Europe and the new information technology

European File

Telematics, information technology: words which today are rarely used but which tomorrow will be as current as telephone, television, data processing or the satellite. Combining these different technologies into a dynamic new technology — telematics — seems set to introduce profound changes in our society.

- ☐ Firstly everyday life will be easier for all. "Electronic money" has already been introduced and cash can already be withdrawn from bank accounts via street corner computer terminals. Using a home telephone, home TV and a special keyboard, we can now consult shopping catalogues and even place orders, or alternatively obtain information on social services, local activities, etc. Mail can also be rapidly transmitted via telecopiers. By interconnecting sophisticated word processing typewriters we can now type a text in one location (at home, for example), correct it without having to retype, and transmit it to another place instantaneously. Finally, the use of microprocessors — veritable mini-computers — which house thousands of electronic circuits in a single "chip" smaller than a match-head and are already produced on a large scale enable us to extend the range of specialised equipment needed for handicapped people, computerised apartments and cars, etc. Energy consumption, the safe driving distance between cars, etc., could all be controlled automatically in tomorrow's world.

- ☐ More generally, access to information in all its forms (written, audio-visual) will be made easier for the benefit of individuals, companies and public services who are often flooded with masses of data. Rational decision-making presup-

Commission of the European Communities
Directorate-General for Information,
Rue de la Loi 200 - B-1049 Brussels

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poses rapid and easy access to all information available in a particular sector, along with a synthesis of this information. For implementation it also requires rapid communication with other parties involved : partners, users, clients, etc. Information management and use is a key problem for society. At a certain point, the most developed countries will progressively change from an industrial economy into an information economy.

"Telematics" is the umbrella term for all the information technologies needed for such a change: data banks, computers and accessories, advanced components, in particular the micro-processors mentioned above, finally the new transmission techniques with, top of the list, the optical fibre transmission cables and satellites which will increasingly replace traditional ground networks.

Such a technological revolution cannot come about without serious consequences:

- at the economic level: information technology still constitutes a limited sector, but it is growing rapidly: about 15% per year. The needs of the world market are considerable and often also very basic. In the USA, the proportion of the working population involved in processing words (as opposed to handling or processing objects) has risen from 25% to 45% between 1940 and today. Apart from the growth of the industries which manufacture the components for the new information technology, these industries themselves are bringing about profound changes in other industrial sectors. The use of microprocessors is becoming more common in cars, household appliances, office machines and machine tools. In addition, the downward trend in the costs of ready programmed systems will accelerate the automation process wherever possible. As the driving force of industrial relocation, telematics can also help encourage the geographic decentralisation of certain industrial activities (textiles, electronics, mechanical engineering, etc.) and even work at home (e.g. certain office jobs);

- at the social level: the end result of increased automation is reduced need for certain jobs. But, if suitably mastered, the telematics revolution could also create a large number of new jobs: design, manufacture and servicing of new forms of automation, the use of microprocessors in a wider range of equipment, in education, in training, and should lead to the creation of new services offered to industry and consumers. By encouraging the growth of small manufacturing units, telematics can also open up new outlets for industrial initiative;

- at the political and cultural level: easier and more complete data collection poses a problem for protecting the rights of the individual in relation to public and private organisations. But automation can also accelerate individual freedom and technical education should also be improved to meet requirements. Telematics can also give wider and more direct access to the most varied sources of information and culture.

The current situation: scope for European action

The world telematics market is growing at a very fast rate and the European market represents a sizeable proportion of this. The world market in 1978 was as follows:

- telecommunications equipment: some 27 billion European units of account (1) 29% of which in Europe: the annual growth rate for this market should stand at 5-8% between now and 1987;

- data-processing systems (computers, peripherals and services): some 53 billion EUA, 26% of which for Europe; the annual growth rate here is of the order of 17%;

- integrated circuits: some 5 billion EUA, 19% of which for Europe; 11 billion EUA should be achieved in 1985.

It is estimated that the market value of computerised data systems used throughout the world by administrations and companies stands at around 40-50 billion EUA; in terms of requirements, Europe's share is of the order of 25%, but only 15% in terms of services supplied.

