worth an estimated 750 million leva. Digital gateways for telephone and telex are produced by Alcatel and Ericsson respectively.

A joint lending operation grouping the World Bank, European Bank for Reconstruction and Development and European Investment Bank, in its first role as coordinator in east Europe, has outlined a programme of renewal and reform. PHARE has allocated a financing fund of ECU 3 million, of which ECU 1.6 million has already been spent.

The programme focuses first on the development of international, long-distance and business traffic. The main priorities include resolving regulatory and ownership issues, establishing an organization and management scheme, creating an appropriate tariff and accounting system, and advising on management information services and computerization.

Management and training are probably the most urgently needed support, but in terms of infrastructure the country is hoping to extend a pilot packet-switching system, provide terminals and receivers for teletex and videotex infotel systems and improve urban infrastructure. In addition, there is scope to expand the use of mobile telephones, several hundred of which are already in use in two regions. These could offer an alternative to normal lines in special cases, but rapid growth is hampered by the lack of standards. Unlike, for instance, Albania, where the whole telecommunications network is expected to be scrapped and replaced from scratch, the existing Bulgarian network will be upgraded with the addition of digital lines in addition to existing analogue services.

Although cooperation with Bulgaria in this field has been relatively slow to get off the ground, due mainly to a lack of basic information on the current system and projected needs, Community assistance is expected to gain momentum in 1992 with further work on planning and policies completed by June and new projects under way before the end of the year. ■

Lucy Walker

Online access to EC R&D

KEY FACTORS IN bringing firms out of the recession are exploiting an innovatory edge, entry into wider markets and finding the right partners for successful joint projects. As this year progresses, the media and the markets will be increasingly attentive to the scheduled completion of the single European market on 31 December. European Community funding and Community projects will become increasingly important factors.

A few years ago an organization might have sent an executive on a trip to Brussels to find European contacts. Or a research administrator would be tied up communicating by telephone or fax to find the right EC official and the right information.

Today the same result can be achieved more simply and cheaply with *Cordis*, the result of a Community policy to bring information to the enquirer. *Cordis* is the *Community research and development information service*, an online library that can be accessed from a personal computer. Each of the 'books' or services can be easily scanned via a brief index and menu driven system. This requires no previous training.

Cordis is a key instrument of the Value programme, aimed at the industrial integration and exploitation of results from EC research and technology development programmes. Launched at the Esprit conference in December 1990, Cordis already has more than 2,300 registered users. Sharp interest has been shown in the service.

The information in Cordis includes all the Community-sponsored programmes, over 15,000 R&D projects within these programmes, abstracts of more than 50,000 scientific publications arising from Community activities, descriptions of R&D results, contact organizations which can assist locally in Community affairs, inventories of organizations from which partners can be identified, glossaries and explanations of various acronyms as well as developments under planning, news and announcements of calls for tenders.

Thus decision-makers in Member States can get a comprehensive and concentrated picture of planned and ongoing programmes, while scientists and researchers can obtain information on organizations involved in projects of their interest which they can contact for future cooperation.

Cordis is a complement to many other existing means aimed at keeping the public informed on the Community's activities and constitutes a unique entry point for RTD-related information. Cordis can only provide reference information based on publicly available knowledge. It is not meant to replace the more in-depth and specialized information can be obtained from individual programmes and Commission services.

A marketing manager in the UK said the service was ahead of its time. "In the next few years we will become increasingly environmentally aware, and more and more alternative technologies will be created and new ideas spawned. The service would be the vehicle to disseminate these innovative technologies."

Other users have identified interesting potential partners and use Cordis to keep track of developments. A Dutch scientist found it useful "as it allows me to keep up to date with current projects in my field of interest." He added, "I have quickly and easily found key biomedical researchers and, as a contributor to the database, I find it important to be part of that European network."

Cordis was set up by the European Commission as a single European focus for information on research and technological development. It already provides an almost encyclopaedic range of information on European science, research and technological development. New services may be added in the next phase. At present, the following are offered on the opening menu:

- **RTD-Programmes** provides information on all Community research and related programmes.
- **RTD-Projects** gives details of individual contracts and studies and the organizations involved, within the various programmes.
- **RTD-Publications** (also known as the EABS database) provides bibliographic information and abstracts on publications, reports and scientific papers arising from the Community research activities.
- **RTD-ComDocuments** lists the Commission communications to the Council of Ministers and the European Parliament on research matters. These often indicate details of programmes in the initial stages of discussion.
- **RTD-Acronyms** provides a compact dictionary of acronyms and abbreviations to do with Community research programmes and projects (a booklet on EC research acronyms is also available).
- **RTD-News** contain latest announcements such as calls for proposals and

calls for tender, plus other news from Commission research departments.

- **RTD-Results** contains prototypes awaiting commercial exploitation and research projects needing further developments.
- **RTD-Infopoints** details organizations in Member States offering assistance in connection with Community research and technology development activities.
- **RTD-Partners** helps enquirers identify suitable partners for the submission of proposals for projects to be supported under Community funding and for the exploitation of RTD results.

Cordis encourages the industrial and commercial exploitation of research from Community programmes. For example, companies which have successfully developed new processes can find partners in the areas where they do not have strengths. Similarly, venture capitalists or industrialists looking for prototypes or new products to market can find tempting offerings in the RTD-Results database, previously known as Proteas.

A technical manager wrote: "Through Proteas I am meeting an Italian company to discuss proposals for collaboration under Brite/Euram. In addition I am in the initial stages of discussion with a firm in Spain. It is unlikely that we would have met these people if it had not been for Proteas."

Cordis users cover the whole of Europe. The service provides an easy access for EFTA countries to European collaboration. A programme manager of a technological development centre in Finland confirmed this: "At least three Finnish companies have found fruitful first contacts with the help of the service."

The service is seeking active feedback from its customers. A survey was recently undertaken to tailor the service as closely as possible to user needs and requirements. First results indicated a high level of satisfaction, with colleagues often sharing a password to gain access.

