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Home Systems

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XIII MAGAZINE

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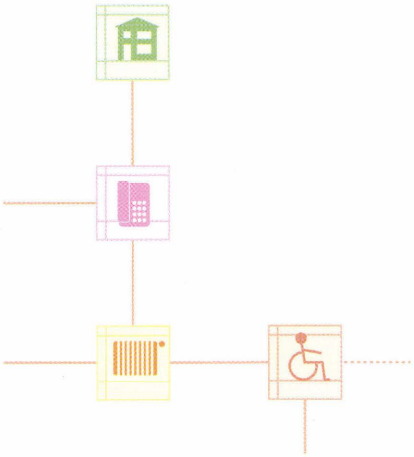

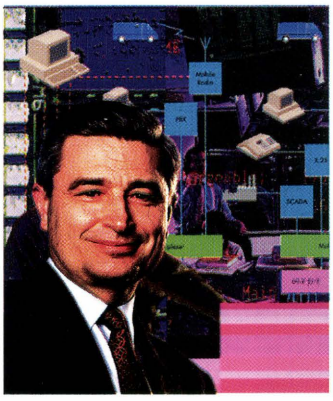

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Directorate-General XIII
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Editor: Michel Carpentier
Art Director: Jim Ludden
Designer: Tony Green
Production Manager: Guido Hutsebaut

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EDITORIAL

THE COMMISSION'S GREEN PAPER on a common approach in the field of satellite communications in the European Community was issued in November 1990, during the run-up to the completion of the internal market scheduled for the end of 1992. Satellite communications can make an important contribution to this process, given the appropriate regulatory and market developments.

The objective of the Commission's satellite green paper is to propose a future-oriented structure for the development of satellite communications for the single European market. The green paper intends to extend the application of the general agreed principles of Community telecommunications policy to satellite communications, taking into account the specificities of this means of communication.

Four major changes have been proposed. They concern the full liberalization of the earth segment, including both receive-only and transmit/receive terminals; free (unrestricted) access to space segment capacity (such access should be on an equitable, non-discriminatory and cost-oriented basis); full commercial freedom for space segment providers, including direct marketing of satellite capacity to service providers and users; and harmonization measures as far as required to facilitate the provision of Europe-wide services. This last initiative concerns in particular the mutual recognition of licensing and type approval procedures, frequency coordination and coordination with regard to third country providers.

The document was intended to initiate "a debate in the Council, the European Parliament and the Economic and Social Committee, and amongst those concerned within the Community - the telecommunication and broadcasting sector, telecommunications and space industry, the trade unions, and in particular the many new users and service providers, such as education and training institutions - on the need for further development of satellite services and on the necessary regulatory framework to fulfil these requirements."

The Commission expressed its intention, after an appropriate consultation period, to present its conclusions to the Council on the implementation of a Community policy for satellite communications, including the necessary regulatory instruments.

Community telecommunications ministers, meeting in Council on 14 December 1990, broadly endorsed the policy objectives of the green paper and encouraged the Commission to proceed to the consultation phase it had foreseen.

In addition to a series of direct consultations with major players in the field, the Commission invited written comments from all interested parties - either in the form of a response to the Commission's' questionnaire or any general comment on the green paper.

The overall response from the Community regulatory authorities and governmental organizations was to welcome the general objectives of the green paper and its proposals, which aim at increased competition among producers, enhanced efficiency in providing telecommunications services and a broader and more diversified choice of such services for consumers.

The comments are overwhelmingly positive and the Commission is encouraged to implement the proposals and initiatives, taking due account nonetheless of the various specific problems raised.

The Council of Telecommunications Ministers agreed on 4 November 1991 to a resolution which can be seen as a framework within which the Commission and the Member States have been asked to further the discussions and to progress with the implementation of measures in accordance with the overall goals of the satellite green paper. The Council noted with satisfaction the overall reactions to the satellite green paper and now wants to make progress on the matter.

This resolution reflects the will of the Council to bring about substantial Community legislation on the basis of liberalization and harmonization which will facilitate Community-wide satellite networks and services.

The Commission has already started the preparations which will lead to the release of draft legal measures and which, after a comment period and discussions in the Council and the European Parliament, are expected to be approved by the Council during 1992 and 1993. Implementation into national legislation is then expected to take another year at the most.

The first of the Commission's actions will be to propose measures in the satellite equipment sector extending the principles of the terminals directive of May 1988 and the directive on mutual recognition of type approval (or "second-phase terminals directive") of April 1991. This will liberalize and harmonize the satellite equipment supply market over the next few years.

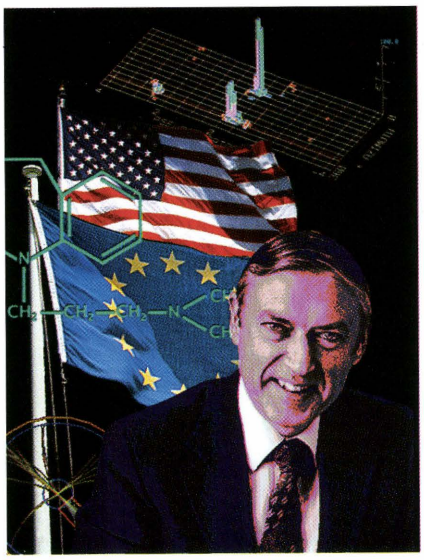
Subsequently, the Commission will come forward with proposals for a harmonized regulatory framework for the licensing of satellite networks and services. The aim is to propose a framework which, in effect, will provide for a "one-stop shopping" concept or at least as closely to it as possible, i.e. by offering satellite network and service operators the possibility to obtain a single Community license through mediation of a single, or very few, regulatory body(ies) in a class licensing scheme, for the applicable satellite networks.

In addition, the Commission intends to come forward with measures in areas such as the transborder operation of satellite mobile and transportable earth stations, and the use of unique frequency bands for VSAT services.

As is already clear from the comments on the green paper and the consultation period, any Commission proposals in the space segment area, such as improved access to the satellite capacity of the intergovernmental organizations, will necessitate further study and elaboration. Although the Council resolution urges Member States to advance in that area and undertake action to establish transparent, non-discriminatory and effective procedures, the process will be subject to various political considerations and could take some time. It can be foreseen, though, that advances will take place.

The Commission will also actively pursue further consultation with industry and assess the impact which the currently foreseen liberalization and harmonization measures might have. The Commission might then, as a result of the consultation, establish measures intended to enhance the competitiveness of the European space and telecommunications industry in the satellite field. ■

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



USA-EC Cooperation

Interview with Dr Nico Habermann, Assistant Director for Computer and Information Science and Engineering, National Science Foundation.

THE NATIONAL SCIENCE Foundation (NSF) is a United States governmental agency that provides financial and other support for research, education and activities relating to science, mathematics and engineering. Nico Habermann(1), recently appointed assistant director for Computer and Information Science and Engineering (CISE), oversees the CISE portfolio of NSF-supported research, which totalled $186 million in 1991.

XIII Magazine: Does the USA have an industrial policy?
Habermann: There is no industrial policy in the United States. It does not exist on a formal level. The government tries to encourage and stimulate (one), but I would say industry is not listening. They simply go their own way, and they go in different ways. Neither is there uniformity nor a common view within industry.

Is this beneficial?
Overall, I don't think so. For a large part, I think the situation is based on the fear of monopolies. In the United States, there is very strong antitrust sentiment. As soon as industries get too close together, they worry about legal problems that they might run into with the government or other companies suing them. However, one of the strengths of the American economy is the fact that industry is so flexible and is easily able to move in different directions. Small companies are able to move big ones; for example, the way the Apple is moving IBM. If you have an industrial policy, it becomes much harder for small companies and new initiatives to pay off. It has pros and cons. In Europe, industrial policy makes it easier for industries to work together. On the other hand, it makes it more difficult for a Sun, an Apple, a Next Corporation or a Micro Soft to start up.

In your view, how has Esprit affected European research and development?
I would say very positively. I have seen two things happening in Europe because of Esprit. There used to be an almost hostile relationship between European universities and industries. Esprit has changed that, because now you see a healthy collaboration between academia and industry, and they appreciate each other much more that they used to. Second, the integration of north and south was very important for Europe. And it is still in progress, because there was a huge difference between northern Europe -

England, Scandinavia, Germany, and France - and southern Europe - Spain, Portugal, Greece and southern Italy. I see real improvement there. They are becoming integrated.

What do you think the prospects are for US-EC cooperation in research and development, especially in information technology?
It can be very fruitful. Here again, I see a difference between how the Europeans operate versus the Americans. What can work is Europe interacting with three components of American society - that is with government in the form of organizations like the National Science Foundation, with industries, and with universities. It seems to me that it is not difficult in an industrial setting. There are already fairly good contacts on both sides and this can be seen in joint projects such as the IBM-Siemens chip project. That type of collaboration is possible, and I think it should be encouraged. It is in the interest of both sides, because it's very clear that in 1992 we will have these two economic blocs. Both will want to participate on both sides of the Atlantic. US companies want to have a European presence and Europeans want to have an American presence. In the case of universities, Esprit and the National Science Foundation can play an important role. We can stimulate joint academic research. We can stimulate workshops, conferences, sabbaticals and joint projects. That is certainly possible and is, in fact, already going on.

The US National Advisory Committee on Semiconductors (NACS) recently released a report on its workshop Micro Tech 2000, which was convened to identify the major hurdles in semiconductor development. Are you familiar with this?
I know this is not a government sponsored initiative. It is an industrial initiative and clearly shows the American way of doing business. NACS is an industry group, and the Micro Tech 2000 workshop is an industry initiative. Later, they did ask the government to get involved, but that is still only talk.

The purpose of the National Advisory Committee on Semiconductors has been quoted as "(assuring) US pre-eminence in world semiconductor markets." What strategies can you see the Americans pursuing to ensure this "pre-eminence?"
From talking with people involved, I can see they are going to go for pre-competitive research. It will be very much like an MCC style of operation where they bring companies together and develop the areas that would be extremely expensive for each company to develop on its own. One of their main points is that, because of duplication, research quickly becomes too expensive. Therefore, combining their efforts now to develop pre-competitive technology saves them money and allows them to start producing their products 5 to 10 years from now.

What has prompted the Americans to organize something like NACS? Have the success of Esprit and the strength of the Japanese industry caused US industries to feel pressured?
For a large part that is true, but there is also the idea that the United States does not want to depend on a foreign market for semiconductors, which will be one of the basic products in industry for a long time to come. Whether you build networks, televisions or cars, semiconductors are and will be an integral part of this technology. You can't do without semiconductors.

Do you think US industry would welcome European participation in Micro Tech 2000 and in future projects?
I don't know. They will try to make sure that American industry does not lose out in this technology. I can imagine them asking for collaboration, as IBM is doing with Siemens, but I can also imagine them preferring to do the pre-competitive research for their own benefit. But, of course, this is an outsider's perspective.

Do you see more projects such as Micro Tech 2000 developing worldwide in the future?
There are many areas that need to be addressed. First, I think that expanding the bandwidth - the amount of information that can be transmitted - is a priority. One of the important things that people do not often see is the fact that information has to be transmitted in real time. A single television picture contains a tremendous amount of information; very large volumes of data are required in real time. The expanded bandwidth through fibre technology makes this possible. The next two major areas are security and accounting for large networks. As far as security is concerned, networks must be protected and secure. People can share the information on the network, but the information has to be protected from theft or vandalism - through viruses, etc. The other area is accounting. Networks have not been able to develop the sort of accounting system that, say, the telephone companies have. It is so easy to duplicate information. Stealing information these days is a very simple matter. These are problems that have no easy solutions, yet must be addressed. Cooperative efforts, I think, will increase in searching for these solutions.

