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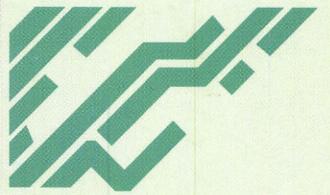


M A G A Z I N E

EUROPEAN COMMUNITY POLICY FOR
TELECOMMUNICATIONS, INFORMATION
INDUSTRIES AND INNOVATION.

BRARY

POSTAL SERVICES IN EUROPE





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EDITORIAL

THE CONSTRUCTION OF THE EUROPEAN Community is a complex and original process. It can only progress by reconciling, as part of a continuous "dialogue", ideas believed to be opposites - for example "liberalization versus harmonization" - and interests felt to be divergent - such as those of the "rich" and "least-favoured" regions.

The case of the postal sector provides another example of this type of thinking. It demonstrates that the methods used by the Commission, in this case an analysis of the problems to be resolved and the available options brought together in a Green Paper, are capable of overcoming opposing viewpoints, of making synergies happen, while respecting a profoundly democratic approach, namely the broad consultation of the people concerned.

At a time when the draft Treaty on European Union is confirming the importance of the principle of subsidiarity, the first step is to answer the question: "Why does the Community feel it necessary to become involved in this issue?" There are many answers. They have to do with economic considerations and the functioning of the single European market, with social requirements and Community cohesion.

The postal sector in the Community is of considerable economic importance, with regard both to its size and to its nature as a communications infrastructure. More than 1.7 million people are employed in this sector throughout the Community and it accounts for almost 1.3% of the Community's Gross Domestic Product, with an annual turnover of ECU 59 billion. Estimates reveal continued growth potential, in particular as a result of new services.

The circulation of letters and parcels remains as essential for individuals as for public authorities, industries, service companies, banks or insurance companies, mail order companies or postal advertising activities. Sectors such as publishing rely on the vitality of the postal services and their importance for small and medium-sized enterprises goes without saying. Sociologists maintain that the postal service is part of the urban and rural landscape, even of the collective consciousness. But that does not exempt it from the need to adapt to changes and to the requirements of the contemporary world.

As with many other sectors, postal services are undergoing change. New agents have appeared on the scene. New types of competition for the national state-run services are making themselves felt. Users have new

requirements. These markets are part of a context of rapid technological progress which is bringing about change in the methods used up to now. Who hasn't thought about sending a letter by fax rather than by post?

An examination of the current situation in the Member States highlights disparities in services and a lack of homogeneity which is harmful to the implementation of the single market and hampers the efficiency of services. In addition to a considerable "border effect", distortions can be observed on a commercial and geographical level.

To take just one example: in some Member States the rate of postal delivery the day following the date of postage is 90%, in others this rate is as low as 15%. Such a situation clearly affects both the individual in personal matters and companies in commercial matters.

To enable the postal services to meet the challenge of the single European market, they must have a common vision of their future. The first stage in the elaboration of a common postal policy, the Green Paper adopted by the Commission in May 1992 (1), provides a review of the current situation, highlights the problems and the challenges (either existing or likely to appear), suggests possible solutions and puts forward detailed options for the future. This Green Paper paves the way for a discussion, for opinions to be gathered from all the agents concerned - Member States, users, public and private operators, trade unions - and subsequently to draw up precise and well thought-out proposals.

Among the various options available, the Commission favours that which aims to bring about a balance between the necessary harmonization measures and a gradual liberalization of the sector. The Green Paper offers a thoughtful introduction of these measures after a detailed analysis of their economic and social implications, while recommending the establishment of the necessary systems of control.

This is why the definition of a common service underlies harmonization and social requirements. It is understood as a basic, universal service offered throughout the Community, at price conditions and providing a level of quality which ensure equal access for all users. This service would be the mainline activity of the postal authorities, for whom a variety of other activities could be reserved, if the national governments so wish, in order to ensure the financial viability of the common service.

In addition, the document foresees a gradual opening up of the postal market in order to help open up increased possibilities of choice to users and to ensure greater efficiency in the

services offered. In particular, the Green Paper suggests the liberalization of cross-border postal services, express services and publications, as well as direct mail advertising and ordering. If, however, in a specific Member State, such a liberalization measure is likely to jeopardize the common service, derogations would have to be considered. The Green Paper is a proposal which will allow a reference framework for postal services in the Community to be defined. It also provides a significant example of the Community approach, which brings together the various responsibilities and reconciles interests for the overall good of our European society. ■

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

(1) "Green paper on the development
of the single market in Postal Services"
Com (91) 476

ANY PARALYSIS of the postal services has an immediate effect on the economic activities of a country. A sector as vital as this cannot, therefore, remain on the fringe of the single market process. In the Green Paper on the postal services of Europe which it adopted in May, the Commission presents the aims towards which it intends to work to establish a common postal services policy.

Inadequate quality of basic services, failure to apply the competition regulations of the EEC Treaty, differences in organization and conditions of access in the Member States, problems of terminal and remailing costs for cross-border movements... the postal sector, on the eve of the single market, demonstrates too many shortcomings to meet

modern demands. This has led European policy-makers to conclude, on the one hand, that the Community must intervene in this sector and, on the other, that this intervention cannot be limited to selective actions but that it is important to define the postal service which we want to have and to implement a real, common postal policy.

A further observation is that it is not simply a question of applying, in the strict sense, the "horizontal" competition regulations of the EEC Treaty to a particular sector. It is also important to include in this a specific sector-related dimension involving a harmonization action for the basic services. This action should relate to a common definition of the universal service, services which can be reserved, users'



The single market and its postal services

As a vital part of the Community's economic life, the Post Office is preparing itself for Europe

rights and obligations of the postal service authorities and conditions of access. It should also relate to the quality of services and questions of price-setting.

In its analysis, the Commission proposes a system based on two principles: increased liberalization of services and a broad "harmonization" dealing with the future development of the postal services market. This involves offering services more appropriate to the needs and demands of the customers, carrying out a review of the criteria of proportionality between reserved services (to ensure provision of a universal service), and the concept of the universal service itself.

The Commission proposes an increased liberalization of the sector but with a set of prior considerations. It is accepted that what it considers a fundamental right for all citizens and a need for all organizations must be guaranteed, namely the provision of a basic, universal service, accessible to everyone, at reasonable prices and with an adequate quality of service. This requirement involves the need to provide the authorities and bodies responsible for this basic, universal service with an adequate income so that they can meet their obligations.

The universal service demands the maintenance of a universal network, that is, an extensive infrastructure, imposing very high fixed costs which private mailing services are not interested in developing and which only the national postal authorities have. If the authorities are required to endeavour to provide a universal service, the Commission believes that the viability of their network must be ensured by granting them, in this specific case, a special, exclusive right to provide certain services.

But such an exclusive right has to involve obligations in parallel: that of actually providing a universal service, that of guaranteeing openness in management - in particular in setting prices - and that of avoiding cross-subsidies between reserved and non-reserved services. It would be unacceptable for a postal authority to use its income from reserved services to apply reduced prices to competitive services. This would be both an abuse of a dominant position and unfair commercial practice.

This being so, the first step towards a common postal policy rests on defining what is meant in the Community by "basic universal service" and what services may be reserved. Here, too,

the Commission advocates flexibility. The Member States will have a list of services which they may reserve for the postal authorities. "May" and not "must" - the choice will depend upon parameters such as population density, GNP, communication practices (number of letters per inhabitant), or geographic conditions which are all very different from one country to another. Taking into account such disparities, the Commission believes that imposing the same conditions in all the Community countries would amount to a form of discrimination. Here the question of the criteria of proportionality arises which demands that the "reserved" part of the market be proportional to the desired objective in order to provide the universal service in practice. The indisputable consequence of these principles is that if one accepts part of the reserved services, the rest must be liberalized.

It is also impossible for the postal authorities to be both judge and jury in a partially liberalized market. The Commission therefore proposes to the Member States to separate the operational and running activities from the purely statutory activities. The "statutory" aspect includes both defining the rules and monitoring their implementation and the quality of the services. How can it be ensured, within the Community, that the quality of the service is assessed and controlled from start to finish? Today, the postal services which actually carry out this control and publish their results (not all do) are limited to the national territory. Nothing effective exists at Community level.

More specifically economic, the questions of the terminal costs (financial compensation between postal authorities of two countries) and remailing costs (collection in one country, sending in a second and distribution in a third country, even in certain cases in the country of origin) call, on the eve of the single market, for a Community response. Currently these matters are governed by rules drawn up by the Universal Postal Union, which has over 160 member countries, and by recommendations from the European Post Offices and Telecommunications Conference (EPTC). The national authorities have the possibility of concluding bilateral agreements or applying terminal costs systems defined every five years by the UPU. Applied to concrete cases, above all between Member States of the Community, these systems have little in common

with the reality of the costs. Added to this is the poor quality of the services between authorities which encourages the users to avoid the system, hence the significant growth over the last few years of remailing practices.

The Commission therefore proposes that a system of prices linked to the costs be applied in the Member States and that the system of terminal costs applied between Member States be based on these same principles.

Whatever solutions are chosen, and given, among others, the particular cases for which special conditions are negotiable (for example "big customers"), the EC countries, once they have defined the basic principles and Community policy, will have to defend this policy before the international authorities, in particular the UPU and EPTC, and negotiate with them the mutual adaptation of the rules.

But that is not the end of the matter. The Green Paper is only the first stage of a long process. It opens a public debate, inviting all the parties concerned, public authorities, private operators, users, postal employees and management, to express their opinions. After a period of public consultation which will be concluded towards the end of this year, the Commission will present to the Council of Ministers the results of this consultation, its official proposals and a schedule for the implementation of a common postal policy. ■

Anne Eckstein, *journalist*

WARC

World Administrative Radio Conference 1992

Over 1,400 delegates from more than 120 countries met in Spain to revise the frequency chart in the 1-3 Gigahertz waveband and in effect decide the future of the radiocommunications market



RADIOCOMMUNICATIONS equipment (satellites, television, radio, microwave links, mobile communications) uses the full gamut of frequencies. There are, of course, no barriers to such frequencies and the allocation of the frequency spectrum is carried out by radiocommunication conferences which take place in the framework of the International Telecommunication Union (ITU), the United Nations organization which specializes in telecommunications. Such conferences adopt "Final Acts" which are integrated into the Radiocommunications Regulation, an internationally-recognized treaty.

The main objective of one such conference, WARC 92 (World Administrative Radio Conference) was to revise the frequency chart in the 1-3 Gigahertz waveband. The conference took place in February and March in Torremolinos, Spain, and was attended by 1,400 delegates from more than 120 countries, of which roughly half came from Europe, as well as 31 regional and international organizations such as the United Nations, Intelsat, the International Red Cross and the Commission of the European Communities.

Compared to previous conferences, the changes which have taken place in central and eastern Europe have profoundly altered the relative strengths within the International Telecommunication Union. To date, there have essentially been four large

groups of countries: the countries of eastern Europe, the developing countries, western Europe and the United States. Today, many of the countries of east Europe have joined the European Conference of Postal and Telecommunications Administrations (CEPT). Although the developing countries had reached an agreement to preserve their existing services (HF fixed links, microwave links ...), they were unable to present a common stance at the WARC conference. In general, the United States tended to be supported by Australia, Canada and New Zealand. For its part, Europe was a homogeneous bloc, as a result of the common proposals which it put forward. Contrary to other regions of the world, it demonstrated a constant desire to bring about compromise.

The Community approach

This was the first time the Commission of the European Communities attended a radio conference in its own right. The effects of the decisions made with regard to the allocation of frequency wavebands are of special importance for the completion of the single European market, for reinforcing EC equipment and service industries, and indeed for the future of the radiocommunications market.