The Commission's policy has been to attract the maximum number of European users to this service. During the initial period, therefore, registration is free. Different types of services have been developed to respond to the equipment and needs of customers. For those with an MS-DOS computer, Cordis comes in several forms.

MiniCordis is provided on diskettes and occupies one or two megabytes of memory. A CD-ROM version will soon be offered. Immediate easy access in the office is thus provided, although daily updates are not possible for the most time-sensitive files.

The most up-to-date version, giving late-breaking news and announcements, is the online version loaded on the mainframe of the European Commission Host Organization's (ECHO) computer in Luxembourg. This can be accessed via modem and data networks or through national videotex systems. As an alternative to the menu-driven system, the Command Language option on ECHO permits detailed, specific questions to be posed.

A quick call to the Cordis service on ECHO can provide the latest calls for tenders and the cost of communications may be scarcely more than a local call. ■

David J. H. Price

If you are interested in registering for Cordis on ECHO, and wish to receive registration forms, please complete the coupon below in order to receive the Cordis information pack.
Post it to ECHO/Cordis, BP 262, L-2012 Luxembourg or fax it to Cordis operations in Luxembourg (+352. 3498 1234).

Please send me: *(please tick box)*
❑ Cordis Info Pack
❑ Acronyms booklet

Name .....

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Videotex and Audiotex in Europe

Why should letterboxes have all the fun?

Coordinated action can bring frontier-free electronic services to the European mass information market

VIDEOTEX NETWORKS are systems which allow access to a broad spectrum of interactive applications such as home shopping, hotel booking, telebanking, directory enquiries, messaging and call paging. Videotex solutions have the advantages of user-friendliness and the use of one generic terminal for any kind of service.

Although the financial profits for the operators of telematic networks are far from proven, the macro-economic benefits are immense. Presently, 6.7 million terminals are on the European market, mainly in France. The penetration of users in the Community's professional sector is in the order of 2.4 million. The total generated income for all European videotex services is ECU 340 million. These figures do not take into account the benefits for the telecom operator. In France, the Teletel programme generates more than 100 million hours of traffic annually.

Whereas videotex services are text-based, audiotex are vocal information services. Both types of services, although to some extent in competition with each other, are complementary: videotex starts where audiotex ends.

At present half of the more than 133 million telephone lines in the Community are able to access interactive audiotex services, whereas less than 5% of telephone subscribers can access videotex services.

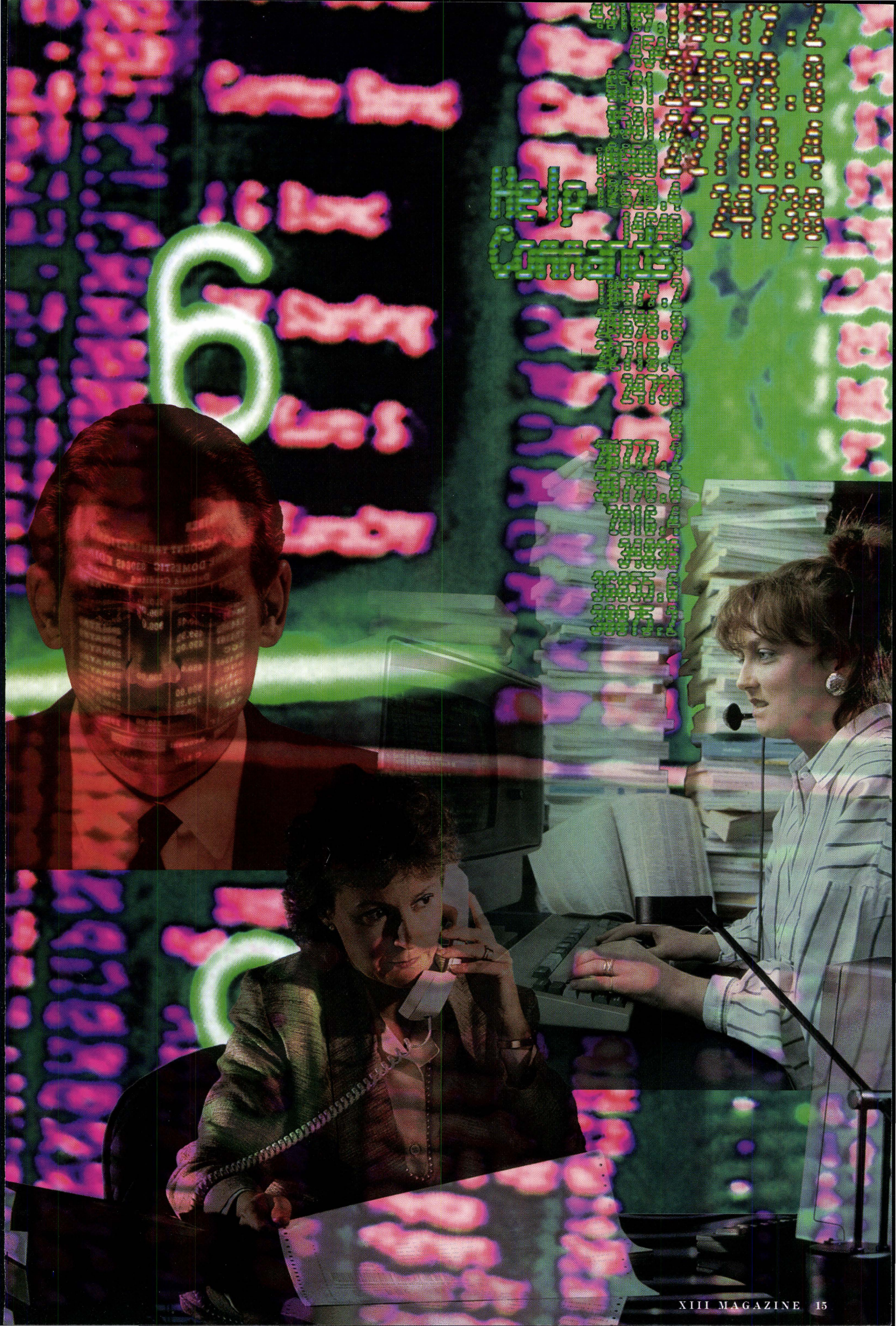
Videotex technology currently in use is to a certain extent outdated, but the concept is not. Accessing thousands of interactive telematic applications via a simple generic terminal has proven its value in the French Teletel programme. The post-production videotex standardization undertaken at the demand of industry, faced with a fragmented market, has unfortunately not led to a single European voluntary standard. This needs to be avoided in the post-1992 single European market. Industry, service providers and telecom operators are therefore defining the standards for second generation telematics based upon ISDN, eventually including graphics, still pictures and sound. Nonetheless, no standardization efforts are being made for audiotex applications and it is unlikely that substantial efforts will be made in this domain.