Do you think that the EC needs to develop an institution like the National Science Foundation?
NSF and Esprit are close, but their objectives and the way they do business are somewhat different. I could see the two organizations exchanging ideas. But I don't see a need for an additional European version of NSF in addition to Esprit. I see no reason why, after 1992, Esprit should not become a permanent institution.

Do you foresee US and European companies entering into any type of joint effort that would pressure the Japanese to open their markets?
The US government has tried to persuade the Japanese in that regard, but my opinion is that the free-market idea has a very high priority in the US. It will be a long time before the government would put up that kind of protection. I think the United States wants to be a leader in free-market enterprises, and that has a higher priority than retaliating against the Japanese. Instead, I see US industry building a presence from within Japan, and that's what the Japanese have done here. ■

Interview by **Peter Gwin** *journalist*

(1) Dr Habermann, originally from the Netherlands, studied at the Free University in Amsterdam and later received a Ph.D. from the Technical University in Eindhoven. Most recently, Dr Habermann served as dean of Carnegie Mellon University's School of Computer Science in Pittsburgh, Pennsylvania. His primary research interests include design and implementation of computer operating systems, programming languages, programming systems, programming environments and software engineering.

GSM: Switzerland in pole position

GSM, the international digital mobile cellular radio-telephony standard backed by the European Community, made its debut in October with the inauguration of the first GSM network at the Telecom 91 exhibition in Geneva.

GENEVA IS NOT ONLY THE SITE of the world's leading telecommunications show but also the first city to have a GSM network. Switzerland is taking a lead in implementing the digital mobile system, which will allow calls to be made and received throughout western Europe from a carphone or pocket handset.

The experimental GSM network unveiled at Telecom 91 serves the greater Geneva region and the adjacent French border area. It will remain in place. In June 1992 other major Swiss cities such as Lausanne, Berne, Basel, Zürich and Lugano will be equipped with GSM.

Provided there is no further deterioration in the delays currently experienced by the company supplying the microchips for the equipment, the GSM sets are due to be launched commercially and the GSM network to be officially inaugurated in early 1993, by which time the main Swiss motorway routes will be equipped (the Swiss side of Lake Léman and the greater Zürich region).

Climb every mountain, ford every stream

Despite the inevitable topological difficulties in such a mountainous country, in which every inhabited valley requires a specific transmitter, the Swiss Post and Telecommunications authority (PTT) says the GSM network will

cover 90% of populated areas by the end of 1997. The indications are that the Swiss GSM network will be the first in the world to be completed.

So Switzerland is set to become the leader in the European mobile telephone sector. The PTT, which the Swiss themselves perceive as an outmoded monopoly largely impervious to innovation, has been thrust into the role of the driving force behind this state-of-the-art telecommunications technology.

However, the paradox is merely one of appearances. Whereas all the public opinion surveys highlight the fact that the Swiss, and in particular the German-speaking population which makes up the majority in this federal state, are wary of the European Community, Swiss decision-makers are banking on the EC. They lose no opportunity to underscore this commitment by cajoling a reluctant government to recommend accession.

The referendum mechanism could keep Switzerland out, but attitudes are changing. In the four years since the 1987 signature by the Swiss PTT of the Memorandum of Understanding which linked it to the other European countries in the GSM network project, the majority opposed to EC accession has now become a sizeable minority. And whatever their views on the EC, the Swiss have long had a love affair with the mobile telephone.

"Natel A" pioneers

Back in 1956, when the technology was in its infancy, the Swiss PTT launched the "autoappel", one of the first radio paging systems for cars. In 1978 it unveiled the "Natel" (Nationale Auto Telefon), Switzerland's first mobile phone system. Despite its high cost and the cumbersome nature of an unwieldy appliance operated by power valves, which filled half the boot space of a car, and despite the communication difficulties caused by an insufficient number of lines and branches, some 5000 pioneers purchased the Natel A and plenty more wanted to.

It was followed by the Natel B, using more sophisticated technology, which brought in a further 8000 mobile phone subscribers. The smallest portable exchange still resembled a briefcase and calls were automatically cut off after three minutes, if they had not been cut off earlier by one of the many disturbances which bedevilled mobile phone communications in those days.Despite all the inconveniences, Natel B was a success and in 1985 the Swiss PTT began to install its third mobile phone network to relieve congestion - Natel C, which used the NMT-900 systel based on digital technology.

In 1987, when the European Community put forward the idea of setting up a European mobile phone network, Natel C was unveiled in Zürich and rapidly extended to the most densely populated areas of the country. The modern cellular network and its truly portable exchanges further encouraged Swiss enthusiasm for the mobile telephone. Demand has now reached proportions which the sedate Swiss PTT could never have imagined in its wildest dreams, if it had ever been given to such.

Initial market surveys pointed to some 80,000 subscribers for Natel C by the year 2000. The Swiss PTT drew up plans (considered extravagantly optimistic) for a network of 100,000 subscribers by 1998. At the end of 1991 the figure has already reached 175,000 and is growing at a rate of 5,000 monthly. Fully half the new subscribers opt for pocket sets.

Such figures have put Switzerland in the role of European pacemaker, with 25 out of every 1,000 inhabitants having a mobile phone. "The best penetration in Europe" enthuses Walter Heutschi, head of the Natel project at the Swiss PTT. Switzerland has a higher rate of mobile phone users than the United Kingdom (23 per 1,000 after six years), considered somewhat of a leader in the cellular telephone sector in Europe, but Iceland and Scandinavia in general rank ahead of Switzerland in the mobile phone league. The Swiss nevertheless outperform their neighbours in France and Germany (6 per 1,000).

The Natel C network is becoming saturated more rapidly than initially anticipated. Installation of the network will be terminated in 1995, with 1000 base stations. At that time it will have a capacity to serve 450,000 subscribers. This figure will certainly be reached by the time GSM covers the entire country and it will take over from Natel C in 1998.

The continuing reduction in prices of car and pocket phone sets is expanding a market previously the prerogative of the business community. The mobile phone is now a regular feature in many households. Switzerland is a prosperous country which rates comfort and innovation highly. Some families have two telephone lines in the home, another at the weekend chalet, cars each equipped with a Natel C and family members each equipped with a Natel C pocket set.

This well-off clientèle is also discerning. The Swiss PTT knows the European GSM system will remove the main problem encountered by many Natel C subscribers who cannot use their car or pocket mobile phone sets outside Switzerland. Compatibility with other NMT-900 systems in Scandinavia is scant comfort: the main Swiss conurbations are close to Germany, France and Italy, the areas most frequented by Swiss business executives and tourists.

The digital technology of Natel C is of high quality. The Swiss mobile phone subscriber wants the sound quality of home sets when phoning from the car, boat or restaurant terrace; the slightest interference or interruption is a source of great annoyance. Moreover, subscribers are also discovering a fact which the PTT has not exactly been shouting from the rooftops: it is possible to eavesdrop on conversations on the Natel C network by using the ever smaller and cheaper scanners which are sold across the counter in Switzerland on the hypocritical condition that they should not actually be used.

The GSM system will not only cover all of western Europe but provides enhanced sound quality and secure communications. The Swiss PTT is well aware of the enormous pent-up demand.

The successor to Natel C will, with impeccable logic, be called Natel D-D as in digital. ■

Francis Gradoux *journalist*

BOOKSHELVES AND MEGABYTES

Can Europe's libraries meet the challenge of high-speed global electronic information?

THE PHRASE "information explosion" may savour of melodrama but nevertheless aptly describes the present-day situation of rapidly increasing quantities of information being generated worldwide. This "revolution" has been catalysed by the emergence of an international electronic information industry enabled by the existence of new telecommunications channels and advanced information services. More and more information is being produced and published - not always in traditional printed form but also online and on CD-ROM. In addition, the life-cycle of certain types of information is becoming shorter owing to increased rates of progress in areas such as research.

The library is traditionally seen as an intermediary between the producer or publisher and the user of information, but regrettably libraries are on the whole ill-prepared and inadequately equipped to perform their crucial role in the information chain of the 1990s. Many libraries are relatively poor and are therefore unable to fund the changes needed to modernise and thereby cope efficiently and cost-effectively with the volumes of information to be handled within diminishing time-scales. A further factor is the growing internationalization of information, with users requiring access to literature from worldwide sources. Interlibrary cooperation on an international scale, to offer such access, demands the implementation of modern technologies, making use of the tools provided by computers and communications networks.

The Commission of the European Communities (CEC) has long recognised that, if libraries are to serve not just their local user community but the wider European Community by performing the functions for which they are intended, Community action is needed, based on international cooperation and focusing on the application of state-of-the-art information and communication technologies. It became clear that international cooperation could reduce the overall investment required and that a Community programme could go some way towards minimizing the differences between Member States in terms of library developments.

A strong need existed for impetus to be given by the CEC at an international level. In 1985 a Resolution was adopted by the Council of Ministers acknowledging the significance of libraries as a major force in the information market and as intermediaries to knowledge and culture. It invited the Commission to take action to help libraries address the problems confronting them, action aimed at drawing up a work programme in conjunction with those responsible for libraries in the Member States. A small budget subsequently became available to carry out exploratory and preparatory activities such as preliminary pilot and feasibility projects and state-of-the-art studies. During this phase things certainly did not stand still, with more than 60 activities undertaken (comprising 10 events, 10 preparatory projects and some 40 individual studies).

However, for the definitive launch of a libraries programme, a Council decision was necessary. This became a reality on 7 June 1991 with the adoption of the specific Community programme for research and technological development in the field of telematic systems of general interest (one of 15 specific programmes of the third Framework Programme, 1991-1994). Within the telematics programme, libraries constitutes area 5 of the seven areas covered, receiving attention alongside transport, health care, distance learning, rural areas, language research and engineering. Following Council adoption of the programme (allocated a budget of ECU 22.5 million), the first call for proposals for cooperative projects was issued without delay in July, with a submission deadline of 2 December 1991.

Libraries have been in existence almost as long as records have been kept. Evidence of several rooms filled with clay tablets in a temple in the Babylonian town of Nippur suggested a well-stocked archive dating from the first half of the third millenium B.C. Greek temples housed the first important constitutional libraries, while Alexandria boasted the greatest library in antiquity. From storage media of clay and stone, palm leaves, bamboo strips, papyrus and vellum scrolls to the microfiche and machine-readable magnetic tape and disc of the 20th century, society has recognised the importance of preserving information. Libraries have become the garners of our heritage, documental knowledge centres storing and conveying information on history, philosophy, art, literature, music, religion, culture, economics, science, among numerous other areas.

What can be said about the European library scene of today? We ourselves may be occasional browsers or even regular borrowers of leisure reading material from our local lending library; we may, on the other hand, avail ourselves of library search facilities in the course of our professional life. How many of us are aware, however, that there are over 75,000 libraries of varying types and sizes in the European Community? We might pause to reflect that libraries in EC Member States carry a stock of about 1.2 billion books plus other types of library materials such as periodicals, maps and manuscripts. Consider too that public sector expenditure on libraries amounts to ECU 5-10 billion per year, and that the library sector employs over 250,000 people. Another statistic of note is that, on average, 25% of the total population of the EC are registered borrowers, although regional differences mean that in some countries the figure can reach 62% of the population.

This variation in the percentage of national users of library services merely hints at the situation which exists in the European library world in terms of complexity and fragmentation. The reality reveals that not only is there a diversity of library types but also a background of different legal, social and historical contexts among Member States. This situation is compounded by the varying responsibilities for libraries in government terms, and the vast discrepancies in the pace of development in the various countries.