In advance of the WARC 92 conference, the Council of Ministers had adopted, on a proposal from the Commission, a series of conclusions which comprise three main aspects:

- In areas where the Community has competence - mobile communications (GSM), the European radio messaging

system (ERMES) and digital European cordless telecommunication, (DECT) - it may enter into commitments with non-EC countries. In addition, the Commission is empowered to carry out negotiations, if necessary, to ensure that the conclusions of the WARC 92 conference do not call into question the substance of the GSM, ERMES and DECT directives.

- In areas where there is no Community competence, the Commission will closely monitor the coordination of CEPT; if CEPT is unable to conclude the necessary agreements, the Commission will recommend separate coordination with the Member States, with the aim of reaching a common position.

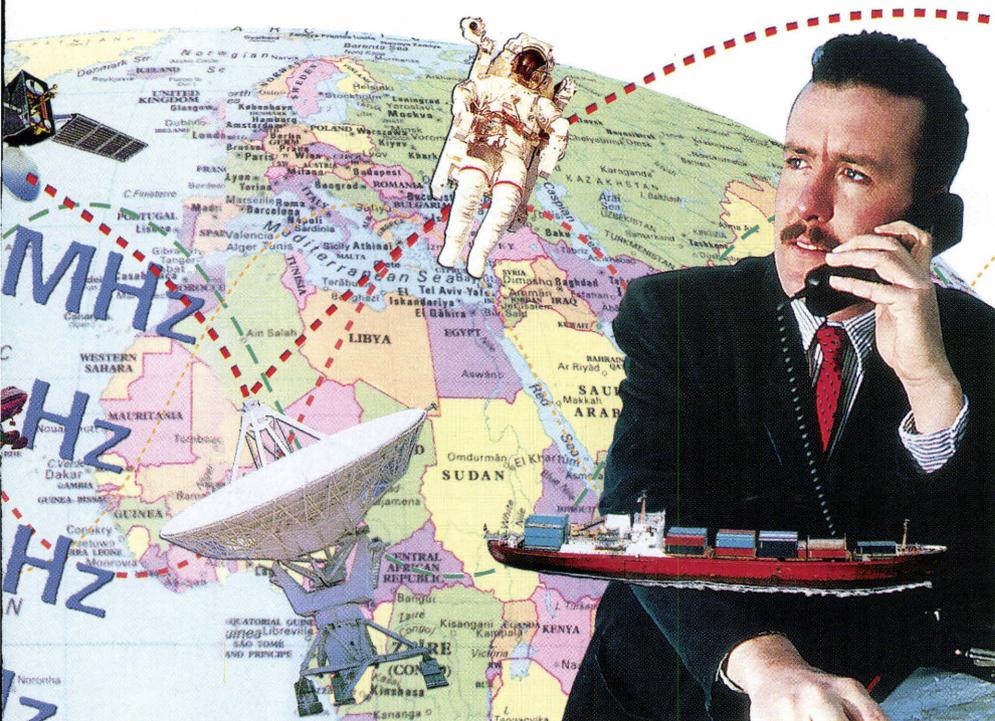
- Finally, when the EC Member States sign the WARC 92 Final Acts, the signature will be accompanied by a statement to the effect that they will apply the Radiocommunication Regulation in conformity with their commitments by virtue of the Community treaties.

WARC 92 CONCLUSIONS

Short-wave radio broadcasts

For a long time, the wavebands allocated for radio broadcasts have been insufficient to meet the needs of the broadcasters. Merely listening to a shortwave radio broadcast confirms how overcrowded the airwaves are.

The WARC 92 conference adopted the



Low earth orbit (LEO)

This technology, which involves using satellites in low earth orbit, is a spin-off from the military sector and will now have civil applications. For "small LEOs", used mainly for radio-location and data transmission (radio services), WARC 92 allocated frequencies in bands below 1GHz. For "large LEOs", used for voice telephony from any points across the globe, it allocated frequencies on a worldwide basis in the 1.6 GHz band.

The cohesion demonstrated by the Europeans throughout the conference facilitated the adoption by WARC 92 of a large number of common European proposals. The positive results of the conference must, nevertheless, be mitigated somewhat: many allocations were only accepted on a regional basis (for example, satellite-based HDTV) or will come into force after a long time (15-20 years), whereas the application date for the Final Acts has been set for 1993.

Finally, it is important to stress that the WARC 92 Conference will probably be the last of its kind. Forthcoming conferences will no doubt attempt to simplify the radio regulations, reduce the small print and tend to allocate frequency bands exclusively on a world basis, in the wake of the decisions expected at the next plenipotentiary conference of the International Telecommunication Union in December 1992. ■

**Christopher Wilkinson
& Jean-Louis Blanc DG XIII**

following compromise: 200 KHz will be freed below 10 MHz and above 590 KHz; in addition the new wavebands will be designed and used only in single side band (SSB), which will allow twice as many broadcasts for a given frequency band. These new wavebands will be available from 1 April 2007.

This extension will provide new opportunities for broadcasting. However, it must be said that this new allocation in its entirety still falls far short of the needs of broadcasters.

Digital sound broadcasting

This gives a broadcasting quality similar to the sound quality of a compact disc. On the one hand, WARC 92 adopted a resolution concerning land-based digital broadcasting in Europe in the VHF band; on the other, it allocated the 1452-1492 MHz band to satellite-based digital sound broadcasts, effective from the year 2007 in most European countries, on a world basis, with the exception of the United States; furthermore, a number of Asian countries have adopted a 2.5 GHz frequency band.

Digital sound broadcasting will have earth and satellite-based frequencies. It would appear, however, that this type of broadcasting will initially develop using earth-based frequencies.

Satellite broadcasts, high definition television (HDTV)

It proved impossible to reach a worldwide agreement at WARC 92 and the ensuing compromise foresees two allocations: one for Europe, Africa and Asia, in the 21 GHz waveband, and the other for the Americas, in the 17 GHz waveband. These allocations will be effective as from 1 April 2007.

In addition, it was decided to amend the Geneva Plan of 1977, which governs the position and frequencies of existing satellites used for broadcasting. A subsequent conference will re-examine this plan by maintaining at least the capacity allocated to each country, while catering for the needs of new countries and protecting systems which have been notified.

Frequency band for mobile services

The aim was to reserve frequencies for the future public mobile systems which will take the place of the second-generation systems (such as GSM) in the area of mobile radiotelephony and DECT (for digital cordless telecommunications) at the beginning of the next century. WARC 92 allocated 230 MHz, which ought to be sufficient to guarantee the future of mobile services which will be able to use either earth or space-based techniques.

The 1670-1675 and 1800-1805 MHz bands have been allocated on a world basis to public communication with aircraft (with the exception of the United States, Canada and Mexico), which should allow the same type of equipment to be used worldwide.

OMI

The Open Microprocessor Systems Initiative

Creating a complete competitive microprocessor capability for Europe

OMI IS THE FIRST of a number of Commission-supported cooperative initiatives, targeted towards specific industrial goals, which draw on technology results and standards from all areas of Esprit and the IT industry. The goal of OMI is to provide Europe with a recognized capability in microprocessor systems, and to promote their broad acceptance in applications systems both within Europe and world-wide. The planning for this initiative has recently been launched, supervised by an industrial task force set up by the Esprit Advisory Board.

Microprocessors, with their associated software, form the intelligence of electronic systems and are increasingly important throughout industry. Their use ranges from sophisticated control systems for aerospace, robotics, industrial control and telecommunications to mobile telephones, consumer electronics and automobiles. Microprocessors also form the "brains" of all general-purpose computer systems from supercomputers to notebook PCs. It is estimated that by the year 2000, 10% of GNP will be supported by IT-based systems, themselves dependent on microprocessors.

In a world market for micro-components - microprocessors (15%), microcontrollers (40%) and peripheral logic (45%) - growing at 14% per annum, and expected to reach ECU 18 billion by 1994, Europe is 82% dependant on foreign technology (Dataquest). The European industry is only growing at half the world rate, increasing the dependence over time. Apart from economic considerations such as the growing trade deficit and the effect of currency fluctuations on industry, this dependence causes the European systems industry to lag in innovation, since newly introduced microprocessor technology is usually only available in Europe late. This contributes to the fact that Europe builds only half the number of microprocessor-based systems compared to either the USA or Japan. Concern about the high dependence of



major European engineering, telecoms, IT, consumer and military suppliers on imported technology compared with their competitors is a major motivation for this Open Microprocessor Initiative (OMI).

The microprocessor market is currently dominated by US suppliers: Intel, Motorola, Sun, and MIPS. The former two companies provide microprocessors based on CISC technology (complex instruction-set computing), which is used in most current systems, whilst the latter two companies provide microprocessors based on the emerging RISC technology (reduced instruction-set computing). In 1990 the business of the market leader Intel grew 25% to \$3.9 billion in a world chip business growing at only 4% per annum. As a result of their dominant position, Intel and Motorola no longer make their technology available under licence. Sun and MIPS do so at present, but this cannot be guaranteed to continue as the RISC market grows from less than 10% now to approximately half the market by 1994.

Japan is not yet a significant

competitor in the world microprocessor market, but is also concerned by its dependence on the US. However, given the major use of embedded control processors (microcontrollers) in electronics in Japan, it is likely that the results of the TRON initiative by Japanese industry, which has been running for several years and is now producing results, will be taken up in the large domestic market. Embedded control systems are characterized by the fact that they are not programmable by the end-user of the system. TRON will find it harder to succeed in the computer domain, due to the world-wide requirements of software portability. TRON microsystems for use in computing have been designed particularly with the support of Japanese-language software in mind and are being used domestically, for example in intelligent buildings and educational PCs.

OMI aims to provide a complete competitive microprocessor capability, for both computer systems and embedded control, ranging from very high performance (over 1000 MIPS*) to very low power (down to 0.01 Watts). It will not compete with existing RISC processors on the market, but will develop the next generation beyond (1994-2000). Given the dependence of European IT companies on foreign microprocessors, it is essential to provide not only a viable European alternative but also a smooth migration path from the current to the new technology.

The initiative will build on European strengths in advanced RISC microprocessors. ARM, a joint venture of Acorn, Apple and VLSI Logic, markets low-price, low-power processors which are becoming increasingly important as components of portable and mobile computing and telephony. Inmos, a subsidiary of SGS Thomson, has produced the transputer, the world's most powerful parallel processor, which is used in applications ranging from supercomputing to complex embedded control (e.g. aerospace, laser printers, peripheral controllers). In 1990,

shipments of European RISC processors were ahead of Sun and MIPS, and 40% of European supply was exported. ARM microprocessors will be used in the new Apple portable product line. Both Inmos and ARM were supported in their R&D efforts by Esprit.

The approach of OMI is evolutionary and migratory, seeking to establish technical bridges to facilitate both an interaction between European and accessible foreign architectures, and the evolution of present to new architectures. It will not go against established currents and will create new ones only where this is appropriate. It is both technically and institutionally "open". Institutionally, it is planned to be open to all those who can genuinely contribute to the success of the initiative. Technically, the new generation of European advanced RISC microprocessor will be provided as building blocks in a complete Open Systems Framework, implemented at all architectural levels, from the silicon chips to the applications software. The goal is a clear and easy migration path for systems suppliers from current systems to those based on new architectures. The Open Systems Framework will accommodate in a standard way technology currently available as well as that to be produced by OMI. Customized solutions will be made possible by combining appropriate building blocks into applications systems.

The new family of OMI microprocessors will be provided as elements, known as macrocells, in a standard design library of micro-electronic components. The library will include other elements such as memory and communications structures, also in the standard macrocell form. Also included are current macrocells of European processors as well as microprocessors of foreign licensed technology. Standard communications mechanisms between cooperating micro-components will be provided. Using appropriate design tools, systems may be tailored to particular applications by combining the relevant macrocells on one or more silicon chips. This concept of customized processing on silicon, application-specific integrated processor systems (ASIPs), is new, and has the same advantages as ASICs (application-specific integrated circuits). Small quantities of chips for specific applications can be produced with fast turnaround. At the moment industry is dependent on chips from

suppliers' catalogues, or must be prepared to invest significantly in producing or subcontracting application-specific processor systems. Small runs are currently uneconomic and turnaround is at least six months.