Audiotex services differ from voice services in the way they are paid for. For these services the telecommunications operator makes a composite charge for a phone call and the audiotex service, even where this service is provided by a third party. This has interesting contractual consequences, in that the user does not have to pass an agreement with every single service provider. The composite charging technique is known as premium rate services (PRS) or kiosk billing, an invoicing scheme where the telecommunications operators (TOs) charge the callers for the use of an independent value-added service and pass a proportion of the proceeds on to the service provider.

The premium rate services for audiotex find their origin in the similar charging scheme used for videotex service by some TOs. Unfortunately, the majority of TOs offer only separate subscription-based billing to their videotex users.

Audiotex, in combination with premium rate services, is relatively new. Due to its simplicity and low initial investment, it is nonetheless rapidly gaining ground. The generated income for the premium rate services was ECU 449 million in 1989.

Although the present premium rate services are a first step to the plug-in-and-play concept, in general PRS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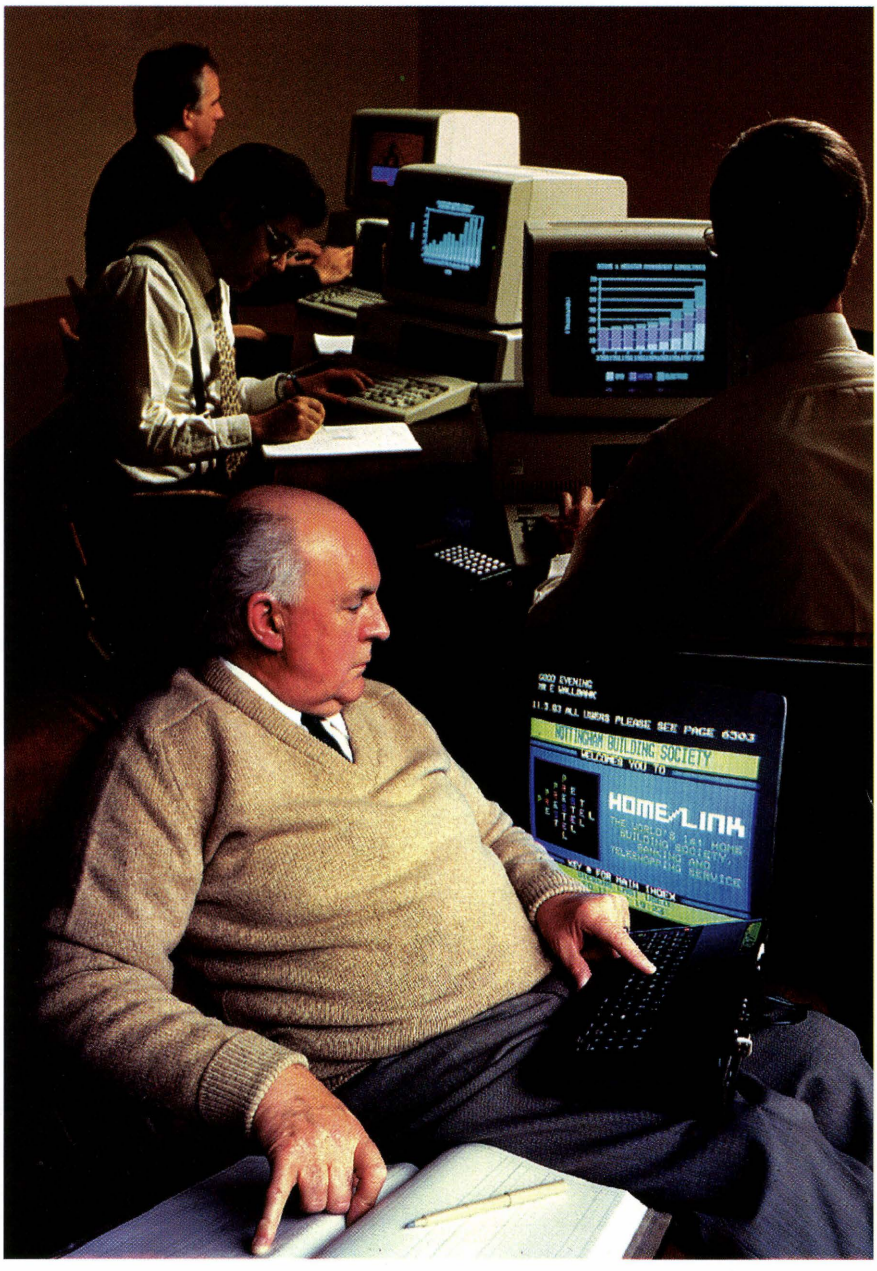
charging is not yet sufficiently available to meet the broader public requirements. For the majority of TOs the PRS tariffing systems provide only one single rate. Moreover, they are unchangeable during one session and do not cater for the one-off tariffs requested by the information industry.
The economic rules should also apply to PRS-based value-added services. Greater flexibility in PRS price-setting is desirable, giving more choice to service providers.
The profession of electronic information provider still is in its infancy. Users still have difficulty in accepting the fact that they have to pay for the information provided through electronic channels, since they are not confident of getting value for money. If the investments of service providers are to be amortized by the income from user access, greater awareness is necessary, convincing users that electronic information is as valuable as printed information.
At the same time, users need to be protected from possible abuse by service providers delivering offensive or misleading electronic information. The question of controversial "adult" services is still causing problems for the development of audiotex and videotex. Since information is virtual and not tangible, it can be dispersed in a matter of seconds throughout Europe: a European code of conduct is therefore indispensable. This code would, on the one hand, protect the user and, on the other, remove the rationale for barriers to the provision of crossborder services.
This code of conduct should contain elements safeguarding the user against false, out-of-date or misleading information. Moreover, it should provide protection against offensive expression of a racial, political, religious or sexual nature. By analogy with the codes of conduct in the other sectors, the industry should be self-regulating.
Two clear directions are presently emerging for PSTN-based telematics: the high-end PC-based telematic solutions and the low-end enhanced text telephone applications.