The library sector has been considered slow to adapt, compared with many other sectors, to the information scene changes of the past two decades, especially in the uptake of the new technologies available in the electronic information market. In addition, the response to the challenge

of the information revolution has been markedly lower in Europe than in North America, where the significant market for technologies such as library management systems, optical technologies, microcomputers, etc. has been readily taken up by suppliers to the library community, and cooperative developments have taken place. With the amount of recorded knowledge doubling approximately every seven years, and with much of this accumulated knowledge being of value to the economy and to research, the situation must not be allowed to persist whereby Europe is less able to compete in the world market through being equipped with inadequate library services.

Factors such as high start-up costs of automation, a shortage of personnel skilled in the use of new technologies, a lack of international standards and of international collaboration, and indeed a certain resistance to change mean that the libraries programme has many problems to address. At present transborder cooperation between libraries is relatively rare, often merely bilateral and informal. As the extra costs incurred in starting up European cooperation are substantial, additional funds made available to widen the scope from national to Community level should provide a welcome incentive in areas where change has been resisted or impeded.

In catalysing change, in acting as a trigger for the development of better services to library users, miracles can not be expected to take place overnight. The Commission realises the vital importance of fostering the correct attitudes as a precursor to achieving results in terms of progress. Time will be needed to mobilize the library sector and to develop the appropriate experience and skills. Bearing this in mind, the principal objectives of the programme have been stated as promotion of:

-The availability and accessibility of modern library services throughout the Community.

-More rapid penetration of new information technologies in libraries in a cost-effective way.

-The standardization required for resource sharing.

-Harmonization and convergence of national policies.

The scope of this first programme is limited realistically to start-up actions with modest goals, rather than aiming to resolve long-term issues. In structure, the programme comprises four action lines examined in turn below, supplemented by accompanying activities planned to stimulate exchanges of experience and dissemination of knowledge in Member States.

Action Line I - Computerized bibliographies

The sharing of international library resources can be inhibited if there is a lack of bibliographical data in machine-readable form to exchange. Some EC countries at present simply do not have a national bibliography in such form, while many of those which do exist leave considerable room for improvement. In order to interconnect library systems and provide international access to data on these systems, appropriate machine-readable files must be available. Community support will be given therefore to projects to create, enhance and harmonize national machine-readable bibliographies and derived international services, as well as to the development of tools and methods for retrospective conversion of catalogues of internationally important collections.

Action Line II - International interconnection of systems and related international standards

International interconnection between the different existing systems serving libraries throughout the EC may be considered the ultimate goal. However, although new telecommunications services and the progress made in open systems interconnection may pave the may for network implementation in the library area, much research work is needed to generate completely relevant experience and expertise and to accelerate the development and application of international standards for library networking. In this context, the programme will support projects involving international pilot interconnections between at least two library systems for specific purposes using research networks, value added networks (VANs) or other public data networks. Support from industry, including library hardware and software suppliers, will be necessary. Many horizontal issues common to other domains are likely to be raised, such as problems due to inconsistent tariff structures and copyright.

Action Line III - Provision of new library services using information and communication technologies

This action line addresses the situation whereby smaller libraries in particular find it difficult to justify, in financial terms, new services for which there is an uncertain demand. Start-up funds will be allocated to support the creation of a range of innovative experimental services based on new technologies which can have a multiplier effect. Librarians in all Member States will gain hands-on experience of new technologies as a result and will be in a position to demonstrate the benefits of the new services.

Action Line IV - Stimulation of European market in telematic products and services specific to libraries

It is here, but also in the other action lines, that the opportunity exists for Europe to start redressing its present postion in terms of providing commercially viable products and services. With some 50% of library automation systems currently supplied from companies headquartered outside the EC, there is scope indeed. Expression by the library community of its requirements is encouraged in the hope that an improved understanding and balance between the technical requirements of libraries and the capabilities of suppliers to satisfy these will be achieved. The cooperation of the suppliers is clearly a necessity.

Intrinsic in all these action lines and in the accompanying activities is the aim to engender a Community perspective, to recognise the advantages of working with European partners. Cooperative efforts, combined with applied research and technical development to support the development of appropriate tools, methods and technical resources, should provide the impetus that will lead to efficient pan-European library services networks based on information and communication technology resources. In this way not only will a library serve its local user community with recorded knowledge, but will accommodate the needs of the entire European Community - comprehensively, efficiently and with the speed demanded in today's professional, economic and social climate.

Community action in the form of the libraries programme may be regarded as the stimulus or catalyst for the activities necessary to bring about the much needed changes: the rest is the responsibility of the libraries of the Member States. Will they rise to the occasion in recognising this opportunity of improving their capability of coping with 1993 and beyond? ■

Ariane Iljon, *DG XIII.*

ESPRIT CONFERENCE 1991

With more than 650 projects and actions launched and nearly 500 major results reported so far, Esprit continues its aim to contribute to the development of a competitive technology base in an area of crucial importance for the entire European economy

THE EUROPEAN Strategic Programme for Research and Development in Information Technology threw open its doors from 25-29 November at the annual Esprit Conference and Exhibition. The event highlighted the achievements and results from the cooperative work carried out within the programme.

To date, more than 500 major Esprit results have emerged. Despite the difficulties currently facing the European electronics and IT industry, stemming from a decline in demand and increased competitiveness on the side of Japanese and American counterparts, these significant and more than encouraging results were reflected in the optimistic and often charged atmosphere which surrounded the week's events.

Attracting over 3000 participants and visitors, the conference continued to function as the central meeting point for researchers to keep abreast of IT developments and discuss new ideas. The exhibition also offered visitors the opportunity to see many of the projects in action which will, in the future, be the keys to the success of European industry. Jean-Marie Cadiou, director of Esprit, pointed out the value of the exhibition when he commented that five years from now, one third of all IT business will consist of the developments which are now emerging.

Seminars, plenary sessions and workshops were convened throughout the week on specialized subjects under the Esprit area headings of microelectronics, information processing systems and software, computer-integrated manufacturing and engineering, advanced business and home systems-peripherals and basic research.

Thursday 28 November was IT Forum day. Chaired by DGXIII director-general Michel Carpentier, the programme, entitled "IT in the Working Environment", drew together panel speakers from the top echelons of business and industry. Commission vice-president F.M. Pandolfi opened the sessions with a discussion on the role of Esprit within the context of EC R&D policy. He underlined the importance of IT and its effect and horizontal impact on almost all economic sectors.

Mr Pandolfi spoke of the future prospects for R&D and the IT industry and referred to the Council resolution of 18 November 1991 which defines the context for EC action in the field of IT. In discussing the allocation of resources for R&D within the Community, Mr Pandolfi outlined his objective that the current 3.5% of the total Community budget allocated to R&D would reach 6% by 1997, a target figure which was first outlined at the Milan Council of 1985. He continued that although this decision of resource allocation belonged to the Council, he intended to do everything possible to try and achieve this vital objective. Mr Pandolfi spoke of the importance of 1992 for the preparation of the fourth Framework Programme and advised that for the future, although the Community should continue with the traditional approach to R&D, this must be combined with new elements: R&D must become more efficient and concentrate on linking key technologies with target projects. The competitiveness of European industry, he added, will rest on the efficient development of these key technologies. Vice-president Pandolfi also hoped that legislative procedure to simplify the adoption of future Framework Programmes would emerge from the Maastricht talks, and emphasised the need to reinforce the third Framework Programme during 1993-94.

Claude Desema MEP, speaking on the average citizen's view of IT, argued that for the average consumer IT is simply "signs, sounds and symbols" which assail him from all sides. He added that the big IT companies make choices for the consumer and this is where the problem lies. The solution, he continued, lies in education. Young people are being confronted with an economy full of IT with no training to understand and use it. This mismatch in education and advances in IT must be tackled.

Jacques Balazard, technical director of Aerospatiale, stressed the role that the aerospace industry is playing in advancing the objectives of Esprit. The industry, he said, is very much in the "vanguard of industrial cooperation". Specific applications of IT within the industry have led to the development of new methods and products. "Aerospatiale is now placed in a position to be one of the main protagonists of the IT industry and is no longer a passive consumer of IT products made by others." He added that 6-8% of the company's turnover is devoted to IT.

Francis Lorentz, president of Groupe Bull, highlighted the success of Esprit. Complimenting the programme, he said

that it "infuses Europe with a dynamic flow of vital ideas and new projects." Mr Lorentz further stated that it is essential if the IT industry is to succeed that it adapt, and become closer to the customer. The users, for their part, must be taught to take full advantage of IT and treat it as a normal and necessary investment. He emphasised that there is currently a 20% waste of IT resources within enterprises and said IT should be used properly to clarify the "general architecture" of a business. It is time, he advised, to develop a new category of employee educated in both organization and technical systems to ensure proper integration of management with advances in IT. Speaking of Esprit, Mr Lorentz said the successful cooperative work going on within the programme demonstrated that the balance between cooperation and competition will be a central issue of this decade. Vice-president Pandolfi later reflected this view during a lunch-time press conference when he advised that "to date free competition and cooperation have been seen as clashing; now is the time to take a pragmatic line." Technological development in Japan, he added, is often done cooperatively.

Hartmut Weule, member of the board of management of Daimler Benz with responsibility for research and development, began the afternoon's session on "IT and the Future" by explaining that as Daimler Benz was one of the largest producers of microelectronics in the Community and also a large user of IT, he had a viewpoint from the perspective of both manufacturer and consumer. For the future, he advocated that individual Member States should take the initiative, and focus on future-orientated aims to produce more specific products and systems. In this way, European potential could be employed much more intensively. Mr Weule candidly outlined not only the achievements but also the deficits which he felt existed within Esprit. The programme, he said, and others like it have definitely shown that joining forces is viable and that Europeans have learnt to cooperate with each other. On the negative side, he questioned the way in which the projects are defined and suggested that project definition should lie within industrial centres of interest. The formation and announcement of projects should be quicker and results from the projects should be converted into products in as short a time as possible. He concluded, however, in a positive vein: "Europe has the necessary potential. EC projects if applied wisely by users will bring great benefit to us all." Esprit director Jean-Marie Cadiou spoke optimistically in the afternoon session on the way forward for European IT. He described the uniqueness of the industry and the dynamics which separate it from others. He gave as an example DRAM, where every three years the capacity of a chip is quadrupled, with the trend set to continue in the future. Mr Cadiou refuted suggestions that Europe's IT market could be close to saturation and claimed that the potential will be enormous for at least the next 10 years and that the industry still had "lots of room to grow". He also noted that despite current critical conditions, R&D expenditure has increased both in real and absolute terms and the level of R&D in IT is more than twice that in many other industries. As an excellent example of successful research, Mr Cadiou outlined contributions to the field of multimedia derived from the Esprit Multiworks project and urged his audience to visit the exhibition.