The open concept is extended to include standard operating systems software and applications software portability. Operating systems for OMI will conform to relevant industry standards. They will be scaleable from small to complex systems, and support both general-purpose kernels for computer applications and real-time kernels for embedded control. To further enhance applications software portability, a standard software publishing format (known as Virtual Binary Interface or Applications Neutral Distribution Format) will be provided and promoted. Europe is already active in this domain, and a solution provided by the Defence Research Lab. UK for ANDF was adopted by the Open Software Foundation. OSF is an industry group of major IT companies world-wide, dedicated to open systems software and standards.

In order to ensure industrial viability, and to introduce results rapidly into the systems industry, users will be involved at all stages of the initiative. End-users as well as systems suppliers (as microprocessor users) will provide requirements in an interactive way to microprocessor systems technologists. In addition, a major effort will be devoted in OMI to "user pull". End-users will design and construct application pilots in a number of industrial domains (e.g. automotive, consumer electronics, workstations, industrial automation, telecommunications), based on initial one-year feasibility studies. The aim is to demonstrate the applicability of results, to inspire user confidence, and to seed the industry to ensure early industrial take-up in a broad field of applications. It is expected to devote approximately half the effort to applications pilots in 'Esprit III' (feasibility studies in the first call for proposals; pilots in the second call).

Finally, OMI includes an activity in technology transfer and training; universities will obtain early access to developments so that the next generation of young hardware, software and applications engineers is educated early in the OMI technology. Dissemination activities also include special interest groups, vital world-wide standards activities, conferences and overall coordination of the

initiative. The integration from the start of the three fundamental moments of creation, production and diffusion supports both technical and market issues simultaneously.

Management is a major concern, and the initiative is closely coordinated and run by a manager appointed by industry. The issue of sharing results across the initiative is being addressed. OMI requires considerable commitment from all participants to collaborate and produce components of a complete whole, according to agreed strategic goals and an implementation "road-map". The plan will extend to the year 2000, since such an initiative can only succeed if it involves a long-term commitment.

OMI has the potential to reverse European dependence on foreign microprocessor technology whilst co-existing with it, and to promote growth in the IT industry. Much is at stake, and the effective integration and management of all the aspects of the initiative will not be an easy task. The strategic approach of OMI is very much a pioneering effort in the recent movement within Europe towards more integrated, targeted and user-driven collaborative programmes. OMI is an opportunity for industrial goals and IT policy to converge and is, as such, an important test case. ■

Rosalie Zobel DG XIII

* Million instructions per second.

**OMI: a pioneering effort
in the recent movement within
Europe towards more
integrated, targeted and
user-driven collaborative
programmes**

Take your partners

The information exchange system initiated for Esprit now provides a powerful network for the European technology community

INSTEAD OF BRINGING researchers together under one roof, the Esprit programme links them by its information exchange system (IES). From the start in 1984, the IES group saw that Esprit would have two fundamental information exchange requirements:

- Since one company or individual could not obtain funding for Esprit research, there would be a need right away for a methodology to assist people and companies to find partners - from this requirement the Eurocontact partnership database service originated.

- When the consortia had their funding, the partners would need to communicate with each other and exchange files and documents. From this requirement the EuroKom conferencing service came into existence.

The success of these two early initiatives has been significant.

Eurocontact

From its beginning as a centralized database for just the Esprit programme, Eurocontact has changed and developed in its scope and its technology. The basic Eurocontact methodology is now in use by many groups, using their own databases. Some, like the EC R&D programmes Esprit, Brite, Euram, Craft and Delta, are publicly available to other EuroKom users; some services are dedicated to specific user groups and private to those groups. The methodology is now distributed - local personal computer copies of partnership-search databases are maintained in support offices around Europe, and these local databases are synchronized by periodic communication with the EuroKom host.

While broadening in scope and diversifying into many different application areas, the Eurocontact service continues to serve the Esprit

programme. The last Esprit call for proposals was recently reviewed by the users, with particular attention to the effectiveness of Eurocontact.

To keep 'effectiveness' in perspective, one must realise that partnership brokerage, though urgently needed and available in many different forms, is generally found to achieve relatively low levels of effectiveness. In a recent public report, a well-known partnership-brokerage service was found to be only 1% effective: that is, of the many thousands of potential partners in the database, only 1% of agreements exchanged were by means of the brokerage database service.

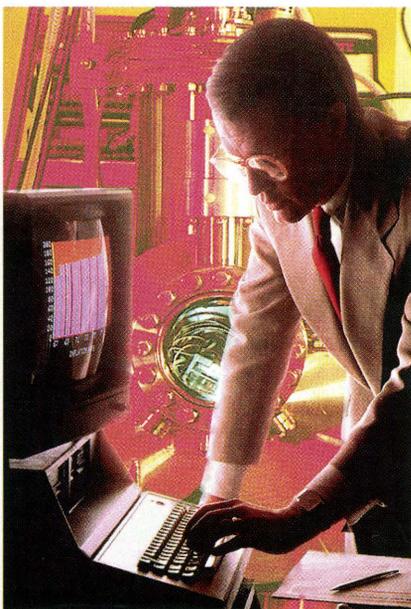
By contrast, the Eurocontact service had effectiveness ratings as high as 25% in some countries, and the effectiveness level averaged out at about 15%. That is, of the records in the Eurocontact database, it was estimated by some countries that as many as 25% of the consortia were arranged via Eurocontact. With a programme such as Esprit, almost 10 years old now, with many mature relationships and consortia well established, a brokerage rate of this order is very significant and confirms that the Eurocontact methodology can be very effective in bringing consortia together.

Two key elements distinguish Eurocontact from other brokerage services:

- The local PC copy of Eurocontact is periodically synchronized with the EuroKom host database, so the PC database at each local support point is always a complete copy of the database. The PC user can interrogate the local copy extensively, search for a match using many criteria and obtain full details, on screen or on his printer, of any or all records in the database. He can use the database for mail-merging, to issue newsletters, get updates regarding coming events, etc., and at all times the extensive use of the data is local use, on his own local PC. There

are no delays while searches and requests are sent to a remote computer.

- For partnership brokerage in the R&D environment, the Eurocontact service is programme-specific. The specific work programme of the last Esprit call was loaded into the Eurocontact database and all the records added, from potential partners, had their specific areas of interest detailed, with explicit reference to the current work-plan. This meant that the user seeking a partner was not browsing through a bland, general database of researchers, but presented with specific people and organizations whose areas in the work programme were clearly identified. These two elements, the sophisticated use of the local PC copies and the direct relevance of the data to a specific call for tender, clearly separate



Eurocontact from other brokerage services.

It is also worth noting that a new Eurocontact database, tailored for a specific community's needs, can be made available in a matter of weeks, starting from a clear requirement statement. The basic structure, a central database server and distributed PC database copies, can be tuned and tailored quite easily to the needs of a new community.

EuroKom

In a similar way to the Eurocontact service, the EuroKom conferencing service has also spread far beyond its original scope and technology; while Esprit represents a diminishing proportion of the overall EuroKom user community, the use within Esprit and other R&D programmes continues to increase significantly. Although many examples could be given of the enhancements to EuroKom and the widening of its target audience, two recent developments in particular reflect the continual development and enrichment of the EuroKom service - the multilingual conferencing service now being implemented for the Lingua community, and the linkage recently established between EuroKom and the Infonet value added network service.

Lingua

The EC's Lingua programme supports the teaching and learning of languages in the Member States. It is managed by the Commission's Task Force for Human Resources and coordinated by the specialist Lingua Bureau in Brussels, which in turn corresponds with a total of 29 Lingua agencies throughout Europe.

When the Lingua Bureau staff identified a need for electronic communication with the national agencies and other groups with whom they had close working relationships, they decided that a multilingual computer conferencing system would be appropriate for their needs; and having evaluated the few suppliers of conferencing available, they eventually exchanged a contract with EuroKom at the end of 1991 which required:

- Implementation of a dedicated copy of the EuroKom conferencing service, which would have functionality specified by Lingua, but would be primarily a multilingual conferencing capability - that is, all users throughout Europe would be able to use their own languages, store texts in these languages, and the system would properly save these texts, and present them in their original form, to users using different character-sets in the receiving country.

- Customization and installation throughout the national agencies of a special version of the EuroKom for Windows system, which allows the Lingual user to make full use of the rich conferencing environment on his personal computer, communication with the EuroKom host taking place transparently in the background.

This system was developed earlier this year and is now being installed in the national agencies. It has been enthusiastically welcomed by all users so far and is expected to bring a new level of effectiveness and cohesion to the Lingua activity.

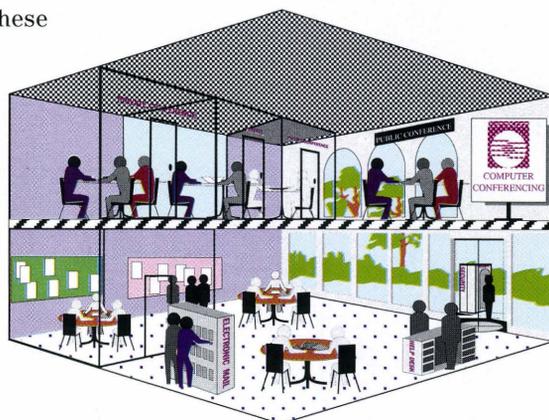
Linkage

Since its inception in 1983, the Esprit IES always emphasised the need for EuroKom continually to enhance and broaden its connectivity to other networks and technologies. The connectivity to EuroKom is now diverse and wide-ranging, including the following (apart from the obvious access via the public packet-switched data networks):

- EuroKom was the first host to be connected to the IXI network and many current users access via this EC-funded research service.

- The X.400 gateway provides connectivity to the RARE community, and, by special arrangement, with other selected sites and communities who wish to use OSI techniques for their European communications but also want to continue using the very effective and powerful methodology of computer conferencing.

- The integration of the EuroKom and Unix environments, achieved by a unique linkage of Unix and VMS hosts at the EuroKom computer centre, allows the Unix user to exchange mail and files with the EuroKom conferencing service without leaving the Unix environment.



- EuroKom was linked to Internet in 1991, making EuroKom available to the millions of users on this worldwide IP network.

- With its RFC Intermail connections, EuroKom users can exchange mail with sites and users throughout the world, using the internationally recognised and progressively more popular intermail methodology.

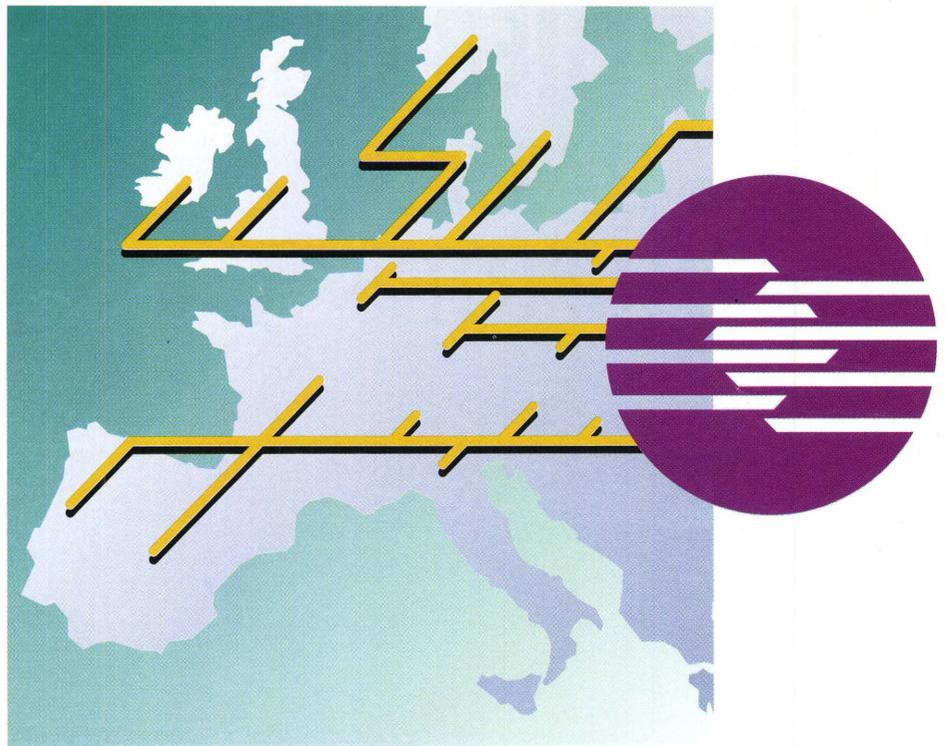
Although the above linkages are extensively used by users in the research community, users sometimes encountered significant difficulties in overcoming the initial obstacle, that of obtaining a reliable and consistent local data connection. Those users with connection to academic research networks such as JANET, or with an in-house connection to the IXI or Internet networks, do not appreciate the difficulties encountered by the lone user with a personal computer and modem who has to use public services for his data connections, with the somewhat variable quality and cost that this has implied.