PCs The workplace is increasingly becoming a place for the interpretation of information. Companies operating at the competitive edge are specializing as information brokers. The personal computer is no longer a stand-alone medium but increasingly an information club. The high-end telematic applications of the future will be PC-based, using the internal computing capacities of the PC. Consequently, in order to avoid the present situation of isolated videotex standards, future telematic multimedia standards should align with information technology, in particular with PC standards.
These standards should apply not only to CD-ROM and CD-I but also to on-line applications irrespective of the network used, PSTN, ISDN, PSDN or broadband ISDN. These standards cannot be imposed by one individual organization, but should be the outcome of a consultation process between the information industry, the public operators and the service providers.
Phones The enhanced telephone is a development which will give a boost to telematics in the residential sector. This telephone is enhanced in the sense that it contains an LCD display (24 lines by 40 characters), an IC card reader, a high-speed modem and an alphanumeric keyboard function.
The banking sector has shown real interest in this enhanced telephone for home banking applications. Indeed, the presence of the smart card reader may solve the security problems with which the banking sector is confronted.

The liberalization of value-added services and of terminal equipment authorize every bank to offer its own telebanking service. There is a real threat, therefore, that every bank will set its own standards, leading to a fragmented market, which will be even worse than the present videotex situation.

As in the case of PC-based telematics, a consultation process needs to be started between the telecom operators, the banking sector and the equipment industry in order to come to a voluntary standard for the enhanced telephone. Consequently, industry, the telecom operators, the banking sector and, last but not least, service providers respectively should commit themselves to providing equipment, infrastructure and services.

The penetration of cable TV in some EC Member States and the use of satellite dishes open new perspectives for the use of the television set for screen-based telematic services.

The initial investments of the end user in hybrid cable TV systems are

negligible, which makes this access medium very attractive. For some users it is the first acquaintance with telematics and acts, as such, as a trigger service to other forms of it.

Audiotex and videotex systems have mostly been limited to purely national applications, for several technical, administrative and financial reasons. As the demand for international telematic applications increases, especially with the single European market, solutions for pan-European telematic applications have to be found in a general framework for all trans-European networks.

The macro-economic effects of telematic applications are huge. The investments in telematic equipment, compared to other type of informatic supplies, are extremely low. Looking beyond the EC to east and central Europe, it is clear that telematics can and will contribute to a better dessemination of information, to much greater efficiency in labour and as such to a restructuring of working methods in the emerging economies of the former East Bloc countries.

European Community policy for videotex and audiotex is embedded in the framework of more general policy lines. The liberalization of services and the liberalization of terminal equipment apply to audiotex and videotex. As a consequence, market forces should play their role.

The Commission's role on the telematics scene is largely catalytic - mostly influencing the system, occasionally participating actively in the process.

The Commission stimulates the standard-setting process in collaboration with the European standardization organizations ETSI, CEN/CENELEC and EWOS. Activities in this domain, endorsed and sometimes funded by the Commission, include ISDN syntax-based videotex, photovideotex, multistandard videotex and Cyrillic character sets for telematic applications. Moreover, the Commission has asked the European standards organizations to investigate whether standards are necessary and available for audiotex applications.

The Commission will encourage the consultation process within the information industry in order to establish, on the one hand, pan-European parameters for next generation PC-based telematics and, on the other hand, a voluntary standard for enhanced telephones.

The insufficiency of the present premium rate services will be tackled in the framework of open network provision.

The Commission believes that the service provider industry should be self-regulating. It therefore fosters the actions of the EIIA in this domain and, more specifically, the setting-up of a European code of conduct by the EIIA.

Making progress with telematics will depend on the joint efforts of regulators, network operators, information providers, industry and user associations.

In particular, the Commission looks to:

- the information industry to decide upon the use of a single, stable and voluntary technical standard;
- the TOs to provide a network infrastructure with an easy billing mechanism, which also provides for pan-European applications;
- the audiotex and videotex sectors to devise and adhere to a code of conduct;
- other groups, such as the banking sector and the mail order industry, to give additional impetus to telematic applications.

Given this kind of coordinated action, audiotex and videotex can be expected to become the main ways of serving the mass information market by the end of the 20th century. The unrestricted availability of such services across internal frontiers would also be a fitting expression of the single market principle. ■

Christian Garric *DG XIII*

Are smaller companies scared of CIME?

A UK-based specialist looks at the inhibitions that delay the take-up of computer-integrated manufacturing and engineering

THE INTRODUCTION of manufacturing management systems in the engineering industry has consistently fallen short of predictions, according to Sharron Thompson Burgmeier, managing director of Kewill Group Consultancy Services. The rate of take-up is particularly low amongst small and medium-sized enterprises (SMES). She attributes this to a variety of factors, but particularly to "ignorance and fear" for which the whole IT industry must bear the responsibility.
The following report is based on the presentation made by Mrs Burgmeier to the 1991 Esprit Conference.