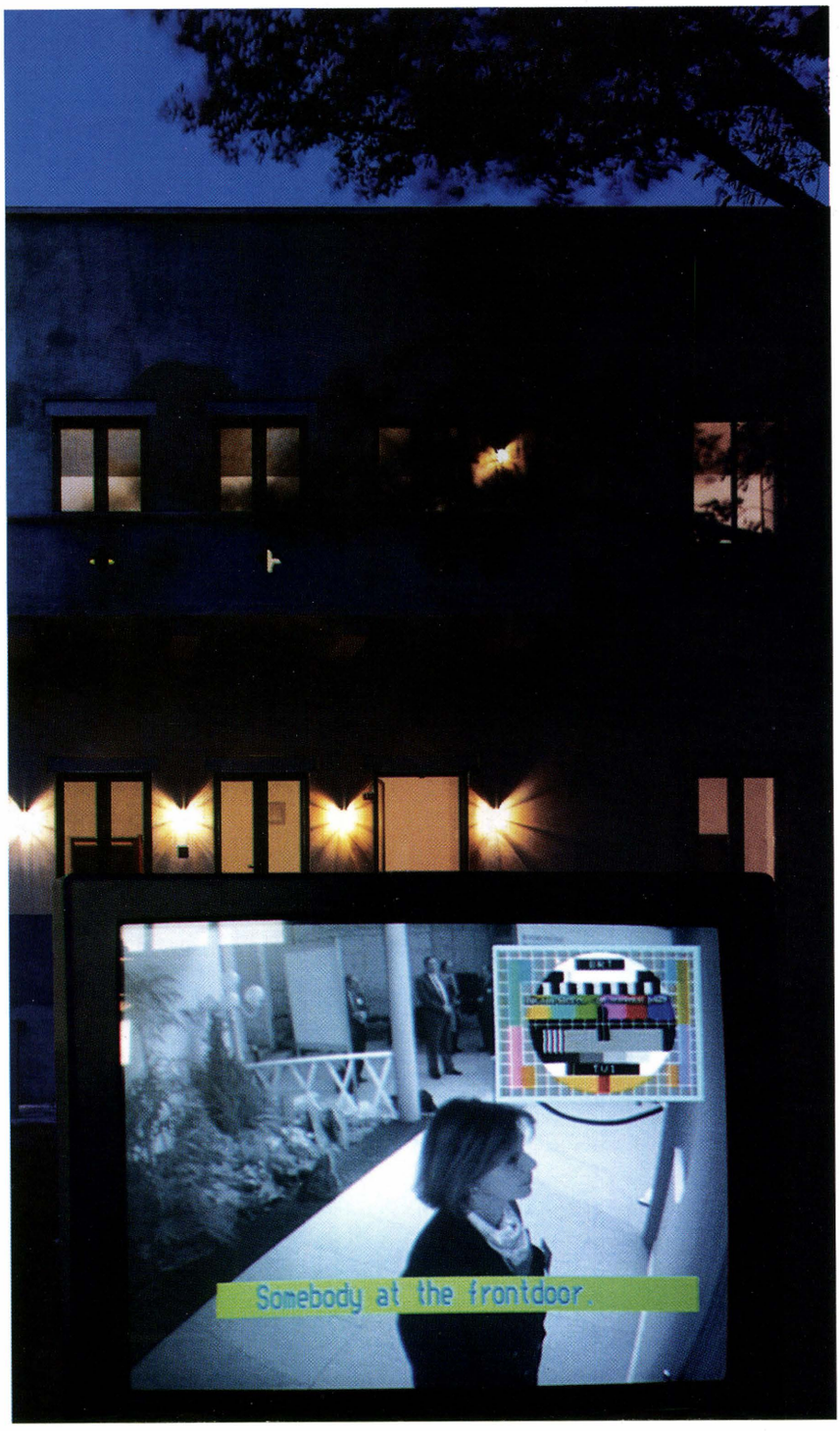
Mr Cadiou concluded his presentation on a high note for the future of the IT industry and the new phase of Esprit. He urged that "opportunities in IT are still virtually without limits for the foreseeable future."

1991 saw the launching of the new phase of Esprit. Within an overall Framework Programme budget of ECU 5.7 billion, ECU 1,352 million has been allocated to IT. The new programme will adjust to changing needs and will focus projects on areas with clearly defined strategic goals. It will also encourage closer interaction with users and SMEs.

Michel Carpentier brought the day's proceedings to a close with a brief resume of the points which had emerged from the conference. He confirmed that the market is "wide open" for IT and stressed the importance of competition, cooperation and solidarity. Mr Carpentier pointed out that, with the current pause in economic growth, investors and manufacturers are beginning to "tread water" and sit back to take stock of the situation. He warned that although the latter is not necessarily a bad thing, "we should not fall into the trap of thinking that we have been swallowed up by a permanent recession." Mr Carpentier also reiterated the fundamental importance IT is having, and will have, in the creation of Europe and spoke of the changes to come as the internal market nears completion. He warned, however, that the Community still lacks the strong political clout of Japan and America to make its viewpoint felt.

In conclusion, Mr Carpentier called for the use of more accessible language within the industry, for greater efforts in public relations for the IT industry and for manufacturers to take advantage of the current slowdown to clarify their positions within both Europe and on a global scale. Finally, he concluded that the day had been "particularly rich and rewarding" and advised that to ensure the success of the European IT industry "we must look beyond the day-to-day realities to the future." ■

Kyla O'Kelly *journalist*



There's no place like (an intelligent) home

ONE OF THE STAR TURNS of the 1991 Esprit Conference and Exhibition was a special home systems show, displaying what one visitor described as "a house-keeping dream" - The Intelligent Home.

The fully automated small demonstration house, which looked reassuringly like a dissection of an average bungalow, was mounted by British Telecom, AEG and Philips, three of the 11 main partners which make up the home systems project consortium.

With over 120 million homes in Europe alone, this vision of changing future lifestyles was of particular interest to many of this year's visitors. With the average consumer becoming increasingly undecided before the vast array of domestic products to choose from, the main idea of the intelligent home display was to present a live show of electronic control with multiple uses for domestic appliances.

The system is attracting attention from manufacturers and consumers alike because of its usefulness as a product which can be implemented by every home owner. Although primarily targeted for first use in family residences, the system also has future implications for use in larger buildings such as schools, hospitals or offices.

The display house demonstrated the large number of the functions that the system can offer, for example the remote telecontrol developed by British Telecom. This device could make rushing home to unplug a burning iron a thing of the past: instead, a simple telephone call home will do the job. It operates through the homeowner punching in a code and using a voice response menu to control the electrical power to the appliance. The telecontrol can also allow you to order your favourite TV show to be recorded, turn on your electric blanket and ensure that you're pleasantly greeted with a hot meal or whistling kettle on your arrival home.

Other creature comforts were assured by Philips' contribution to the system, with a demonstration of its lighting control device. This can be programmed, for example, to automatically dim the lights in a room when the television is switched on; or it will regulate the lighting required for different actions at varying times of the day and night. By managing the home environment in this way, the system

successfully achieves one of its main original objectives - to encourage energy conservation and cost savings.

The load management system produced by AEG acts as a monitor and guardian of the electrical power requirements in the household. When many electrical appliances are in use simultaneously, the result may be a short circuit or blown fuse. Load management reacts to situations where demand for power is high, or at crisis level, by activating a type of priority rota. This switches electrical power from one area to another in order of priority. The available power is juggled in this way until the demand has lessened and the various tasks are completed.

Widespread improvements in home security and safety were high on the list of main objectives as functions of the intelligent home. The home systems show demonstrated how future families using the system would be able to use former leisure and entertainment equipment, such as TVs or VCRs, as very effective home security devices. With a camera at the front door, a surprise caller can be identified via a link to a TV screen and admitted using a remote control, thus saving the old, infirm or merely lazy from having to move from their chair. This also denies unwanted guests or potential muggers the opportunity to force entry into the house. The house will also be virtually able to babysit itself when left unattended, by automatically alerting the police or nearest security service during a break-in and simultaneously recording on a pre-programmed VCR the details of the crime.

The integrated home system is a result of two Esprit projects, Home Systems and the Integrated Interactive Home. It now seems the investment has paid off. The advances made in the area in recent years have meant that a previously lagging European industry has not only caught up with American and Japanese European counterparts but forged ahead to a now dominant position, in this area of advanced home systems and business peripherals.

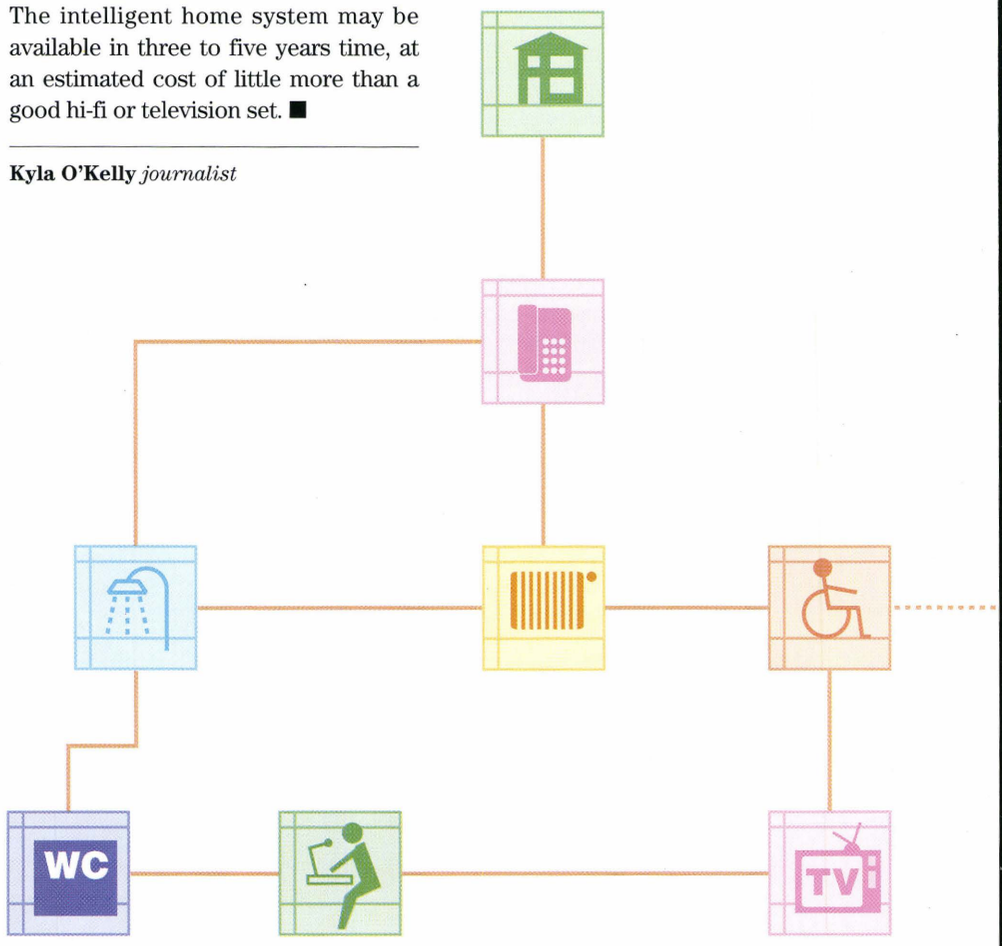
The European approach to home systems has been a success because of its focus on areas which currently and in future will be of concern to the consumer, namely greater safety, security and comfort, while addressing environmental concerns with an emphasis on energy and resource conservation.

The further development and widespread implementation of the integrated home system will rely on communications and control standards being extended to provide a common standard on which to build a uniform market, beneficial both to producers and consumers. Earlier this year Esprit issued a home system specification, with the overall aim of establishing standards to enable existing and potential manufacturers to develop compatible home systems products. This specification has now been presented to CEN/CENELEC in a bid for standardization. The European Home Systems Association (EHSA) has also been set up by the major consortium members to support the harmonization and use of standards in this area worldwide. They offer advice not only to potential producers of home systems but also to those manufacturers of domestic goods who want to learn more about the system and its future impact on business.

The intelligent home system may be available in three to five years time, at an estimated cost of little more than a good hi-fi or television set. ■

Kyla O'Kelly *journalist*

The first objective is to define a comprehensive standard for integrated electronic systems. This standard will provide an infrastructure for control and communication for use throughout the home.



Esprit Projects

This year 122 Esprit projects, ranging from prototypes to fully commercialized products, were exhibited - an overall increase of 25% compared to 1990's figures.

THIS YEAR'S ESPRIT exhibition demonstrated a cross-section of significant progress and results from the programme via the 122 projects on display. Outlined below are some of the highlights from the areas of microelectronics, information processing systems, computer-integrated manufacturing, office and business systems and basic research.