Infonet

EuroKom's linkage to the Infonet network will provide such a user with a dramatically enhanced data service. Infonet is an international value added network, with local access from over 115 countries and local support in over 37 countries. Most importantly, Infonet has both local access and local support offices in all 12 EC countries.

In essence, the EuroKom user can now obtain EuroKom locally throughout Europe, at a fixed usage cost which is independent of his location. The cost of using EuroKom via Infonet will in general be cheaper than using a public PSDN, and in many cases will be significantly cheaper. For specific communities, whose scale of usage justifies it, EuroKom will absorb the Infonet data charges; so the user in such a community will have access to EuroKom, throughout the world, with no X.25 charges at all.

Infonet is the world's leading value added network company and is 60% owned by such European telecommunications administrations as RTT/Belgacom, the French Transpac, Deutsche Bundespost Telekom, PTT Telecom Netherlands, Telefonica (Spain), Swedish Telecom and the Swiss PTT.



Established in 1970, Infonet markets a wide range of telecommunications services and has more local access nodes in Europe than any other international operator.

With the addition of Infonet to EuroKom's connectivity options, prospective EuroKom users throughout the world will only need to sign one agreement, with EuroKom, and will then obtain a local telephone number and identifier for the Infonet service, which will switch them immediately to the EuroKom host, at exactly the same low data tariff whether they are in Athens or Dublin. Should they have communications difficulties in either location, they will be able to obtain help from a nearby office, in their own language.

In summary, the initiatives taken by IES and the enlarged and competitive telecommunications market encouraged by the EC as a whole are now beginning to bear fruit in the form of powerful and effective partnership brokerage and communication services such as Eurocontact and EuroKom, available via advanced and cost-effective VAN services such as the global Infonet service. ■

John Conroy *EuroKom*

For more information, and to obtain free access for a trial period to the EuroKom services, write or telephone to either of our offices below:

EuroKom
Belfield
Dublin 4

Tel: 353 1269 7890
Fax: 353 1283 8605

EuroKom Brussels
Ave de la Joyeuse Entree 1
Brussels 1040

Tel: 32 2 230 3647
Fax: 32 2 280 0132

THE OTHER EUROPE

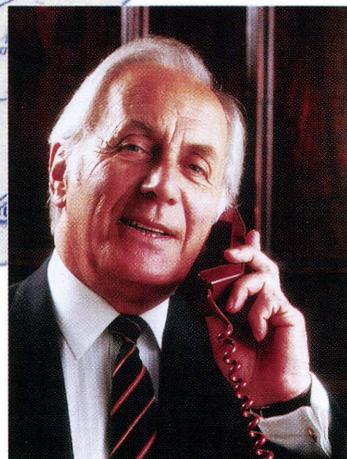
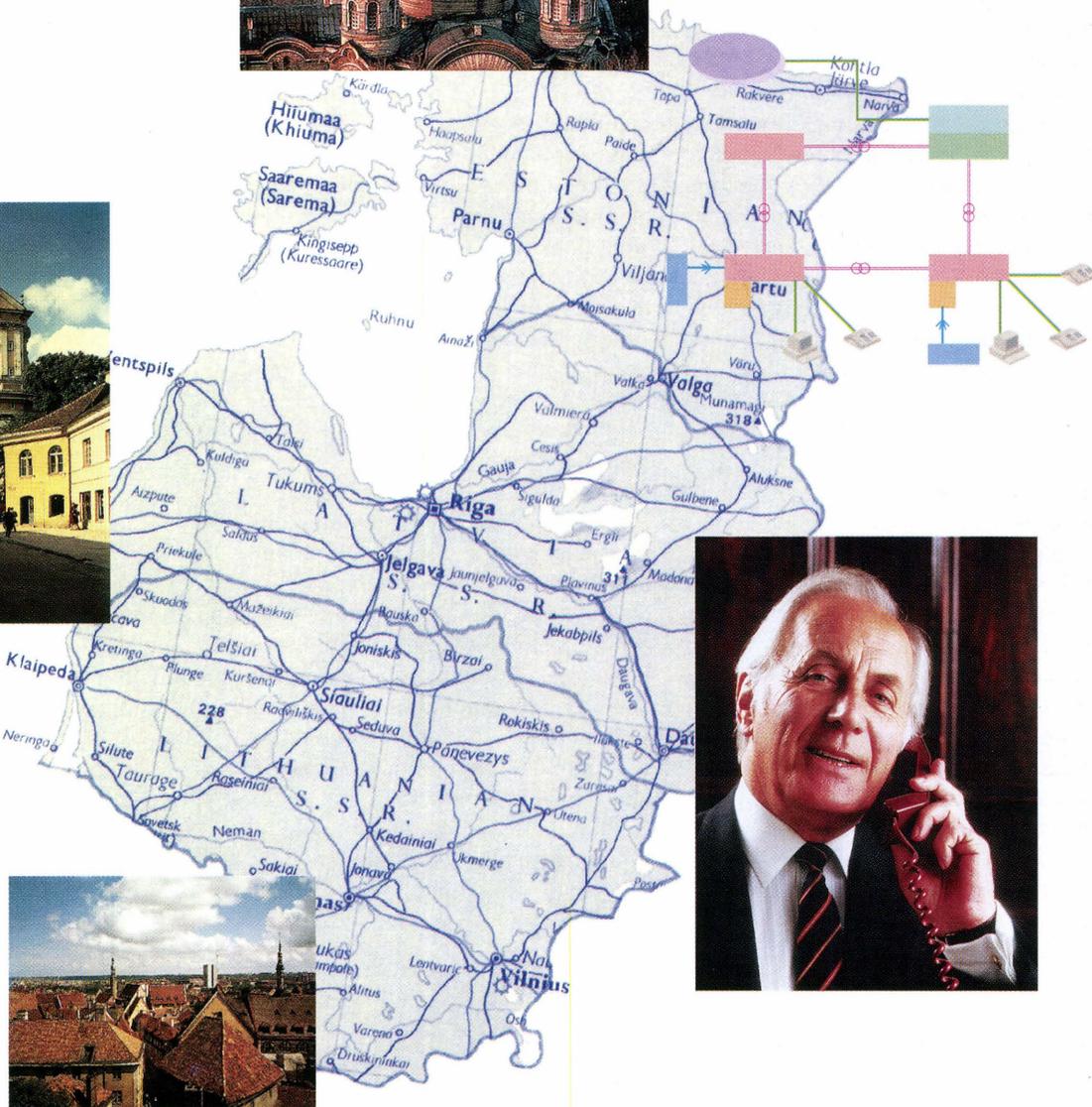
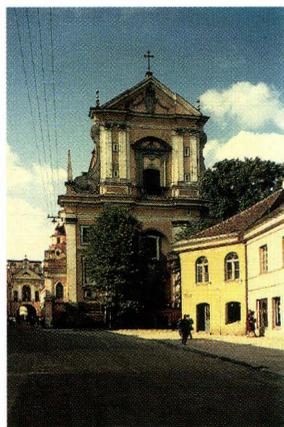
THE BALTIC COUNTRIES

More phones than other former Soviet republics - yet links to the outside world are "pitifully inadequate"

THE KNIGHT in armour on Lithuania's flag may have turned to face a new future in the West but the ears of its citizens, along with those of its fellow Baltic states, remain cocked to the East. For, although Latvia, Lithuania and Estonia are the three most westerly of the former Soviet Union's newly-independent states, their international presence is in many ways still dictated by Russia.

Since they regained independence in 1991, the Baltic States and their combined population of just seven million have grappled to ensure basic supplies of affordable power, fuel, food and pharmaceuticals. Telecommunications is not yet a priority, but this is expected to change soon, particularly as their success in breaking the reins of the Soviet centrally-planned system will depend on developing a high degree of international integration and trade.

The European Commission recognises that the three economies are much more dependent on trade with the former Soviet Union than eastern



Europe, and this as a result of central planning much more than as a natural consequence of their comparative advantages. In a report published in September last year it said: "the economic dislocations accumulated during 45 years of central planning may therefore be larger than in eastern Europe, and the transformation and adjustment task correspondingly more daunting".

The three states signed trade and cooperation agreements with the European Community early in 1992. These foresee a second stage of closer cooperation on trade and political issues (in the form of association agreements), but do not in any way acknowledge the three's individual ambitions for full Community membership.

Short-term western assistance is, at the Baltic states' request, focussed on energy and agriculture. Commission officials have had no calls for specific assistance with telecommunications, but are preparing to help when asked. The London-based European Bank for Reconstruction and Development, which provides loans to central and eastern Europe as well as the former Soviet bloc, has been asked for funds, but it is stressing the need of regulatory development as a condition for large-scale investment.

Statistics on the current state of the telecommunications sector are few and far between but it is clear that, while the Baltic states can boast the highest rates of telephone penetration of the former Soviet republics, links to the outside world are pitifully inadequate.

In Latvia, for example, there are 608,000 telephone lines hooked up, but a further 170,000 people are waiting to be connected. Foreign calls are routed via only eight semi-automatic lines to Moscow, although there are also manual lines to Berlin and Warsaw. Fax and data communications are simply not reliable, because of the poor quality of many lines.

Customer charges throughout the region were increased this year, up by an average of 300% in Lithuania from 10 January to take account of higher rates charged by the Russian ministry of communications and more than 200% in Estonia from April to cover not only higher charges but also the rising costs of electricity, fuel and equipment. Estonia requested \$6 million in aid for telecommunications, satellite links and diplomatic representations abroad under its "Survival Programme", which ran from December 1991 to June 1992. Now further (unspecified) resources

are being sought for a longer-term scheme to boost international telecommunications facilities.

Lithuania is perhaps the most active of the three in assessing and planning its communications priorities.

In particular, the country has outlined plans for a nationwide information structure in a brochure entitled *Lithuania 2000*. The report, designed to solicit outside investment, calls for a national data network (including electronic mail) based on international standards, and a computerized banking and financial system including links to the SWIFT financial communications system.

According to Alfredas Basevicius, the acting minister of communications, Lithuania has 850,000 subscribing lines for its 3.7 million strong population. The average rate of penetration varies from 26.4 lines per 100 inhabitants in towns to 15.6 in rural areas. Only 6% of lines are connected to digital exchanges, although 64% of transmission capacity is digital.

However, any attempts to modernize the local economy and boost trade with the West are severely hampered by the lack of international communications. Lithuania has just 15 international telephone lines, routed via Moscow.

Plans have been laid to increase the number of international connections, beginning work in 1992 on the construction of a 1000-channel international exchange in Kaunas using equipment from Alcatel.