The gap in the market created by poor communications between the suppliers of CIM equipment and the users, especially in the SME community, can be seen in the results of the research undertaken by a market research organisation which has been engaged every year since 1984 to interview more than 21,000 engineering sites in the UK and 17,000 sites in Germany, all employing less than 500 people. Companies were asked about their existing investments in systems and their investment intentions for the forthcoming year. The actual results were then compared with the predictions determined by identical research the previous year, and were tabulated as follows:

Growth of manufacturing management systems in the engineering industry in the UK and in Germany

UK

	1984	1985	1986	1987	1988	1989	1990	1991
Predicted	40%	50%	52%	55%	58%	62%	64%	65%
Actual	39%	40%	43%	47%	49%	53%	53%	53%

GERMANY

	1984	1985	1986	1987	1988	1989	1990	1991
Predicted	20%	25%	30%	35%	39%	45%	49%	56%
Actual	9%	11%	12%	15%	20%	25%	30%	35%

These tables document a persistent lag between the predictions of take-up and actual take-up of CIME among SMEs in the UK and Germany. This lag has existed since 1985 and cannot be blamed solely on the current recession. To assume that SMEs are not doing all that badly (e.g. a CIME take-up rate of 53% in the UK SME community) is invalidated by further research into the sophistication of the systems actually implemented.
This research was acquired on the same annual basis and using the same sample as before:

Sophistication of systems employed for manufacturing in UK engineering: 1986-1991

	1986	1991
Sites with no manufacturing management systems	57%	41%
Sites with accounting or spreadsheet packages only	19%	30%
Sites with bespoke MRP II systems	14%	12%
Sites with branded MRP II systems	14%	17%

From these figures, it is possible to conclude that the vast majority of SMEs are using no manufacturing management system at all (41%) or are only using a simple accounting or spreadsheet package (30%). Hence almost 71% of SMEs in the survey are **not** using CIME solutions.

Research was also undertaken to demonstrate the growth of CAD in UK engineering in the same period, to determine if the growth of CIME among SMEs was mirrored. In this research, more than 11,460 engineering sites, each employing less than 500 people, were surveyed to determine actual use of CAD systems and investment plans in the coming year. The results of this research were tabulated as follows:

Growth of CAD in UK engineering

	1984	1985	1986	1987	1988	1989	1990	1991
Predicted	34%	41%	48%	48%	50%	52%	55%	59%
Actual	30%	37%	40%	42%	44%	45%	50%	58%

From this table, it can be clearly seen that there is a much closer correlation between intended and actual investment in CAD systems; furthermore, the actual take-up of systems is widespread. From this, it can be concluded that SMEs are buying solutions when they can be assured of the value of those solutions. CAD systems have been quantitatively proved to be of benefit to engineering. Design times have been cut and the resulting savings can easily be calculated. Improvement in factors such as lead time and design quality can all be traced directly to the use of CAD systems. The same quantitative proof is not available for CIME solutions.

The key challenge is therefore to effect the fundamental changes to encourage SMEs to join the CIME community. This is the problem being addressed by Kewill, which concludes that there are four basic issues to be considered:

- SMEs are businesses in the same way as larger companies. A key difference is that the stakes are higher for SMEs in the sense that investment in individual systems is a higher percentage of turnover than for bigger companies. However, the principle of investment for return is the same, and the challenge is to persuade the SMEs that this is the case.
- SMEs require specific applications systems. This must be done by starting with a "semi-definition" and then building up the appropriate application on a step-by-step basis. The SME will not become a CIM site next day; rather, it must be converted.
- SMEs need to be presented with a strong business case for the introduction of CIME. The reasons why the predictions for investment in systems are wrong, as demonstrated in the first table, is because the SME has no quantitative proof of the value of that investment, and hence in many cases does not proceed with it. It must be demonstrated that every unit of investment will give a substantial financial return.
- There needs to be widespread adoption of open applications, not just open communications. It is still true that systems which in many cases describe themselves as being "open" can neither interface with each other nor run each others' software. The SME needs to be sure that what it is running is a genuine open application which is modular and can be improved and expanded as its business develops.

In short, SME CIME take-up has been inhibited because:

- There are too many experts who do not understand the SME business.
- There has been a breakdown of communication between the experts and the SMEs, who accuse the experts of using "techno-babble".
- The technology curve presents a real challenge to SMEs. At which stage on the curve should the SME make its investment?
- The fear factor prevents a sensible decision-making process. How will the new system integrate with the old, and how can the company be sure that the proposed investment is the right one to make?

The Community, through the Esprit programme, has recognised these problems and supported a number of projects in Esprit II to address them. Kewill headed a consortium of the CIMple project, which had as its objective the linking of business objectives to IT solutions and the provision of "bespoke solutions" tailored to quantified specifications of SME requirements.

In order to develop a view for the future, it is instructive to make some predictions for the 1990s:

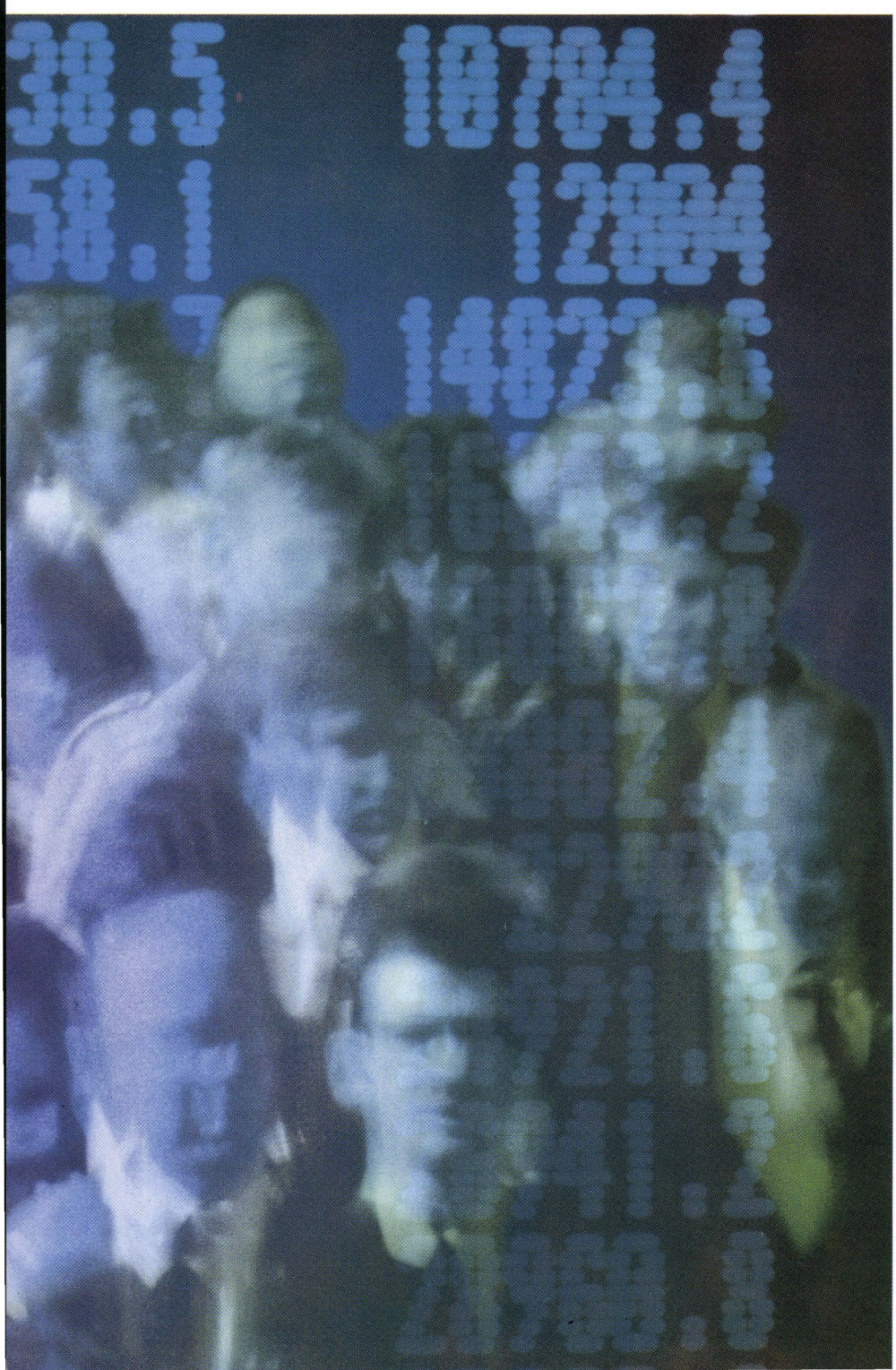
- Hardware and system software will be recognised as commodities.
- The development of new technology by itself will not persuade SMEs to invest.
- The SMEs of the '90s will want specific solutions to their own real-world problems. These applications may include the following support for distributed decision-making, support for enabling technology such as EDI and support for enterprise management.
- SMEs will want solutions for reducing lead times. This is not just for stock and work-in-progress, but also for reducing lead times between order-taking and invoicing and cash collection.

In conclusion, the hoped-for improvement in the take-up of systems in SMEs will only happen when SMEs can be persuaded of the genuine rewards in return for investment which for them is high-risk and large in relation to turnover. ■

Richard Taylor

ESPRIT
BUSINESS SYSTEMS

Integrated solutions and faster product development set the pace for the new phase of R&D.



A KEY ELEMENT in the open systems approach is to enable documents and other work to be exchanged among end-users working with different configurations of hardware and software. Esprit cooperation has helped develop a solution to this problem by funding development of the *open document architecture* (ODA), which has been adopted by leading European IT companies and is now a member of the OSI family of standards.

Helping to build bridges between the paper-based and electronic worlds, the Esprit *paper interface* project explored the whole range of document-reading technologies, including subsystems for recognising handwriting as well as typed text. A number of commercially exploitable results were achieved, some helping the companies involved to win multimillion dollar contracts in the USA and Canada, showing once again that European solutions win markets in the world at large as well as in Europe.

These examples of the results achieved are among many that could be cited from the Esprit area of advanced business and home systems, which includes peripherals. Important though such results are, the challenges that lie ahead are no longer primarily those of technological achievement. Future R&D must concentrate on systems integration rather than further basic technological achievements. It must help the European IT industry in the area in which it has most to offer, that is: the development of European, vendor-independent, large-scale, distributed, heterogeneous application systems capable of providing European solutions for business needs in the 1990s.

The work required needs to be planned to achieve visible results within shorter periods, even before project completion, in order to meet the time-scales of the market.

It is important to look at what characterizes the changes which are taking place. Five especially important elements can be identified. The first two are related to the criteria that determine the level of financial resources available for investment in IT. These are:

- A general trend in the industry towards a greater concern with revenue-generation. Industry and commerce are now concerned not only with cost-reduction and productivity gains but are also increasingly concerned with generating revenue,

and with accelerating the pace of innovation in order to take early advantage of business opportunities.

- Secondly, to take account of their changing business environment, customers are looking for more complete solutions to their needs.

What will differentiate European IT companies in the 1990s will be their ability to provide versatile development and support environments that are capable of integrating products from a wide range of vendors into system solutions that meet customer needs and are capable of being adapted rapidly as those needs evolve.

The other three factors concern trends in technological innovation which are likely to influence where resources will be spent. These are:

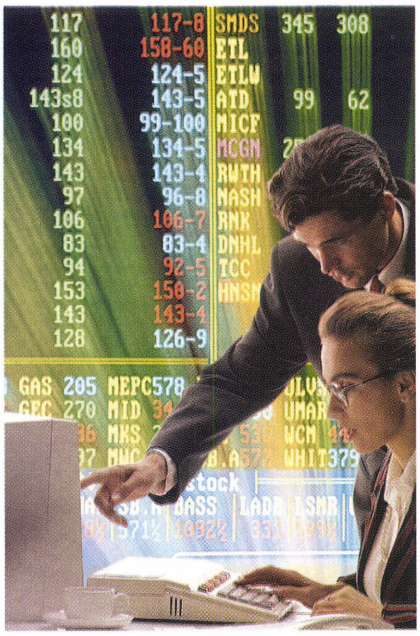
- A movement away from proprietary systems towards open systems and standards, and away from a reliance on single-vendor solutions towards open, distributed, multivendor, heterogeneous systems.
- The increasing importance of client-server architectures in distributed systems, including the way in which peripheral subsystems are incorporated as integral components of applications across a wide range of domains.
- The increasing complexity facing user organizations as they find themselves having to build integrated systems from the non-homogeneous realities of the marketplace and of their own organizations.