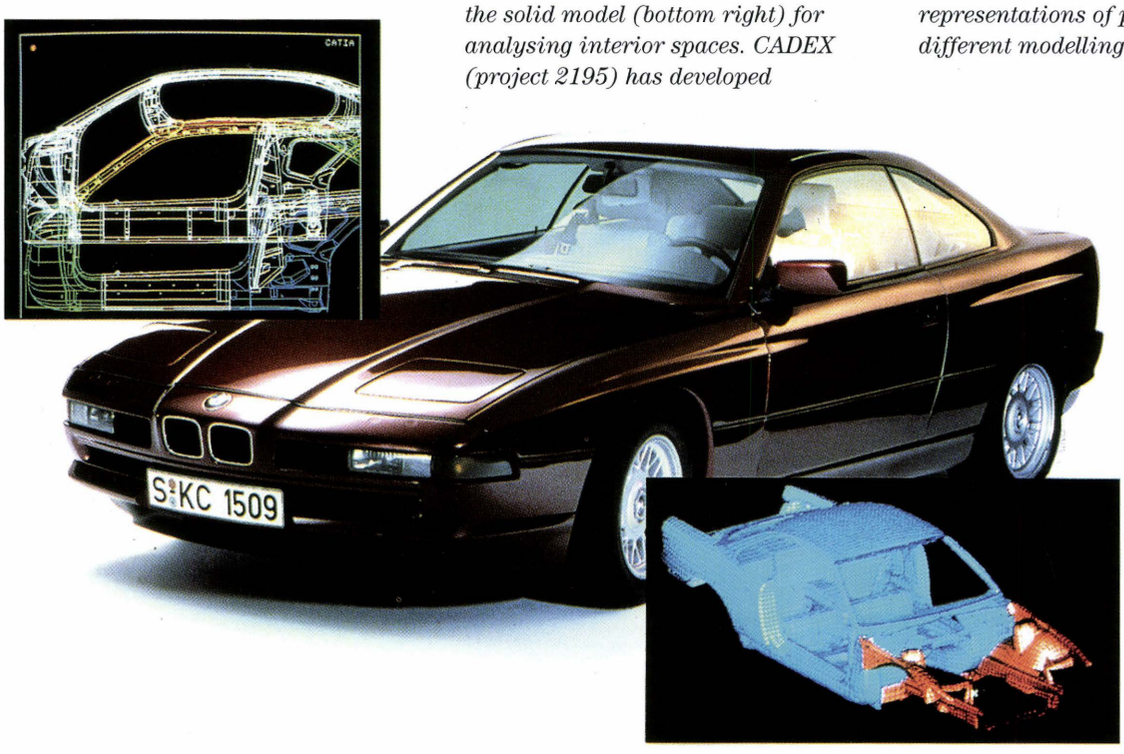
Recognising the challenges and problems facing industry due to the accelerating rate of technological change, one of the strongest messages to come out of this year's Esprit exhibition was the vital need for continuing the emphasis on basic research, introduced into Esprit in 1989. One of the projects at the exhibition which best illustrated the type of work being carried out within the basic research area was that of VSLI chip design, handled by a central organization, Eurochip.

Eurochip is working to promote the use of advanced microelectronics in Europe, especially within SMEs, by tackling one of the major problems within the industry - the shortage of VLSI designers. The current lack of qualified designers is hampering many European industries from using VLSI chips and thus incorporating advanced microelectronics into their products. Already 52 universities and polytechnics are involved in the production of multi-project chips and wafers for a series of fabrication runs that Eurochip has launched.

Institutions involved in the training which are new to VLSI chip design are being given the most support and encouragement, with free use of industrial processing facilities as well as the necessary CAD software, work-stations and opportunities for full lectureship posts. On the stand, students in VLSI design themselves demonstrated their work on integrated circuits.

More than 5000 students have been trained within Eurochip's first full year in action, a figure that exceeds the optimistic target originally set by the programme.

The speed of developments in the area of microelectronics is another major factor in determining the overall success or failure of the European IT industry. Europe's integrated circuit industry is preparing for the production of devices like the 64Mbit DRAM with a minimum feature size of approximately 0.8 micron. By the mid- 1990s this industry must have the potential to reduce down to 0.25 micron in order for European industry in general to remain in a strong and competitive position in 64Mbit chips and beyond. ASM-Lithography of the Netherlands has developed within Esprit a world-class deep UV-wafer stepper for use in manufacturing more compact and higher capacity capacity chips. ASM Lithography was founded to cope with the next-generation production requirements for the manufacture of very large scale integrated circuits.



Wire-frame representation (top left of picture) is used for stress analysis; the solid model (bottom right) for analysing interior spaces. CADEX (project 2195) has developed standards and protocols to enable the exchange of data between different representations of products and different modelling systems.

The objective of the work being carried out within the deep UV-lithography project is to develop the equipment materials and techniques necessary for the delineation of sub-halfmicron patterns.

ASM-L has now gone a step further and produced the PAS 5500 stepper, which is a wide field I-line wafer stepper. The product has been snapped up after rigorous competitive testing by IBM for use next year. ASM-L has brought Europe to the forefront of this industry and the deep UV stepper is now considered the most advanced equipment of its kind in the world.

Advanced business and home systems-peripherals (ABHS-P) is the area of Esprit which aims to accelerate and advance the use of information technology in the home and office. Based on the concept of open systems, work is being carried out on easily implementable multi-vendor systems based on the ISO standard for open distributed processing. Many developments have also emerged from the rapidly advancing area of multimedia workstations. Excellent working examples of the latter were shown at the exhibition in the form of recent results from the Multiworks project.

Multiworks aims to combine the traditional media and information systems currently commonplace in most offices with digital audio and video technology. This will enable office workstations to design and produce truly multimedia documents, integrating video, graphics, sound and text. Writing directly on screen, or inputting information through speech,will be carried out as effectively as our computer systems today manipulate text and graphics.

The display workstation at the exhibition showed the latest results from the project, including multi-media documents using digital audio and video. The demonstration team also gave an example of a digital video overlay incorporated into the workstation and PC. This gave visitors the opportunity to experience a taste of the changes which will occur in the office and business environments in years to come. In particular, a workstation application for travel agencies was demonstrated at the Esprit exhibition, including maps of an area, views of the hotels, videos of the local beauty spots, etc.

Multi-media technology is already available on the market. Olivetti and Acorn Computers Ltd., two of the 10 partners involved in Multiworks, have respectively produced the MIW, an authoring version of the workstation, and the MIW-L, a cheaper delivery-type system. Acorn has also set up an ambitious joint venture with Apple to further develop ARM, a RISC-type micro-processor which has also stemmed from the Multiworks project.

As multimedia technology develops, many offices will employ the workstation in an effort to stay ahead of competitors and keep up with the rapid technology change.

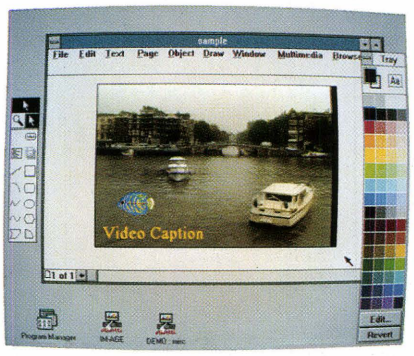
On a different tack, KBS-Ship is a knowledge-based systems technology project developed for the maritime environment which aims to help make life easier and safer on board ship.

The system allows ship's officers to carry out their duties more efficiently and securely by providing a support system for certain decisions. KBS-Ship aims to integrate standard shipboard communication data with information systems and comprises four task-solving systems. The Expert Voyage Pilot assists in guiding the ship by the best possible route by analysing expected weather conditions, in conjunction with the capabilities and individual characteristics of the ship. The other systems act on diagnosing and coping with emergency calls, monitoring the repair and maintenance requirements for the vessel and organizing loading plans in the various ports of call. These four individual systems are supervised by a computer-based systems manager.

The improvements which could be brought about by KBS-Ship to life on board were demonstrated as each individual system carried out its designated function. An example was given of the exchange of information possible between the system and other sources of information such as an ECDIS system, an alarm system and weather data via satellite.

In the computer-integrated manufacturing area, BMW and Fiat are two of the partners currently developing and in the process of testing CADEX (CAD Geometry Data Exchange). The main objective of the CADEX project is to support the emerging ISO standard for the exchange of product model data (STEP) and to develop STEP-based data exchange processors for computer-aided design geometry.

The project participants' aim is to improve competitiveness and productivity by the exchange of product definition data. Automobile or automotive parts companies are especially involved in CADEX, as they have constant problems with exchanging information among different CAD systems. BMW alone deals with around 60 different CAD systems.



CADEX will improve the relationship between manufacturers, subcontractors and suppliers by facilitating quick, error-free CAD information exchange from one system to another and from one type of representation to another. Prototypes of CADEX are already in use at both BMW and Fiat, where it is expected that the system will be of great importance in the whole chain of automobile manufacturing, from improving the initial conception process to car maintenance. The auto industry has been an ideal place to test the project and has allowed the CADEX team to measure the success of such data transfers in an area with a very high market potential. ■

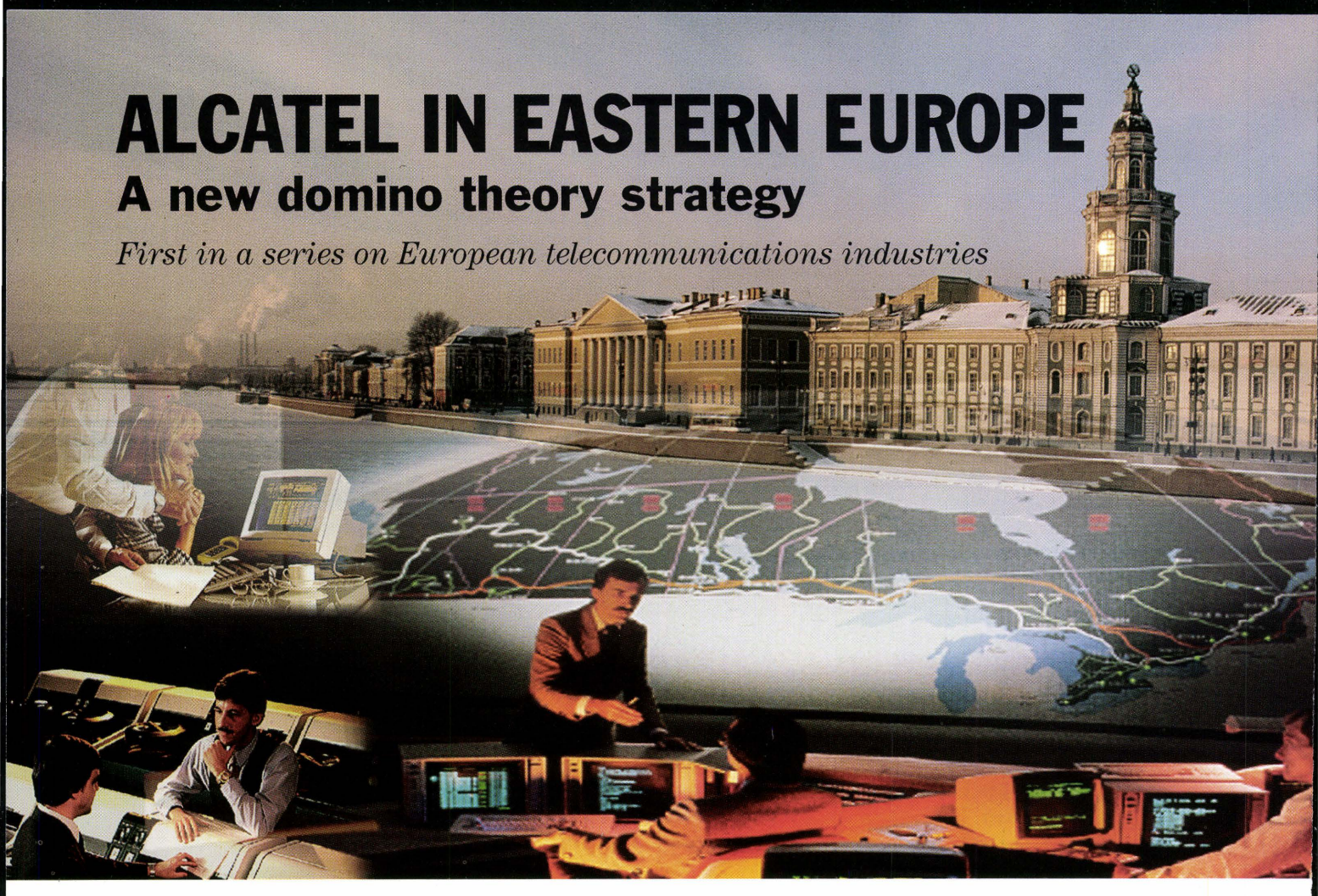
Kyla O'Kelly *journalist*

The speed of developments in the area of microelectronics is another major factor in determining the overall success or failure of the European IT industry