There is also an ambitious programme to lay a fibre-optic cable from Warsaw in Poland through Kaunas and Vilnius in Lithuania to the Latvian capital Riga and on to Tallinn in Estonia. A Danish cable company is to lay the line along the existing railway track. The same link may be extended to Kiev via Minsk and from Warsaw to Frankfurt.

The Lithuanian communications ministry also wants to create a digital data communications network, extending and replacing crossbar-type equipment; to extend and upgrade the public telephone system; and boost telex and mobile phone services. Banks have estimated that the first phase of the programme will cost \$400 million (ECU 308 million) from a total cost of \$1,500 million (ECU 1,120 million). The authorities in Vilnius are in touch with potential suppliers in Germany, Denmark, France, Norway, the United States and Japan, and examining the possibility of setting up local production facilities for some equipment.

Until the new networks are in place,

satellite links to the Nordic countries are the states' main links to the West. Television viewers in Estonia and Finland, which share strong traditional and linguistic ties, have been watching each other's programmes for years. Today, the Baltic Information Centre in Copenhagen represents possibly the most important relay point for data and document transmission.

The Baltic states, perhaps more than any of the other republics formerly under Soviet influence, have been able to develop an efficient mobile cell-phone network, by plugging into Scandinavia's advanced services.

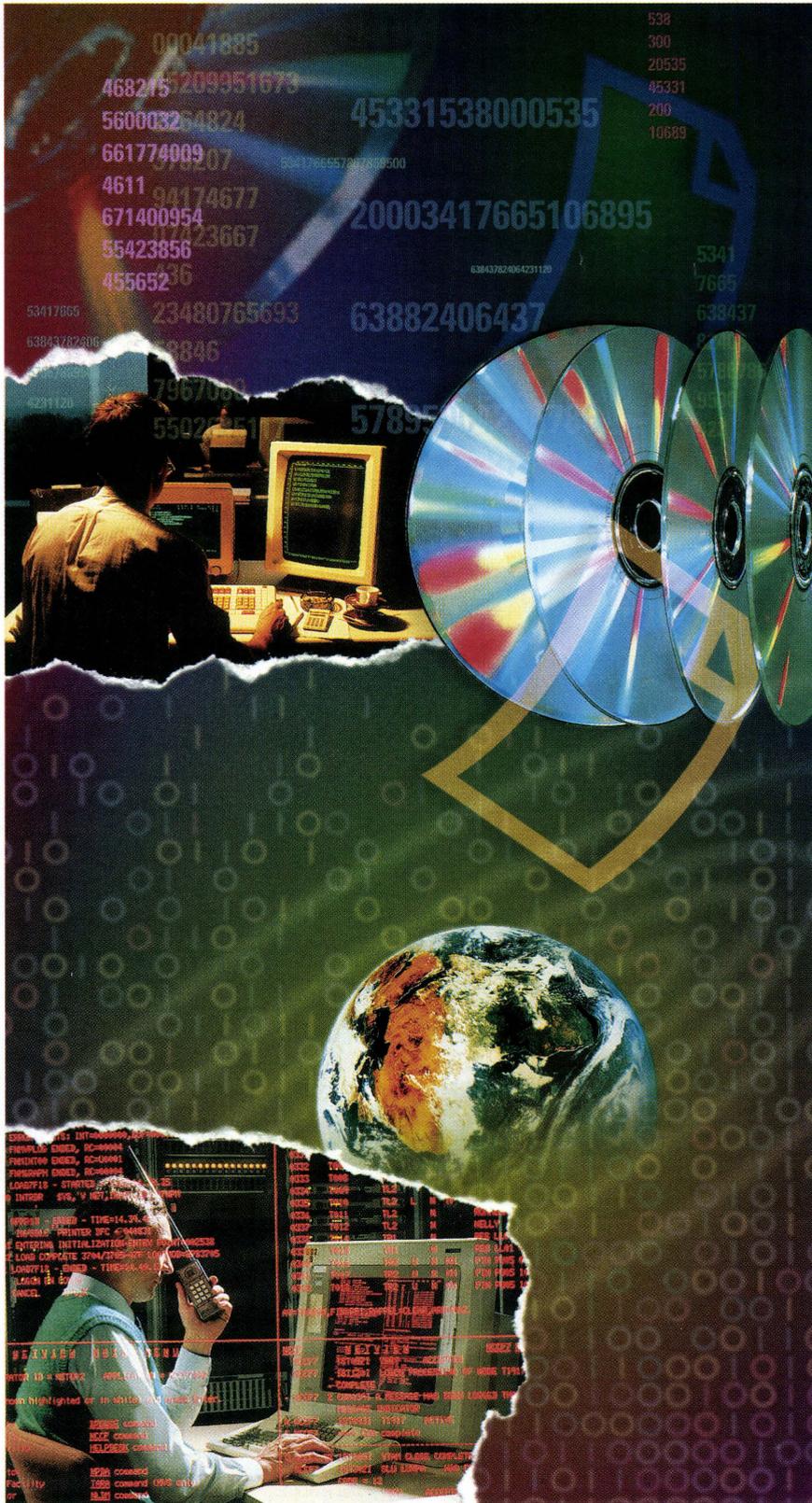
Since October 1991, Lithuania has been connected to Oslo via Norsat B. The Eutelsat satellite covers the country via an earth station supplied by US West in a joint venture with Kaunas Enterprise, giving the operators a 15-year exclusive contract to set up the country's first international gateway. In February this year Lithuania linked up to the Nordic mobile phone network via Copenhagen and the Tele-X satellite, a joint venture with Millicom of the United States; similar systems were already in operation in Latvia and Estonia.

Private businesses are moving in, although the dearth of local capital remains the biggest break on foreign investment. In May, Swedish Telecom International awarded Telefon LM Ericsson the contract for a local AXE exchange in Riga, Latvia, under a joint venture with Lattelecom. The system, serving 1000 subscribers, is expected to be up and running by the autumn. A second joint venture aims to connect 75,000 subscribers to a digital switching system by 1993.

Telecom Finland and Swedish Telecom are to lay a 34 Mbps fibre optic cable between Helsinki and Tallinn, opening 960 new circuits to Estonia. Teleglobe Canada has also signed a deal to provide 12 direct voice lines from Tallinn to Montreal.

Scandinavia is taking the lead in practical help to the business community of the Baltic states. But the European Community is prepared for the day when Latvia, Estonia and Lithuania have put their most basic problems behind them and can move to develop new ties. ■

Lucy Walker, *journalist*



MOVING INFORMATION in the open environment has been facilitated by the advent of the standards prepared by ISO to define the Open Systems Interconnection (OSI).

A further step is now envisaged to ensure that the documents that are exchanged end to end are properly recognised, processed and stored within the context of different applications. The exchange of documents will be facilitated by the application of Office Document Architecture (ODA), Standard Generalized Mark-up Language (SGML), Standard for the Exchange of Product Data (STEP) and similar ISO standards.

New business opportunities have been created with advances in information technology. The possibility of using computers and telecommunications to improve access to information, and to process it and distribute it in new ways, was seen almost as soon as the technology became available, and the information industry has seized the chance to produce new products.

The technology has also diversified, so that access to databases can be provided to the user through videotex terminals, personal computers, TV and telefax in addition to dedicated terminals. The availability of higher volume data transfer, with the introduction of ISDN and other new telecommunications services, has opened the possibility of making still pictures and video part of the information product.

As telecommunications have played a greater role in information transfer, the problems encountered by users in interconnecting computers have had to be overcome. The idea of OSI has now reached the stage where the linking together of systems from different vendors has become a reality.

In order to achieve really open systems, new standards are being developed in many areas of IT. One of the most important requirements is that the information input at one point

Open Information Interchange

A new initiative to improve awareness of information coding standards

in the system should be recognisable at other points.

Recognition of the information means recognition of the coding rules. All information that is handled by digital systems is coded numerically, whether it is text, sound, pictures or video. A simple example of the coding of information is the way we write dates. The date is usually set out as a set of three numbers with some spacing character, for example 3-6-92. In order for the date set out in this way to make sense to the recipient, the rules for coding need to be known, in particular, whether the day or the month comes first.

Digitally coded information is stored and transmitted as a string of binary digits (0s and 1s). The rules for coding and decoding the strings are as complex as the information being transferred. Telegraphic systems for transferring simple text messages can get by with a limited alphabet coded as fixed length strings with a unique code string for each symbol of the alphabet. Complete documents that include text, drawings and colour photographs, and where the layout of the document must be specified so that the appearance of each page can be reproduced by the receiver, require a hierarchy of interrelated coding systems to represent the different levels and types of information.

Recently, we have seen the introduction of new methods of data exchange such as CD-ROM with the capability of transferring very large amounts of information at low cost, and increased bandwidth communications systems such as ISDN. These new interchange systems allow much larger and more complex documents to be exchanged, with the possibility in the near future of documents with integrated sound and motion pictures.

Two other recent trends in user requirements are important: first, the move to integrated user interfaces, allowing the user to transfer information between different applications easily; second, the general growth in the amount of information produced and distributed entirely in an electronic form.

To achieve open interchange of information from one system or application to another requires that standards be developed for the coding of information and that those standards are widely applied. The international standards bodies have developed standards that can be used for the task, and new standards are under development to meet new requirements. However, the application of the standards falls well below user expectations and this will limit the growth of the information industry in the new business areas if it continues.

Open Information Interchange (OII) is a new initiative within the EC's Impact programme (Information market policy actions) that seeks to improve awareness of information coding standards and promote their use in the electronic information services market. Preliminary activities took place in 1990-91. Industry soundings to assess the direction the initiative should take were followed by a short study to define the scope of OII and a two-day workshop in Luxembourg. The aim of the workshop was to present an account of the current situation from members of the industry, and to discuss the future path of OII activity. More than 50 invitees attended the workshop, representing information providers, standards makers and software developers. The workshop was followed up with a survey to identify those with a strong interest in participating in OII activities - the OII community - and their information needs.

The OII activities have three main objectives:

- Development of guidelines for the use of standards: to ensure a consistent strategy exists and is followed for the use and development of information representation standards.

Individual standards developed under the umbrella of the standards bodies are the building blocks for standardized systems. The individual standards do not in themselves define how they should be combined. Having a standard for the coding of characters into numeric form and a standard for writing document descriptions does not automatically provide the complete coding of a specific document. To arrive at that stage requires agreement on how to apply the standards in specific areas and what to do in cases where there is no appropriate standard.

- Application stimulation: to ensure that tools exist to support the production of information products embodying the standards, and that the benefits of interworking are fully demonstrated.

Today more and more standardization effort is devoted to standardizing ideas or concepts long before products exist in significant quantities in the market. Recent examples are ODA and MHS (Message Handling Systems), where it has taken several years before software systems have become available.

To reduce the time lags in vital areas, to demonstrate the technical and commercial feasibility of draft

New business opportunities have been created with advances in information technology

standards and to ensure European participation in the development and use of new international standards, implementation in software and trial use will be encouraged.