Within this context, customers are seeking solutions to their application needs, not fashionable technology for technology's sake.

The Esprit work planned for the business systems area reflects these changes in the market. A key element in this is support for developing integrated applications, including:

- integration of technologies into application systems
- integration of business functions into more complete business systems
- integration of end-user roles and working sites.

The research and development in Esprit business systems is strongly user and market-driven. It is generic in nature, driven by scenarios for the industry at large which take account of economic changes, quality of life factors, and other characteristics of the European and world markets. The projects in the coming phases of R&D typically will address generic application domains and illustrate them with specific demonstrators or prototypes.



The work done in business systems under the Esprit programme so far has played a key role in the standardization activities and other strategic developments taking place in the IT industry. The results achieved have been exploited in significant product developments across a broad range of product areas, from world-class recognition algorithms to major product announcements in distributed systems. These are significant achievements, which have helped to restore the competitiveness of the European IT industry in its home markets and on the world stage.

Looking ahead, the next phase of R&D will result in the integration of the various technologies developed so far into application development and support systems which will meet the needs of customers during the 1990s. The new phase of R&D will enable European IT companies to offer customers integrated application systems that will enable them to integrate the various different functions of their businesses into complete business systems.

In conclusion, despite considerable achievements there is no room for complacency. The rate of change is increasing. It is no longer sufficient for R&D undertaken one year to be reflected in products five or six years later. If European industry is to remain competitive, it is vital that R&D is exploited much sooner. Future R&D must reflect the need for the investments made by the industry and by the Community to be reflected in products reaching the market in some cases even before projects have reached completion. ■

Attilio Stajano *DG XIII*

EURINFO '93
Closing the gap between IT demand and supply.

Representatives of a wide variety of European businesses and service organizations will be meeting industry leaders and government policy-makers to discuss progress in bridging the gap between IT demand and supply at EURINFO '93 in Amsterdam on 10-12 May.

The event, organized by DGXIII (Esprit) with the Dutch TNO research institute, will draw on reports from eight sectors: finance, health care, home systems, business services, public administration, wholesale and retail, publishing and transport.

Decision-makers from a range of European companies have met at European Commission premises to map out the business requirements for their sector, examine the strategic changes taking place and formulate how the IT industry can help them meet the challenges ahead.

A selection of IT industries will be informed of the results of these valuable multi-client studies at EurinformIT, the second step in the process leading up to EURINFO '93. At EurinformIT, all eight sectors will share their strategic views, expectations and hopes with the participating IT companies. This interactive process should make EURINFO '93 a showcase of collateral thinking and joint development efforts in information technology for businesses and service organizations, which is expected to influence government and EC support programmes as well as industrial development plans. The meeting is designed to start long-term cooperation between these eight sectors and the IT industry.

EurinformIT: 22-23 June 1992 in Noordwijk, The Netherlands

Eurinfo '93: 10-12 May 1993 in Amsterdam

EurinformIT and **EURINFO '93** are organized by TNO in close cooperation with DGXIII.

For further information please contact the programme bureau:

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The STRIDE Programme

Science & Technology for Regional Industrial Development in Europe

A helping hand for smaller, traditional manufacturing companies and regions in need of stronger technological capacity

PROMOTING THE OVERALL LEVEL of the Community's industrial competitiveness through strategic research and technology development (RTD) programmes involves hundreds of organizations working on collaborative projects, often involving companies which are household names in Europe (e.g. Olivetti, Siemens, Philips, GEC). The scale of the Community's efforts under the overall Framework Programme for RTD has now reached nearly 4% of the EC annual budget and its results are being experienced in many fields.

It is less well known, however, that comparable amounts are now being spent by the Community on a different form of technological development - that of regional technological development, which will have absorbed some ECU 4 billion from the EC budget over the 1989-93 period. The source of this money is primarily the European Regional Development Fund, but programmes are now funded jointly by all the so-called structural funds, so that significant sums flow from the social fund, the EAGF (agriculture) and the European Investment Bank.

The RTD Framework Programme is complementary to these regional programmes. The objective of the latter is to create the basic conditions for sustained growth in the poorer areas of the Community, and one of these basic conditions is the ability of a regional economy to be able to apply and use technology to foster innovation and productivity. To put it another way: on the one hand, European companies need to be at the forefront of innovation in areas like computer-integrated manufacturing, and this is being supported through programmes such as Esprit; on the other hand, the Community needs to create the conditions in which small, traditional manufacturing companies throughout Europe, not least in the poorer countries which need it most, can find out about such technology and practical ways in which they can apply it.

The Stride programme forms part of the effort being made by the Community and by the Member States to raise the level of technological capabilities and infrastructure in the less favoured regions.

Those not aware of the structural fund programmes may be surprised to learn that 27% of the whole EC budget will be devoted to them in 1992/1993 (see box). This is a result of the signing of the Single European Act and its introduction of "social and economic cohesion," a concept which has been strengthened by the provisions of the Maastricht Treaty. Under the forward-planning indications of the current Commission, the various structural and cohesion funds will amount to an even more significant proportion of the budget, perhaps 34%, after 1993. Very large sums of money will therefore be available between 1994-98, and the extent to which money is devoted to RTD will depend, in part, on the experience gained to date on programmes like Stride.