ALCATEL IN EASTERN EUROPE

A new domino theory strategy

First in a series on European telecommunications industries

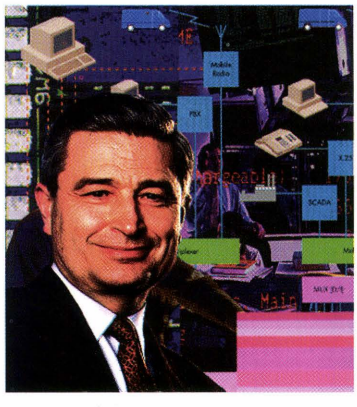


"We have a sound experience of socialist economies." Alcatel chairman Pierre Suard freely admits that his company, the world leader in the telecommunications industry, did not wait for the dismantling of the Berlin wall before taking a keen interest in the vast market which the countries of east Europe and the Soviet Union represent.

Nevertheless, the political upheavals gave a boost to its presence in central and east Europe. In 1990 Alcatel's sales in this region doubled, to reach $200 million. Jean Valent, president and chief operating officer of Alcatel Trade International (ATI), says that "at present these markets only account for 2% of our global turnover but they already account for 20% of our turnover in countries with under-developed infrastructures."

The considerable deficiency in telecommunications infrastructure in this region of the world is evident. A general economic revival will necessitate the installation of a minimum of public telephone systems for household use and the installation of professional telecommunications networks for companies.

Germany understood this with regard to the ex-German Democratic Republic, which is now rapidly making up the technological leeway. In Germany too, Alcatel has kept up the pace, and even set it, by acquiring a company via its



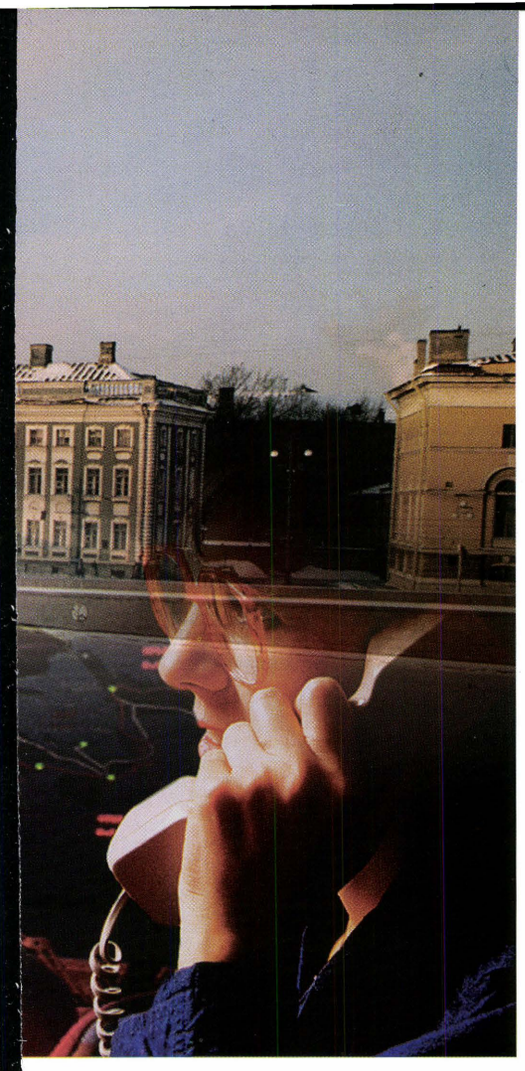
Alcatel chairman Pierre Suard

SEL subsidiary early in 1990, prior to the completion of the political and monetary union of the Federal Republic and the German Democratic Republic. The manufacturing plants, technology and infrastructure are in a state of neglect which Alcatel managers find hard to believe. On the other hand, they are reassured by the speed by with which the system is changing, thanks to "courageous" decisions taken by the federal government. "We have been able to make the necessary investments in a much shorter time than would normally have been possible under traditional administrative procedures", explains Pierre Suard. "For example, this has enabled us in three weeks to build, equip and bring into service a radio relay system sixty metres in height".

The conditions which exist in the ex-German Democratic Republic are not the same in the other countries of east Europe; although the contrast is very marked and the possibilities of setting up are much more difficult, Alcatel has expressed a desire to be a key player throughout the region.

In Poland, besides providing assistance towards financing a Franco-Polish telecommunications high school, Alcatel has acquired a key position in a number of joint ventures. Two joint ventures have been set up in Warsaw and Poznan by the group's French and Spanish subsidiaries, CIT and Standard Electrica. These two joint ventures will have a combined annual production of up to one million digital switched network lines. Already the equipment ordered for Warsaw - based on the 1000 S12 switched network system - has reached $120 million. For the rest of Poland, the group has received an order for a 1000 E10 system worth $70 million.

Three cooperation agreements have been signed in Hungary, for private networks, microwave links and a public switched network. Alcatel Austria and the Hungarian electronics group, Hiradástechnikai Szövetkezet, have set up a joint venture, AHT, to market private automated switchboards. The manufacture and maintenance of the microwave equipment will be carried out by



Alcatel SEL and Alcatel Telspace, in conjunction with the Hungarian firm FMV.

Under an arrangement with Siemens of Germany, Alcatel SEL will manufacture public digital switched networks in association with Tesla Liptovský Hrádok. There are considerable socio-economic difficulties in the other three countries of the region. Nevertheless, in Romania Alcatel CIT and Datatim have set up Alcatel Network Systems Romania, which ultimately hopes to produce 200,000 1000 E10 lines. In Yugoslavia a joint venture has been set up by Alcatel CIT and Electronska Industrija Pupin to manufacture 100,000 1000 E10 lines per year. The Serbian Post and Telecommunications authority had ordered 350,000 lines before the outbreak of hostilities with Croatia.

This leaves the Soviet Union, where Alcatel has been involved in cooperation with the industrial sector and the public authorities for many years. In this obviously important market, Alcatel Bell, the group's Belgian subsidiary, was the first company to set up a joint venture for the manufacture of digital switching equipment. The new company, set up with Krasnaya Zarya which holds a 60% stake in the venture, is based in Saint Petersburg (formerly Leningrad). It is hoped that the plant will have an annual output by 1996 of 1.5 million 1000 S12 lines and 100,000 private digital switched lines.

With the very active support of the Belgian government, Alcatel Bell has also set up two other joint ventures in Moscow and the surrounding area. One of these includes the supply of a voice-data network for companies. The state-owned Belgian Post and Telecommunications authority is also involved in this contract. There are also numerous other negotiations taking place with the Soviet Union in other areas of the telecommunications sector.

These markets, potentially highly lucrative, are still a long way from generating a significant turnover. Speaking recently at a seminar on east Europe in Paris, Mr Suard stated that "the main uncertainty stems from the fact that the traditional socio-economic system has been done away with, and has not yet been replaced by a clear and stable new system. This calls for a great deal of indulgence and patience. In east Europe one is dealing with two generations, or even three in the case of the Soviet Union. The communist system has been at the heart of the ideology and reasoning of the citizens and it is very difficult for someone to melt into the mold of another system from one day to the next. It has been my personal experience to have at all times encountered the utmost goodwill. But when one gets down to the brass tacks of the functioning of the market economy, one realises that there is a wide intellectual gap which is very difficult to bridge for the generation currently in control."

The other stumbling block which will act as a brake on the future development of these markets is financing. State budgets are often in a crisis. Where a private customer is involved, its solvency is very often found to be wanting. Yet the profitability of investments must be based on the usual standards of a western industrial company, even if it is prepared to take on a number of extra risks.

Nevertheless, this "Russian campaign" amply highlights the overall strategy of Pierre Suard. All the joint ventures concluded to date were the work of subsidiaries which had long-standing relations with east Europe. One of the most revealing cases in point is that of the Austrian subsidiary which played a vital role in concluding most of these transactions. Mr Suard is convinced that this means it is impossible to penetrate these markets by acting under a single banner.

This conviction was vindicated in the Chinese telecoms market, where Alcatel has a 40% share. At the time, Alcatel sent its French, German, Spanish and other subsidiaries to carry out negotiations. Jacques Dondoux, former Director-General of telecommunications in France, and member of the supervisory board of Alcatel NV, reflects: "Two years ago he told us 'for the Soviet Union I would adopt the same strategy.' It was a vision with foresight." All the more so because by allowing each of its companies to act it knows, or hopes, that they will ask their respective governments for help in penetrating one or other market. There is no better example than that of Alcatel Bell.

Those who forecast difficulties for Alcatel because of an apparent lack of unity in the enterprise have seen their predictions confounded. The results are there to be seen. The cohesion of the group is underlined by the name "Alcatel" which precedes that of the subsidiary. Here is a multinational where each member can hope to preserve its personality, and come out a winner thanks to a unique domino theory strategy. ■

Hervé Marchal *journalist*

The manufacturing plants, technology and infrastructure are in a state of neglect which is hard to believe ; but the system is changing rapidly.

HOME SYSTEMS FOR THE DISABLED

IN CONJUNCTION WITH the Winter Olympic Games and Paralympics, which will be held in Albertville (8-23 February) and Tignes (23 March-4 April 1992), France, respectively, an exhibition devoted to home systems for the disabled will be held in Chambéry, Savoie, close to the site of the Games. It will be open to the public from 11-16 February, and from 23 March - 3 April .

The exhibition, organized and sponsored by the Commission of the European Communities, the French State Secretariat for the Disabled and the City of Chambéry, is the first of its kind in Europe. Its aim is to take stock of European know-how and it will focus on three key areas: an exhibition, a conference, and, in particular, five apartments specifically designed and equipped for disabled people. These apartments will be used for demonstration purposes.

These five apartments are part of 67 accommodation units for letting which were recently constructed in the centre of Chambéry by the city authorities. Following a call for tenders issued by the Commission in June 1991, five European industrial consortia were selected to fit out each of the five apartments and to display the best equipment and home systems currently available for people with reduced mobility and those with a visual or hearing impairment: voice-recognition systems using Braille characters to transfer the text to a personal computer screen, equipment which provides images to signals which are generally transmitted by sound, remote-controlled furniture, etc. Residents of these apartments will also be able to call on a range of services including distance working and assistance facilities.