- Awareness of information standards; to make both the information industry and the users of information in other industries aware of the importance of standardization in information interchange and of how it may be achieved. ■

Günther Steven DG XIII

Sinking the data pirates

A draft EC directive on the legal protection of databases is moving through the decision-making pipeline

TRADITIONAL literature and published written documentation have for a long time benefitted from copyright protection as a safeguard against copying and re-use. The time, expense and intellectual effort expended in creating databases may be considered to equate with that of literary works. The procedure of making an electronic database collection or compilation can be classed as an intellectual activity deserving recognition under copyright law as a creative process similar to that of producing reference works, textbooks, collections, encyclopaediae, anthologies, etc. The database compiler exercises choice and thus intellectual creativity in the selection or arrangement of the available material; moreover, the creation of data models and of a thesaurus and indexing or cross-reference systems constitutes further intellectual processes. Extra value is added to the raw material by the processing which follows the collection and arrangement of material. There are valid reasons

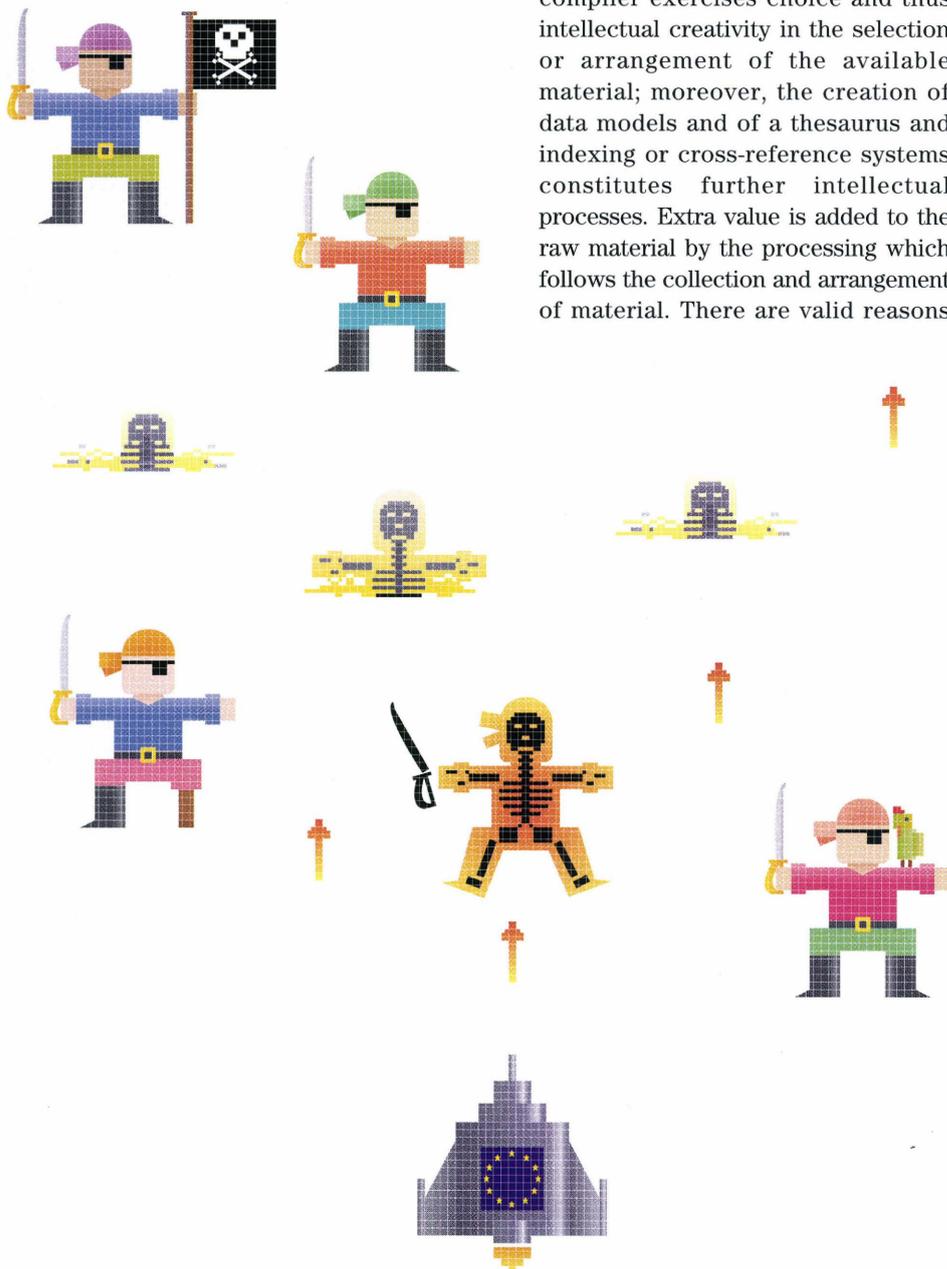
for providing copyright protection for electronic databases, as databases in paper form can be protected as collections under the Berne Convention.

In the database domain, piracy is particularly easy as some or all of the contents can be downloaded and reproduced at low cost and high speed using modern communication networks. From an economic viewpoint, European companies will be reluctant to invest in new database technologies if action is not taken to provide a secure and stable legal framework. Similarly, the development of this sector to meet the growing demand for online information services will be impeded. Such a framework must adequately protect the producer's skill and investment, and safeguard databases from "unauthorized extraction and reutilization" of their contents. As transborder information flows increase, the establishment of a harmonized regime throughout the Community becomes necessary, enabling database producers and operators to compete on equal terms within the EC as well as with their major rivals in the world information market.

In efforts to combat international piracy of databases, the Commission has therefore proposed harmonizing the legal protection of databases produced within the Community (document COM (1992) 24/SYN 393).

The volume of information handled in today's business and professional worlds, as well as in the domains of culture and leisure, is increasing at such a rate that databases have become indispensable in order to cope with the problems of information storage and retrieval. High volume information handling is of vital importance to the economy of the European Community, as technical, legal, commercial and financial information is a valuable resource marketable at high prices by specialized companies.

The Community's position in the world market for electronic information services is weaker than it should be



due to fragmentation by technical, legal and linguistic barriers. The findings of the Information Market Observatory (IMO) revealed that in 1989, within the Community, expenditure on accessing information by electronic means amounted to approximately 3 billion ecus, less than half that in the USA (about 6.7 billion ecus).

Storage media such as online and CD-ROM provide the key to the management of huge quantities of data of a multiplicity of types. However, as the electronic information sector is still comparatively young, it is understandable that the legal environment in which database compilers and producers operate is far from complete. As database production did not gain significance in Europe until the mid-1980s, there is at present specific eligibility for protection by copyright in a limited number of Member States only, for example Spain and the United Kingdom. In others, protection is uncertain and the scope of the protection varies from one Member State to another. Although it may be asserted that nothing in Member States' legislation effectively excludes electronic databases from protection by copyright, there are significant differences in the protection given. These differences include the standard of originality that is applied as a criterion for protection, the scope and term of protection, the ownership of rights when the database is created under contract, and the freedom of a database user to download or reproduce the database or parts of it. Another grey area exists regarding the extent to which works or materials other than text are covered by existing legislation. Addressing these questions, the Commission, after raising the issue of legal protection of databases in its *Green Paper on Copyright and the Challenge of Technology* in 1988, proceeded in April 1990 to a hearing of views of interested parties on the issue. The opinions obtained at this hearing, during discussion at the Legal Advisory Board (LAB) meeting in May 1991, and through studies and individual responses, contributed to the conclusions which formed the basis for a draft directive on legal protection of databases adopted by the Commission on 29 January 1992. The proposal will follow the cooperation procedure (involving discussions with the European Parliament, the Council and the Economic and Social Committee) before it is finally adopted by the Council.

The draft directive sets out to address

both the creative and the economic aspects of protection of databases, namely protection of the intellectual creation of the author under copyright law, and protection of the creator's investment against parasitic behaviour by "pirates" and unscrupulous competitors who attempt to misappropriate the results of the collection work performed by the database owner.

The Commission's two-tier approach provides for full copyright protection as regards databases meeting the necessary originality criteria related to the selection or arrangement of a database, and a shorter term of protection (10 years) for the content of databases. The two types of protection can be applied cumulatively as they concern different aspects. The copyright protection is, of course, only available if there is original selection or arrangement.

To explain this in greater detail, at present databases comprising facts and figures are increasing their share of the European market in relation to those comprising full-text works. These numerical or factual databases are usually updated frequently and may contain extensive collections of statistics or other data arranged in alphabetical or chronological order. Under prevailing copyright law in the majority of Member States, such selection and arrangement of the database content could be considered as lacking sufficient originality to qualify for copyright protection. This situation is addressed by the Commission's proposal to introduce a new *sui generis* type of intellectual property protection which will give electronic database producers a 10-year period of protection against the unfair copying of the content of their databases for commercial purposes. This will be granted in addition to copyright protection as a "collection" and offers protection against extraction and re-use of contents, which copyright cannot provide.

The question also arises of the right to extract and re-use the contents of certain databases legitimately, for example where the creator of the database is the only source of the information and others would be excluded from the market in a monopoly situation. In such cases it is proposed that licences for commercial re-exploitation of certain types of information be granted "on fair and non-discriminatory terms" to legitimate users in certain circumstances, while those wishing to use the inform-

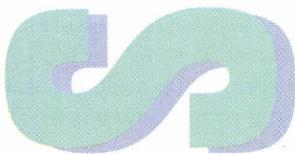
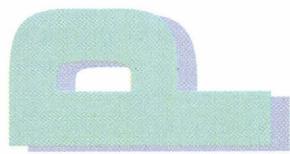
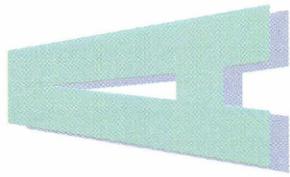
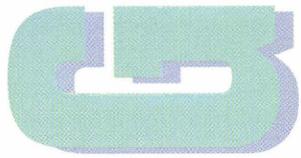
ation for private purposes are at liberty to do so.

Databases created by nationals or residents of third countries and those created by companies not based in the European Community can only be granted protection on a reciprocal basis as far as protection of contents is concerned. In the case of copyright, the rule of so-called "national treatment" applies.

With the advances in combining technologies in the information services sector, now that multimedia applications are becoming a reality, it is also necessary to consider the scope of the term "database". For the purposes of the draft directive, the term extends beyond its conventional sense to include collections of any type of material in the literary, artistic and musical fields, such as text, images and sounds as well as numbers, data, facts and pieces of information.

The progress of the electronic information revolution is constantly accelerating; the need to establish a harmonized European legal framework for protection of its key resource is urgent. Community databases must be at least as well protected as those of the EC's major international competitors. They must be protected in a uniform way throughout Member States. Unprotected, they may fall prey to irregular practices that will jeopardize this increasingly important sector of the economy. Looking ahead, innovation and technical progress resulting from research and development efforts in the database sector are unlikely to thrive without a background of harmonized legal conditions. ■

Wolfgang Huber *DG XIII*



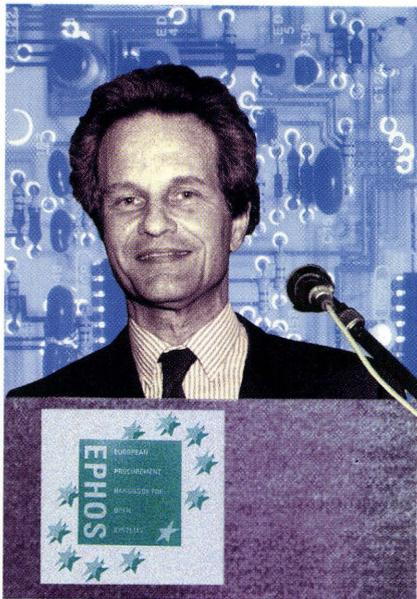
SPAG WAS FIRST FORMED in 1984 as an informal alliance, grouping the leading members of Europe's electronics industry, in response to the European Commission's plan to develop a strategic precompetitive research and development programme for the IT industry, Esprit. Established as a registered company under Belgian law in 1986, it now represents the collective voice of Alcatel, Bull, BT, Digital, Hewlett Packard, IBM, ICL, Olivetti and SNI on open communication systems in Europe.

Seeking a way to unify the European Community's fragmented IT market, the group's members soon realised that the major problems facing the industry in the 1990s would be distributed data processing and the portability of software. Since then, SPAG has concentrated on developing solutions to the first of these; responsibility for the latter is largely in the domain of X/Open, another organization set up at the same time.

Since 1987, SPAG has tackled a range of technical, commercial and political issues in the pursuit of "one-stop testing" for OSI products world-wide. (During its early work, from 1983-1987, SPAG had been instrumental in designing and developing OSI profiles for open communication systems.) It has worked both on its own initiative and in cooperation with other organizations, including vendor and user groups.