Stride forms part of the "Community initiative programmes", of which another example is Star *(special telecommunications action for regional development)*. These are programmes whose general objectives and budget are set by the Community. Member States which have regions eligible to receive structural fund support put forward proposals to the Commission for using their budgetary allocation. The total amount of the structural budget between 1989 - 93 was about ECU 61 billion and the Community initiatives amounted to 10 % of the total. The rest of the money is channelled through "Community support frameworks" where the Member States set their own regional priorities.

These initiatives are therefore important to the Community, as they are a mechanism for focusing expenditure on priority areas. In the case of Stride, it was proposed to allocate ECU 400 million to the poorer regions specifically to help them strengthen their technological capacity. In fact Stride has three objectives, expressed as three sub-programmes, and Member States were invited to address all three of them when making operational proposals. The three objectives are:

- strengthening basic RTD capabilities;
- helping the regions to participate more in Community research programmes;
- encouraging cooperation between research organizations and companies.

When the Stride decision was published on 8 August 1991, giving the Member States six months to formulate

their proposals, no common format was set out. As a result there has been considerable diversity in the various national approaches. Perhaps because of the innovative nature of the programme, there have also been delays in implementation.

Italy presented detailed proposals for some very good projects which were enthusiastically accepted by the Community. However, pressure on the public budget (the Community only funds a proportion of the project costs up to a maximum of 75%) has meant that 12 out of 15 projects have been cancelled, and a new programme is being formulated.

Portugal presented a coherent programme mainly aimed at reinforcing innovation infrastructure, through the creation of an innovation agency to promote technology transfer and by supporting two technology parks.

A very different case is that of Spain, where, for obvious reasons, the projects are spread throughout the 17 "autonomous regions" with the possibility of overlapping and duplication.

Greece, a much more centralized country than Spain, has carried out an extensive process of consultation and has had public calls for tender followed by an exhaustive evaluation process in which the Greek authorities have been assisted by external experts.

The Irish programme was well presented, as always, but has concentrated on areas such as marine, forestry, food and environmental technology, a very different approach to most Member States. The UK, for example, where the eligible region is primarily Northern Ireland, has submitted a programme closely integrated with the industrial development plans of the region which are very focussed on IT and manufacturing.

The role of the Commission in Stride is the same as in all Community initiative programmes. It is to encourage the Member States to make good use of the money towards achieving the objectives. The Member States choose the actual projects. DG XII and DG XIII provide technical assistance where necessary in formulating and assessing operational programmes, and in evaluating progress. DG XVI remains in operational charge of the programme and keeps a close eye not only on the financial aspects but also on whether the programme is firmly oriented to the wider objectives of regional development.

Because a very wide range of fields is covered by projects collectively worth some half a billion ecus, the Commission set up an independent panel of experts to advise on each programme proposal. Every year the Commission organises an annual conference in which participants and policy-makers discuss their common experiences and difficulties. This year, the third annual conference will take place in Italy in October, and will look closely at the industrial projects.

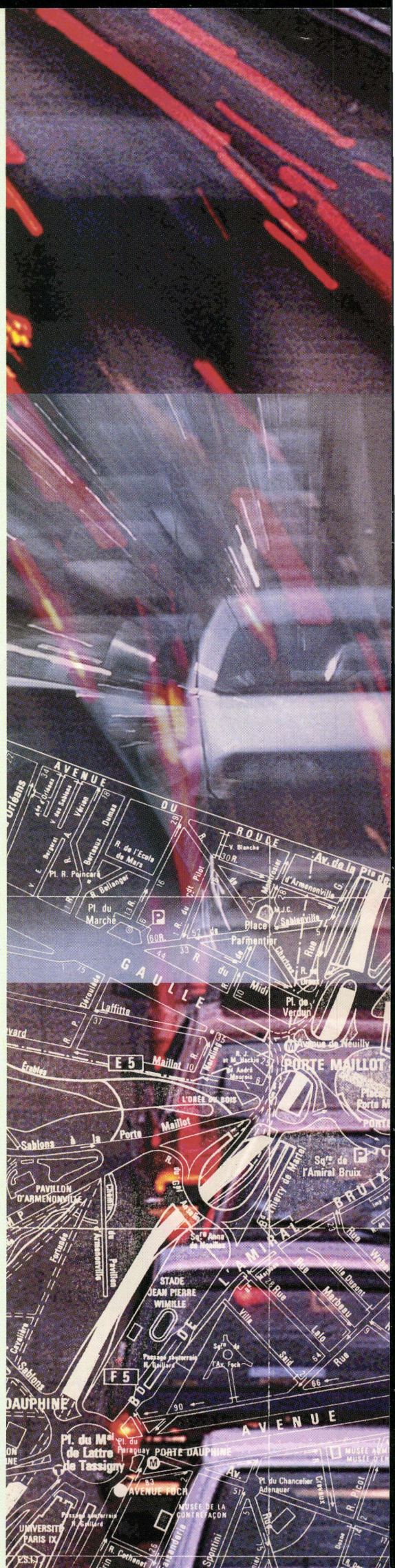
When looking to the future it is clear the Community will need to build upon the Stride experience. If the Community is to experience the healthy growth vital to its future, all its regions must grow organically. The diffusion of technology, and its application, is even more important to poorer regions than richer ones, since the poorer ones have to make a greater effort to grow in order to narrow the gap. The ECU 400 million allocated to Stride is far removed from the 7 billion estimated in the original studies as required to achieve the objectives.

However, the Commissioners concerned, Filippo Pandolfi and Bruce Millan, are studying the whole question of the links between RTD and cohesion, and a significant gearing up of the Community's efforts in this field is to be expected. ■

Richard Nobbs *DG XIII*

Extract from speech of President Delors to the European Parliament, 12 February 1992

"The Community cannot do everything at once. But what has been accomplished so far is largely positive. Structural operations, which represented 17% of the Community budget in 1987, absorbed 27% of appropriations in 1992. These financial transfers have had a considerable economic impact on Objective 1 regions, contributing to the creation of about 500,000 jobs and representing between 5% and 7% of investment in certain member states."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