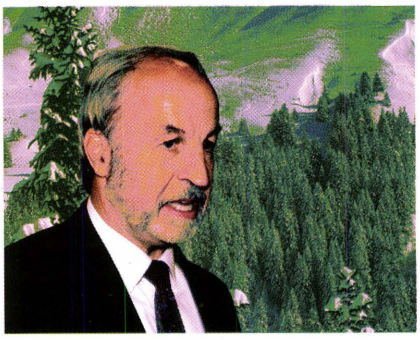
Guided visits of the five apartments will be arranged throughout the exhibition. At the same time, within the immediate vicinity, a permanent exhibition will be held at which a range of European equipment, systems and industrial services will be on display, as well as systems designed by various organizations working with the disabled.

A conference to be held on 23 March 1992 will be attended by industrialists and representatives of the disabled, with a view to taking stock of current research and development on home systems adapted to the needs of the disabled.

As long ago as 1970, the Commission of the European Communities devoted part of its activity in the social sector to issues affecting the disabled. An initial Community action programme on behalf of the disabled was initiated in 1983. A second, called Helios, followed in 1988, and a third, Helios II, is currently being drawn up. The European information system Handynet was designed and developed under the Helios programme. The 30 million disabled people living in Europe require information to enable them to have greater autonomy in their daily private and professional lives.

Handynet provides them with a database, electronic mail and an electronic delivery service.

The European Community is also anxious to promote measures on behalf of the disabled in the framework of other policies it carries out, such as those concerning information technology and communication. The TIDE programme (Technology Initiative for Disabled and Elderly People), launched by the Community in 1991, aims to promote cooperation between industries, user organizations and research centres in Europe in implementing a range of advanced technology services on behalf of the disabled.
The support given by the European Commission to the exhibition in Chambéry should be seen in this context. It aims to accelerate the adoption of information and communication technologies tailor-made for the disabled. It is also part of the Commission's much more ambitious objective of bringing about a European social area, in the widest sense of the word.



Running concurrently with the Winter Olympic Games and Paralympics, an exhibition devoted to home systems for the disabled will be held in Chambéry, Savoie, the first of its kind in Europe. The Mayor of Chambéry, Louis Besson, explains why Europe must play a more active role in developing home systems for the disabled.

Home systems for the disabled: a programme aimed at a very specific section of the population, and yet, paradoxically, it concerns everyone. This is one of the ideas expressed by Louis Besson, the Mayor of Chambéry, a former Minister of Equipment, Transport and Housing under the premiership of Michel Rocard. Interviewed by XIII Magazine, he began by referring to the Winter Olympics, which provides the backdrop for this home systems initiative.

Louis Besson: The aim of Chambéry, as the principal town of the Savoie department, has been that of organizing exhibitions to accompany not only the official Winter Olympic Games in February but also the Paralympics five weeks later. One such exhibition will be "Olympic Games - Euro TC 92" (Telecommunications Trade Fair of the year 2000), whereas equipping the accommodation and the presence of those displaying products for the disabled is aimed more at the Paralympics, which we do not want to feel is being left out in the cold.

XIII Magazine: Apart from the fact that such events coincide, has there always been a "traditional" interest for new technologies in Chambéry?
No, but I am firmly convinced of one thing. The geographical location of Chambéry makes it an ideal candidate, in this emerging Europe, to play a role of synergy between the two cities of Grenoble, which is the site of CENG, the Langevin Institute, and which is constructing the Synchrotron, and Geneva, which is the site of the CERN, in particular in the fields of physics and applied physics. If we are successful in this, we could bring about a geographical axis devoted to technical excellence, which would comprise all the cities in such a geographical radius. So, no such tradition exists, but there is potential which should be tapped.

What about the new technologies for the disabled?
Here, too, we are unable to draw on a tradition, but there is an undeniable willingness to combat a feeling of being marginalized which far too many disabled people know only too well. Dealing with disablements individually can often have conflicting results. Someone with a visual handicap needs references to find his bearings. But these very bearings or reference markings can be an obstacle for someone with a physical disablement. It goes without saying that new technologies can help us to overcome these contradictions and we can come up with solutions based on the "open city" model which is being encouraged by the public authorities in France. Of course the private home is an important living unit in the city, and this home systems exhibition will provide an insight into the integration of all kinds of techniques, bearing in mind the various kinds of disablement and the constraints in the home.

The home systems market is much sought after. In particular, Japan, which is highly competitive in consumer electronics, is well placed to integrate semiconductors into consumer electronics for future home systems networks. Such techniques could have tremendous implications for France and the rest of Europe. Why did you choose a home system specifically designed for the disabled? Is this not an unduly restricted market, or do you think it has potential? Or is it being used as a springboard to a wider type of home system?

I am personally convinced that even if Japan makes progress in this field, Europe, with its culture and traditions, must play an active part in the world competition in this sector. Enhancing home system performance should not be an obstacle, but should stimulate us to ensure that Europe has a role to play in this vital area.
Your question is really asking whether there should be a home system for use by everyone. In essence, in everyday life the alterations to traffic or homes to provide added facility for the disabled do not cause any problem for the welfare of the non-disabled. However, when systems are totally designed with the perfectly healthy in mind, the disabled are effectively excluded. The idea should be to adapt the product supplied, to give it an all-round use. Given the leeway to be made up, I feel we should concentrate, for the time being, on the needs of the disabled. As such products are not mass-produced, I feel there should be financial assistance, which should be given on a priority basis to public supply.

This is something of a novel idea ....
Yes, but it is one which will borne out with experience. Homes must not be designed with one part for the disabled and another for the perfectly healthy, with the latter excluding the former. The home should be constructed with the utmost flexibility, and be capable of evolving. Sooner or later, if only as a result of the ageing of the population, disablement becomes a fact of life. If the home cannot be adapted, the disabled person will have no option but to move, with all the concomitant

Home systems for the disabled: a programme aimed at a very specific section of the population, and yet, paradoxically, it concerns everyone.

psychological damage this entails. Society at large has everything to gain from an increasing disablement-conscious approach.

Did the disabled really play an active role in the Chambéry project?
From the time of the local elections here in Chambéry in 1989 we made up our minds to make a concerted effort on behalf of the disabled, using an extra-municipal committee. Such a committee would comprise representatives from associations dealing with all kinds of disablement. We even accepted a number of individuals falling outside this category, but who were likely to make an important contribution to the elaboration of the proposals. The associations responded accordingly. Our meetings of the Chambéry local council are held in the presence of a sign-language interpreter who translates all the debates for those with a hearing impairment. Recently, over a three-day period, residents of Chambéry played host to a gathering of the physically and mentally handicapped. Quite an atmosphere developed. To answer your question on the extent to which the disabled actively participated in the project, I would have to say "not as much as I would have liked", but there is a very real likelihood in the future.

Are many European countries involved in the exhibition?
The services of the European Commission which are playing an active role in this project, and the French Secretariat for the Disabled, have made available to us their entire network of contacts throughout Europe. There will be firms from Germany, Italy, Spain, the UK, Denmark, France, the Netherlands and Switzerland. I feel the synergy achieved in the Chambéry project represents a very real step towards rallying the collective abilities of Europe. ■

Interview by **Michel Devester** *journalist*

Main contractors for the five demonstration apartments at Chambéry : Home Systems for the Disabled.

Handiservices (F)
Tel: 44 58 51 58
Fax: 44 57 05 62
Contact: M. Hulstar

Legrand (F)
Tel: (16) 55 06 87 87
Fax: (16) 55 06 13 41
Contact: Hervé Thomas, M. Gaspard

Net Connexion (F)
Tel: (16) 31 43 68 25
Fax: (16) 31 94 63 05
Contact: M. Bourget

Possum Controls Ltd. (UK)
Tel: (44) 753 579234
Contact: Mr. Longley

Simatel (CH)
Tel: (41) 21 923 52 30
Fax: (41) 21 923 52 40
Contact: M. Mateos

Provisional list
30 associated firms

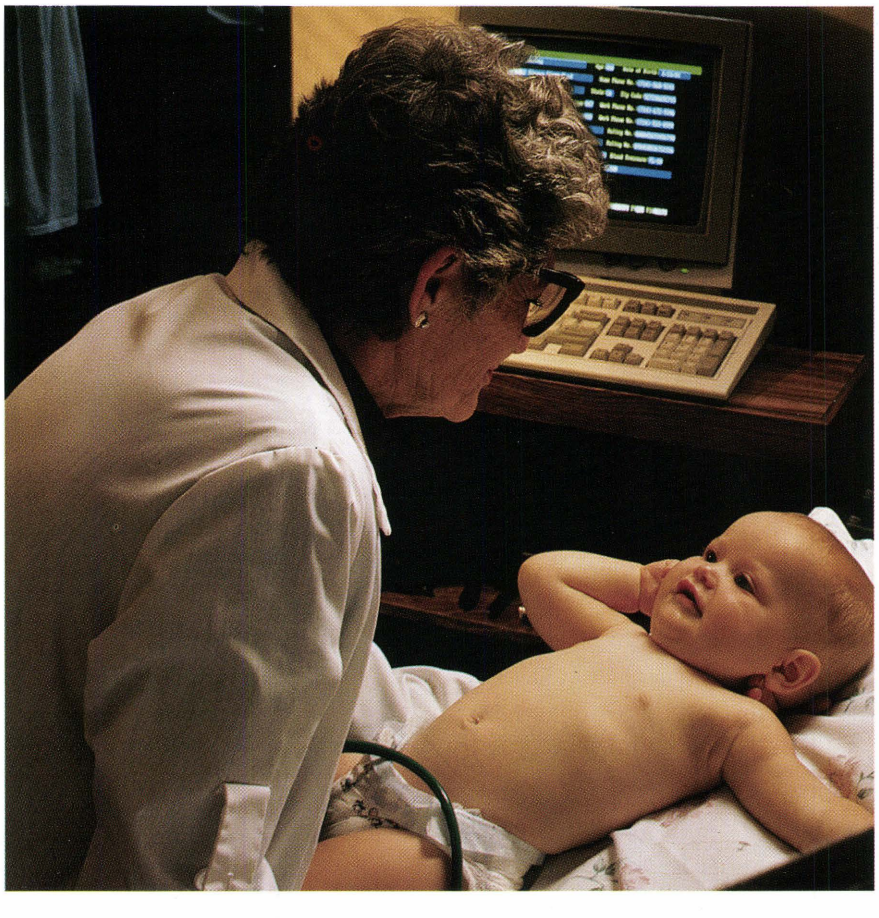
Alia (F)
Apple (F)
Bush Timac (D)
Ciedil (F)
Domoconcept (F)
Dorma (F)
Feller (CH)
Fermax (SP)
Giacomini (I)
Guldmann (DK)
Hager (F)
IBM (F)
James (CH)
Mac Help (CH)
Matra (F)
Merlin Gerin (F)
Noirot (F)
Philips (NL)
Presalit (DK)
Proteor Services (F)
Rada (F)
Revox (CH)
Ropox (DK)
Serpe (F)
Siemens (D)
Simu (F)
Somfy (F)
Sonelco (SP)
Tetravox (F)
Thomson (F)
Wago (D)

Advanced Informatics in Medicine (AIM)

A concept for European cooperation

Technologies for health care

A report by Jacques Lacombe of DG XIII's AIM team



THE EUROPEAN COMMUNITY's 340 million people can rely on the services of thousands of hospitals, providing for several million hospital beds. The average European sees his doctor 5-6 times per year and spends considerable amounts on health care services.

Health care is the largest public sector in Europe, representing more than 7% of the Community's gross domestic product, with an annual increase in expenditure of 10%. The cost of health care is a major economic factor and one of Europe's main challenges of the 1990s.

The demands and expectations of patients are also increasing, because of the particularities of the age pyramid. Accordingly all those concerned, i.e. patients, health care professionals, administrators and industry, are conscious of the necessity of tackling the complex problems associated with professional and financial constraints and the need for improving the availability and quality of care.