The Open Communications Systems Catalyst

Plans to ensure the interoperability of systems developed by and for the information technology and telecommunications industry have moved forward with the launch of a new drive towards harmonization by the Brussels-based Standards Promotion and Application Group (SPAG)



Patrice d'Oultremont, SPAG's MD.

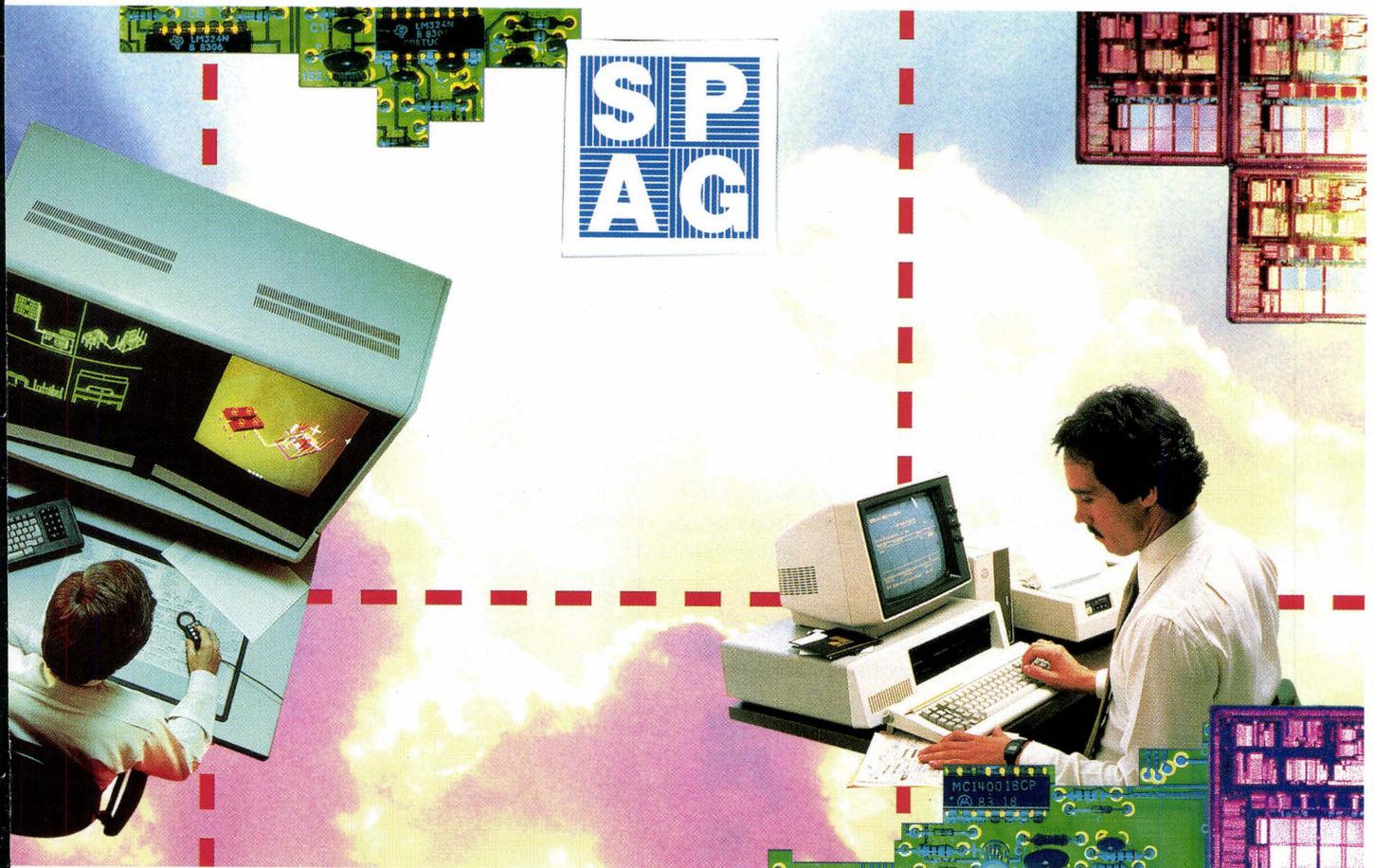
The latest tool to emerge in the drive towards world-wide reciprocity is the Process to Support Interoperability (PSI) programme, launched on 26 March. SPAG says PSI is a scheme to promote "interoperability by design", ensuring true interoperability and providing an open service, available to all vendors of open communication system products, including SPAG members and non-members alike. Interoperability has the twin advantages of giving consumers maximum choice at lowest cost, allowing them to mix and match

products from a variety of different manufacturers, and offering businesses the widest possible market for their goods and services. It is widely seen to be one of the key communication needs of businesses around the globe.

The new programme is a vital element of SPAG's declared long-term goal, namely: "to stimulate, support and promote the environment for credible multi-vendor interoperable products and services, supporting computer networks across multiple enterprise organizations based on international standards (such as OSI, ISDN...)". Its ultimate aim is to create a truly competitive, open market in which users and suppliers can trade in multi-vendor systems with the confidence that different systems and products will work together.

In simple terms, PSI is a code of conduct to ensure the successful development, testing and implementation of interoperable OSI and telecommunications systems. It is intended to provide users with a unique insurance policy for open systems procurement, backed by a legal framework and a special trademark: the PSI mark. PSI should, by gaining the support of a broad spectrum of companies and suppliers, ensure that it takes maximum advantage of existing and future efforts to harmonize standardization and testing.

Interoperability: widely seen to be one of the key communication needs of businesses around the globe



SPAG members believe that the evolution of the market makes this a timely approach. They say the market and industry have matured significantly over the last year to a point where interoperability testing and evaluation performed according to a formal methodology - and in accordance with universally accepted practices - is seen more and more by users as a direct complement to conformance testing; as, indeed, a vital procurement tool for procurement.

SPAG members are confident that the more people understand that "interoperability by design" is a workable concept - not just in Europe but world-wide - the better the chance of developing, testing and marketing new interoperable communication systems and products. The recent granting by the EPHOS (European Procurement Handbook on Open Systems) Project Control Board to SPAG of special liaison status to offer advice and expert guidance on interoperability testing and related issues is a further indication of the way PSI concepts are achieving popular currency in the marketplace.

In this scenario, conformity testing is a good starting point, but there is a greater need for people to understand testing interoperability from a service point of view. Doing so will help the industry itself develop communication systems and products that can be marketed world-wide.

User groups - including the pan-European OSITOP association, the User Alliance in the United States and the European public procurement group EPHOS - are already aware of the importance of truly interoperable products. Their work on specification highlights conformity testing as an important starting point, but the service angle is rapidly emerging as the new and relatively unexplored priority.

By providing a generic global framework, incorporating interoperability by design into the development cycle of new products, companies can be assured in advance that their product will meet their potential users' requirements as far as interoperability is concerned.

This should overcome the inevitable delays and costs associated with traditional testing procedures, where a product is placed with a potential or actual customer after the development phase on an ad-hoc, informal basis.

In practical terms, the PSI obliges vendors to test their products against each other, in real user conditions, in a much more systematic and rigorous fashion; and give assurances to customers that their products will work. Products that successfully pass these tests will be entered into a database which customers can then access, confident that the products it contains will all operate together. Pilot schemes are underway involving the MHS and FTAM protocols, but already there are plans to extend the process to a wider range of open systems technical domains.

This new service should, in turn, give a fillip to the entire industry: reducing product development costs, smoothing conformity testing procedures, boosting customer confidence and stimulating demand as a whole.

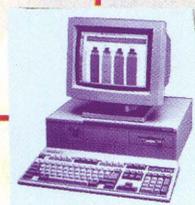
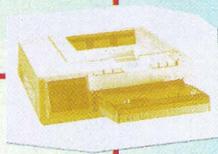
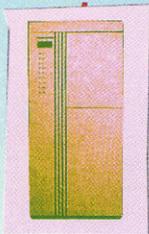
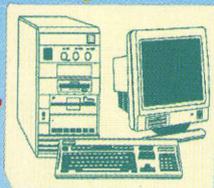
SPAG has found that working together to develop the new service is helping to underscore its members' commitment to maintaining a strong technical link between suppliers and consumers, with the added advantage of enhancing product specification, development and testing to bridge the existing needs between products offered and consumer needs.

Backed by a strong legal framework, comprising the code of conduct and the new trademark, SPAG members are convinced they have developed the most comprehensive system to date for serving the emerging multi-vendor market for open communications systems and products.

With the inaugural service for MHS 84 (including the corresponding EPHOS Product Profile) up and running and the FTAM service planned for Q4 this year, the future for the PSI programme depends on its fortune with producers and consumers. In order to foster this, SPAG is preparing to set up the PSI User Forum, so producers and users of PSI-marked products can debate the commercial and technical issues that will need to be resolved to ensure its success. ■

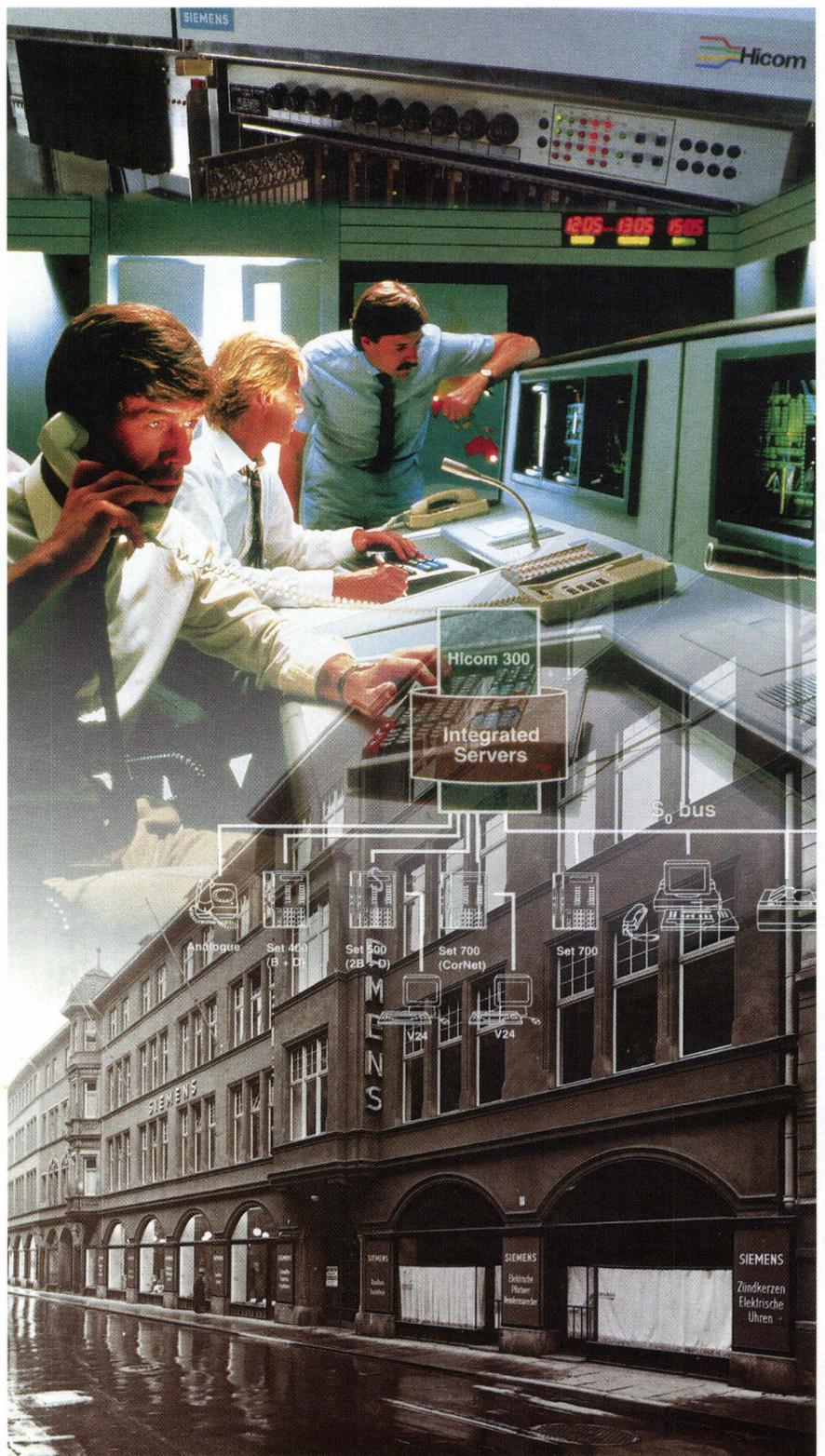
Karen Garside SPAG

SPAG members are convinced they have developed the most comprehensive system to date for serving the emerging multi-vendor market for open communications systems and products



Siemens : New challenges in the east

Vast sums are being invested in the extension of telecommunications in the new German federal states and in the eastern European countries. The success of these projects will be decisive to economic growth. Siemens is one of the leading companies committed to the economic upturn in this region.



IN THE NEW GERMAN FEDERAL states, the digital electronic switching system EWSD being installed by Siemens on behalf of Deutsche Bundespost Telekom is contributing to the rapid expansion of an efficient and future-proof telecommunications network. The same is true of the company's transmission and mobile radio engineering, data networks, telecommunications cable and private communications systems. Three modern industrial plants of Siemens are manufacturing major products for these within the former East German states themselves (and hence fostering the economic upturn and safeguarding jobs).

The business divisions within Siemens AG responsible for telecommunications technology (public communications networks and private communications systems) will have invested around DM 150 million in the new federal states during the current expansion phase up to 1992/1993. The investment is in network construction and in the manufacturing, marketing and service businesses in communications technology. Some 5000 jobs are being safeguarded or created in this way.

This commitment also has a historical basis. Siemens AG is closely linked to the new federal states by its history. Berlin - the city where Siemens was founded - was and is a centrepiece of the company. Siemens is involved in all DBP Telekom's competitive-tendering projects in the new federal states and has gained a market position there similar to that in west Germany.

The Turnkey '91 and Turnkey '92 projects posed and still pose a particular challenge. The companies commissioned by DBP Telekom are handling the entire scheme under their own control and on their own responsibility, from the subscriber's connection socket to the main switching centre in the long-distance network. Within the framework of Turnkey '91 alone, Siemens has erected more than 30 radio relay towers and masts, laid thousands of kilometres of cable, and has put up some 60 provisional prefabricated buildings and containers for switching centres.

Apart from this "crash action", the normal extension of the telephone network in the new federal states is also progressing perceptibly. In this case, use is being made primarily of existing equipment, for reasons of time. A new digital overlay telephone network is being established on top of this infrastructure, which incidentally includes mechanical Siemens two-motion selector exchanges from the 1920s that are still in service. In the medium term, however, all old exchanges are being replaced.

With Deutsche Bundespost Telekom's overlay network, Siemens has so far received the order for 60 long-distance and local exchanges based on the EWSD system. Up to now some 300,000 subscriber connections have been provided in the exchanges. This will become about 500,000 in 1992. Moreover, the company has built the northern radio relay network of the overlay network which runs between Rostock, Neubrandenburg and Berlin. Mobile radio in the new federal states is based on the Siemens C450 system, used in the west. The network has grown along the motorways and into the conurbations. In this way 60% area coverage with 4000 radio telephony channels was already achieved by the end of 1991. A further 2,400 channels will be created in 1992. Siemens is also contributing to the building of the digital D-network. With the continuous improvements in the telephone network, mobile radio will soon no longer have a surrogate role but be available to all mobile telephone subscribers.

After the political change and the loosening of COCOM restrictions, it was possible to implement a data-packet switching network designed for the former GDR using the latest EWSD technology and to incorporate it in Deutsche Bundespost Telekom's Datex-P network after unification. Area coverage was already achieved by mid-1991, after completing all 15 switching nodes for about 3000 system connections.

Three large, modern factories in the new federal states are manufacturing products for the public telecommunications network, so bringing know-how and creating jobs on the spot.

Since November 1990, the wholly-owned Siemens subsidiary Siemens Kommunikationstechnik GmbH in Leipzig has been producing public telephone exchanges using the EWSD

system, as well as the Hicom private communications system. Some 400,000 EWSD and 200,000 Hicom connection units are to be manufactured here annually up to 1993. It was already 100,000 of each in 1991. About 850 employees are engaged here in manufacture, sales, service and development.

At Siemens Übertragungssysteme Greifswald GmbH the modernized PCM30III transmission system is being manufactured and also further developed in collaboration with Siemens. An up-to-the-minute development centre for transmission systems has been integrated into the Greifswald works. At the same time, numerous development projects have been moved to Greifswald from Munich. The company provides 1,100 jobs. In addition, a service department has been created in Greifswald for installation and commissioning, both for building up the telephone network in the new federal states and for further international projects.

Not to be forgotten is the Berlin development centre for public switching technology, which employs more than 200 software developers, almost exclusively from the restructured state-owned companies and the former Academy of Sciences.

Modern telecommunications cable has been produced in Siemens Kabelwerk Schwerin GmbH since mid-1990. In 1991 the annual output was around 150,000 km of copper double-core. It is intended to almost triple this in 1992.

A sales and service network covering the area is being built up as a major support of all these activities. A training centre was set up in Leipzig for qualified training in sales and service, and this has been offering complete training programmes from the public and private communication areas since 1991.

There is also a considerable demand in the new federal states for private communications systems for business and administration. A tripling of the PBX connections in existence in GDR times is the target. To achieve a supply similar to that in west Germany, some 370,000 PBX connections must be provided annually up to the year 2000.

Since summer 1990, the private communications systems business area has been supplying the complete product range in the Hicom communications system, which is partly produced in Leipzig.

Telecommunications for eastern Europe

Business expansion in eastern Europe is also progressing rapidly, although the decision structures have not yet been consolidated and the considerable foreign exchange requirement presents an additional obstacle. If even the major part of the business comes to medical technology, automation and systems, a considerable upturn is expected in the coming years, particularly in telecommunications and energy-generation systems.

As previously sole company, Siemens AG received orders for its EWSD public telephone switching system from all countries of eastern Europe. Orders for a total of nearly 1.2 million EWSD connections had been received since October 1990 by the end of March this year. In the current trading year, the public communication networks business area is expecting orders from eastern Europe with a value of around DM 350 million - seven times the level in the previous year. Particularly in Czechoslovakia, Poland, Romania and Hungary, EWSD is contributing decisively to the expansion and modernization of the national telephone networks. The first projects are already being implemented in all eastern European countries.

In addition, the business division has entered into joint ventures for local manufacture in all these countries with the exception of Bulgaria, where negotiations are still in hand. The division is investing about DM 250 million in these companies. Partners are businesses and PTTs. There are joint ventures in Czechoslovakia, Poland, Romania, Hungary and the Ukraine. In their manufacturing range, the new companies cover public switching systems, transmission systems and, in Hungary, telecommunications cables.

Market conditions are currently extremely difficult in the successor states to the former Soviet Union. With the elimination of the centralized structures, the individual republics of the Commonwealth of Independent States are now responsible themselves for the telephone sector and they veer radically from state-owned to a privatized network operation, with a large number of network operators. The company MKM Telekom was set up in 1990 for EWSD manufacture, with ambitious plans. After three years - i.e. in 1994 - over one million connection units are to be produced annually at a works in Kiev, with 1000



employees. In 1997, 2000 employees are to manufacture three times as many. It is also proposed to export systems.

In September 1990, the city of Grodno close to the Polish border received the first EWSD exchange in the former Soviet Union. The exchange, an EWSD transit switching centre for 4,500 long-distance lines, was handed over to the White Russia PTT after a building time of only three months.

At the beginning of this year, MKM Telekom received an order for the supply and installation in Kiev of an international gateway exchange, combined with a national long-distance exchange. This gateway/long-distance exchange has around 10,000 connections, of which 800 serve the international traffic and the remainder the national traffic. The exchange is to go into service in the last quarter of this year.

In Czechoslovakia and Romania, the first joint ventures are starting production in Prague and Bucharest. The telephone cable works, Dunakabel, was opened in Budapest on 13 April. The main partners are the Hungarian cable manufactures Magyar Kábel Myvek (MKM) and the Viennese Kabel- und Metallwerke - a 100% subsidiary of Siemens Austria. In the second half of the year the companies in Warsaw, Kiev and Izhevsk are to start manufacture.

Siemens received a large order at the beginning of this year for modernizing the telephone network in Poland. In the next two years, Siemens will supply 12 EWSD systems, transmission equipment and telecommunications cable in 12 administrative districts of Poland. The first system is intended to go into service in the third quarter of this year. The joint venture company CEWIS of Warsaw, in which the Polish telecommunications manufacturer ZWUT is participating with Siemens (on the basis of 51% ZWUT and 49% Siemens), will take on part of the deliveries for this.

As well as the joint ventures for manufacturing public telecommunications systems, Siemens AG has set up - or prepared to set up - regional companies on the western model in the individual countries in eastern Europe. The private communications systems business division is offering the Hicom system in Hungary, Poland, Czechoslovakia, Romania and in the Commonwealth of Independent States. The step-by-step restructuring and splitting up of the company combines is certainly inhibiting readiness to invest at the moment; yet the demand for the Hicom 300 communications system is very high, because it also offers investment security in company structures not yet consolidated thanks to its great flexibility in terms of use and expansion.

In all eastern European countries, sales and service are to be expanded to provide nation-wide coverage. Already in 1990, the then representation in Hungary of Siemens AG, Siecontact, was transformed into a Siemens sales

and service company. First orders from Siemens Budapest included the telephone system of the Hotel Kempinski in that city. The Polish Siemens representation was converted into a Siemens sales and service company in 1991.

The privatization process has got under way more slowly in Czechoslovakia than in Hungary and Poland. Sales and service operate via the joint venture partner of Siemens AG in Prague, Tesla Karlin, the largest Czechoslovakian manufacturer of telecommunications systems. A number of interesting Hicom contracts have already been concluded - for example, a contract for more than 1000 connections in Hradschin, the official residence of President Václav Havel, and a further contract with the largest brewery in Czechoslovakia.

The political and economic transition situation in the Commonwealth of Independent States is particularly difficult at present. The aim of the business division is an all-embracing overall concept for all CIS states.

Communications systems and terminal equipment have been marketed for years via Siemens Moskau Kommunikationssysteme.

Romania, Bulgaria and Albania are still at the beginning of the political and economic change. Despite particularly difficult situations, the agencies in Bucharest and Sofia are already supplying and looking after Hicom 100 systems.

Because of the political change, the east and central European markets are currently in the field of view. Nevertheless, only about 1% of the Siemens world business is currently attributable to the countries of eastern Europe. Even if enormous growth in business is to be expected there sooner or later, Siemens recognizes that such a volume of business provides no reason for not continuing to be active in all other regions of the world. ■

Dr Henryk Frystacki
& Joachim Schrader *Siemens*

Besides fulfilling orders for supply and installation, Siemens is partnering joint ventures and setting up regional companies on western lines in east Europe

Siemens EWSD switchgear in east Germany



Economic influence of telecommunications

Numerous studies have shown the telecommunications infrastructure to have decisive influence on the economic growth of a country. There is a major correlation between telephone density and GNP; with growth in telephone density, the GNP per head of population also increases. If it is impossible from this to read off any one-way causality, it is nevertheless clear that telecommunications represents a production factor for all industries of the economy. As studies confirm, credit programmes for telecommunications projects are extremely efficient. They can generate growth in GNP at a factor of up to 100. This applies not only to an economy: telecommunications companies have found that investment for the telecommunications infrastructure is amortized within a few years by higher revenues. Great advantages are obtained from the expansion of a country's own telecommunications industry, particularly from technological point of view - but also from the economic point of view.

BRIE