New technologies, and more specifically information and communications technologies, offer an essential tool in resolving these problems. The health care sector is not only of great political and social concern, it also has all the ingredients for becoming a huge market for information and communication products and services. Patients expect their doctors or nurses to have rapid access to the most up-to-date information, expertise and the health care professionals need to manipulate an ever increasing quantity of information.

Because of complexity and fragmentation the potential of the European market has, however, not really been exploited so far; no stable set of commonly defined objectives has emerged and industry has found it difficult to attain the critical level of standard products which would be necessary both for economic efficiency and sustained quality of products and services. Combining the efforts of the numerous

potential users and of industry in order to define common approaches at European level should help to improve:
-the quality, availability and feasibility of health care in the interest of patients,
-the competitiveness of European industry,
-cost-efficiency, reducing unit costs in the interest of health care administrations, hospital owners and managers.

The main objective of the Community's R&D programme for advanced informatics in medicine (AIM), for which an exploratory pilot phase was conducted in 1989-1990, was to explore the best ways of organizing cooperation and to provide a European framework for the necessary concertation among all relevant actors. Under the Community's 1987-91 R&D Framework Programme, the ECU 20 million made available for the AIM exploratory action allowed 43 projects to be launched, carried out by international project teams from all EC member states and from EFTA countries, cooperating across frontiers.

Seven key domains have been covered:

The elaboration of common reference models has been the subject of four AIM projects, assessing the application of information systems in medicine from a general point of view, or with regard to three more specific applications, i.e. hospital management, work of the general medical practitioners or in clinical trials.

Problems concerning the environment for medical informatics have been studied in projects addressing general aspects of classification and coding as well as the comparison of medical and financial data between hospitals, both at the micro and the macro level; measurement, characterization and control of ambulatory care have been the subject of a third project in this area.

In the field of optimal and harmonized data structures for specific applications, work has been focussed on areas as varied as the handling and transmission of endoscopic images, and the modelling and implementation of information systems for the treatment of chronic diseases, taking diabetes as an example; further applications studied were oral health care and integrated communication systems for intensive care.

A considerable number of AIM projects have been carried out in the area of communication and functional integration. Work in this area included aspects of what has become known as "telemedicine", i.e. the use of advanced information and communication technologies for remote care as well as the rapid and reliable exchange of clinic laboratory data between independent information systems. More specifically, aspects of data transmission were studied focussing on computerized electrocardiography or on hospitals in a high dependency environment.

Two projects also addressed specific problems of image transmission and their integration into a broader concept of hospital information systems.

The integration of knowledge-based systems was tackled from different but complementary and convergent sides: a first group of projects studied general architecture and specification of such systems, other projects have been carried out studying the application of non health-related knowledge base tools to specific medical problems such as the retrieval of medical literature and clinical documentation, the natural language processing of discharge summaries, the quality assessment of medical knowledge and the multimodal modelling of organs. A third group of projects in the "knowledge base" area addressed the management and interpretation of medical images, whereas a fourth group worked on the elaboration of prototypes and demonstrations, testing the acceptance of knowledge bases in the medical environments and illustrating the value of multi-media technology in health care.

As regards advanced instrumentation, equipment and services projects have been carried out concerning the development of automation in fields like coronary care, movement analysis, radiotherapy and psychiatry. Other projects studied the optimization of the microscope environment, problems around an integrated biomedical laboratory or computer assisted neurosurgery.

The last area of work of the AIM operation concerned non-technological factors in medicine and health care. Four projects have been carried out dealing with epidemiology analysis, the assurance of software quality, standardization on semantic aspects in medicine and the quality assurance of medical standards.

In parallel, a series of complementary actions have been carried out which were considered as being particularly important without being adequately covered in the projects.

These actions included the organization of two major workshops, one addressing problems of data protection and confidentiality, in order to exchange views and clarify thinking on data protection, accessibility, privacy, confidentiality, reliability and ownership of electronic information in health care and medicine. A second workshop dealt with the use of data cards, trying to assess the current situation as regards the development and introduction of data cards, including thinking about the required clinical and technical standards.

Both workshops led to the publication of major reports which have been made available to all parties concerned.

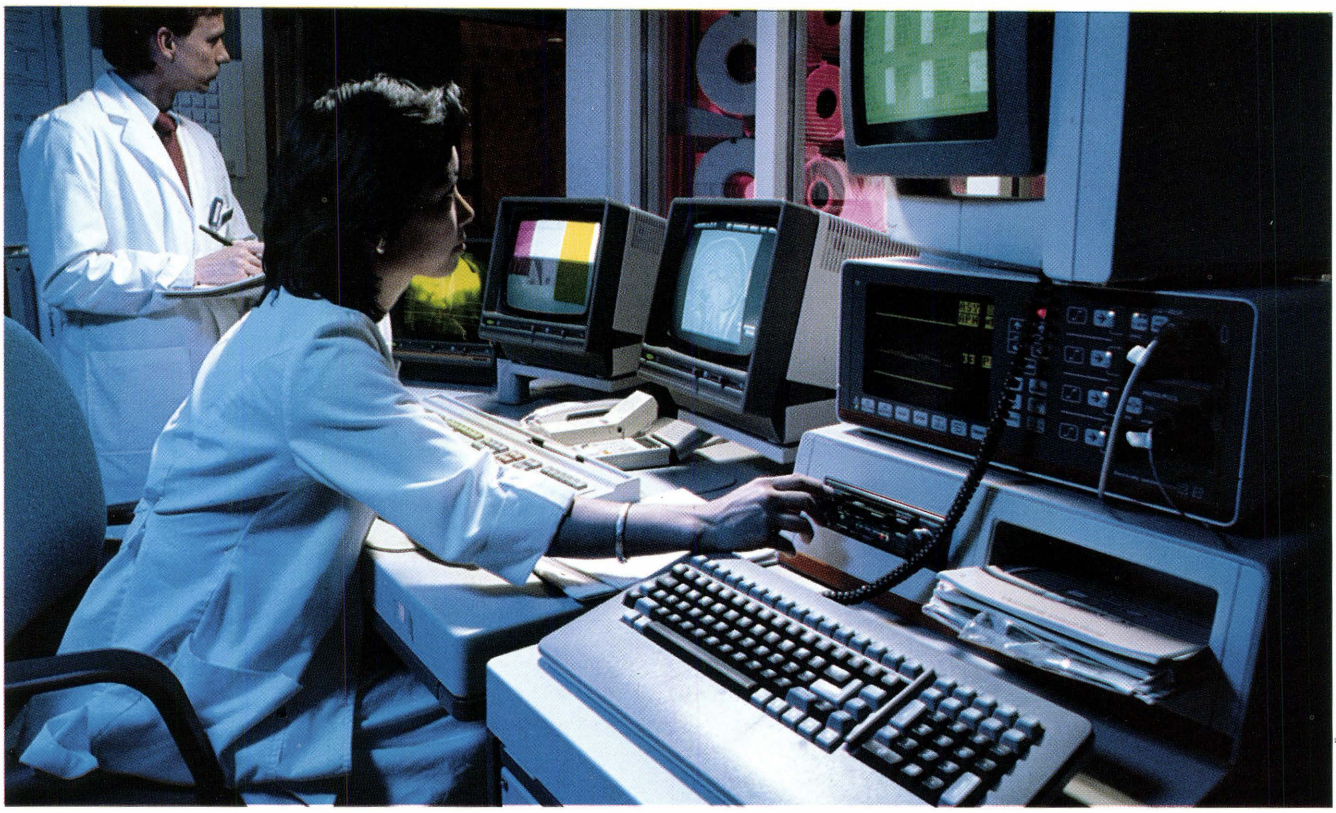
As a further accompanying measure, the strengthening of links with standardization bodies such as CEN and EWOS has been pursued. As a consequence CEN has set up two new technical committees, one dealing with medical informatics and the other one with standardization of data cards.

Results and achievements

Of the 43 projects originally launched, only one had to be discontinued; all the other projects have been successfully completed and have produced the "deliverables" specified in the project contracts. The most promising prospects for the exploitation of these results are in the areas of classification and coding, integration of imaging systems, handling information overload and with regard to open architectures.

More specifically five projects reported active cooperation with standardization bodies while the project was still ongoing; some 25 other projects were involved in the specification of systems (hardware, software, plain data or more organized knowledge) with the objective of developing open and interconnectable systems, products and services. Several projects have also performed a survey of existing standards and future problems to be tackled in this context.

Since EC R&D programmes are deliberately limited to work at the



pre-competitive level, the commercial exploitation of results is not an objective as such. The strong user and application orientation of the AIM exploratory action is nevertheless clear, since 29 projects foresee the commercial exploitation of their R&D results. Three projects contemplate patent proposals; others have reached the prototype phase and are currently collecting the necessary documentation in order to determine the impact of existing patents on their industrial and commercial strategies.

The future

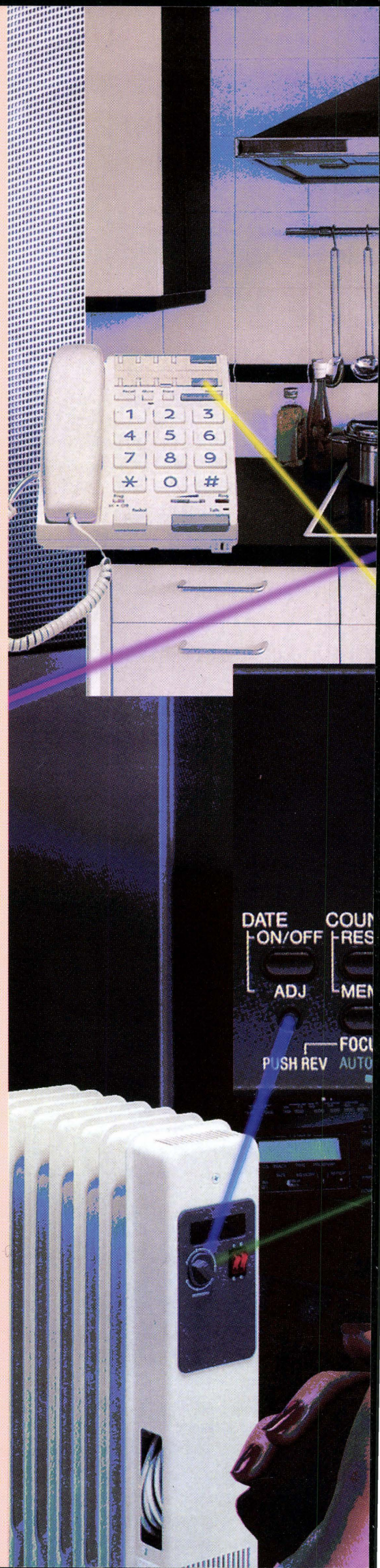
Work successfully launched under the AIM exploratory action will be pursued and reinforced as part of the "telematic systems" chapter of the 1990-94 Framework Programme for research and technology development.

The objective of this new action is set out in the decision of the Council of Ministers: "to stimulate the development of harmonized applications of information and communication technologies in health care; to develop a European health care information infrastructure, taking into account the needs of users and technological opportunities."

Future projects will concentrate on the interoperability of systems already in existence at national level, the elaboration of standards, user acceptance, 4 data integrity and confidentiality. As regards the time scale for future projects, it is foreseen to launch short-term projects which would allow the building of prototypes and the setting up of pilot applications in order to test user acceptance; the second type of projects would be put into a more medium and long-term perspective, involving strategic research and innovative concepts for the next generation of systems, products and services.

In response to the Commission's public call for proposals of June 1991, more than 190 project proposals have been submitted. The best have been selected and contract negotiations are underway. ■

The AIM programme brings together doctors, researchers, industry and representatives of public authorities to determine cross-border strategies for the use of telematic technologies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