Though Europe is a large market, its share in production is not satisfactory and its position is in danger of deteriorating further:

- the United States is the main supplier to the world market. This results largely from the massive orders from the Federal Government and the NASA space programme. Advanced US semi-conductor and microprocessor technology should be further strengthened by the $ 200 million six year programme launched by the Defence Department for the development and production of very high-speed integrated circuits (VHSI);

- Japan has caught up in a spectacular way through its 1967 "Plan for the Information Society" which comprises support and promotion measures coupled originally with protectionist measures. This voluntarist policy has recently been reinforced through a plan to produce very large scale integrated circuits. Combining technical quality and competitive prices, Japanese industry and the authorities are preparing to conquer international markets.

Europe's main weaknesses are as follows:

- in the manufacture of computers, the largest European firm stands at number 8 in the league and even then is only one-twentieth the size of IBM. Also Europe has backed out of the market for the very large computers;

- in the production of peripherals (terminals, etc.) Europe's prospects are better, but the trend is on the way down given the US advances in mini-computers;

- for advanced components, in particular microprocessors, the situation is very disturbing: European industry supplies scarcely 10% of its own market whilst this sector is expanding rapidly;

(1) 1 EUA = about £ 0.63 or Ir. £ 0.68 (at exchange rates current on 4 February 1980).

- for the data banks, finally, the situation is scarcely better. Apart from the IRS data base managed by the European Space Agency and the DIANE-EURONET network, orientated towards scientific and technical documentation (which the European Commission and national PTTs are cooperating closely to bring into operation), there are scarcely any data banks at the Community level.

By contrast, Europe is better placed in the data processing and software areas (designing computer programmes) where its industry is in full expansion, as in telecommunications where it supplies 30% of the world market, with two-thirds of this percentage coming from firms of European origin. But the growth of the promising area of the "telematics network" will be held back if Europe falls further behind in developing the complete production chain. The situation in the major data-processing field cannot be turned round in the foreseeable future. It is no longer certain that the sole efforts of national authorities will put the Nine in a position to be able to acquire sufficiently solid bases in the rapidly developing "side-line" areas such as peripherals, minicomputers, components, data banks, etc.

The domination of the telematics area by the United States and Japan is a dangerous situation for Europe. It could mean:

- a definitive loss of the opportunity to be competing in one of the markets of the future;

- a reduction in its competitive capacity at home and in the world at large;

- numerous job losses and dangerous social tension for both liberty and democracy. If Europe does not develop its manufacturing capacity for telematic materials — which will have to be used anyway sooner or later — it will not be able to win back the jobs lost in this sector through the advance of automation;

- an increase in political, economic, technological and cultural dependence.

Europe can still rise to the challenge. It can still find a place in this revolution which will separate the societies of the twenty-first century. One objective is necessary: to achieve one-third of the world market by 1990. To do this, Europe has three trump cards which can only be played with a Community strategy:

- first factor is the existence of a domestic market as large as that in the United States and able to provide scale economies as long as nationalistic preferences are put aside together with technical barriers, national regulations and national monopolies in the telecommunications field (which are little disposed to cooperate and develop the interlinking of their services);

- the second factor is the sizeable public contracts placed in the Nine which could enable this market to be turned to the benefit of European consumers and introduce an element of Community preference for European manufacturers for large projects, new products and services. This should develop into arbitrary discrimination against foreign manufacturers and must be favourable to and conducted within the framework of a veritable European strategy;

- third factor is that the effectiveness of national development programmes could be multiplied if they were systematically coordinated, avoiding contradictions, duplications of effort and ruinous rivalries, and if research results were made available to maximise their industrial development at the European level:

  - Germany has allocated a budget of 196 million EUA for a four year telematics programme, accompanied by programmes dealing with computer components and technologies and their social impact, as well as a project for direct satellite television;

  - France has drawn up a plan for computerising society (392 million EUA over five years) combined with a decision to launch telecommunications and TV satellites;

  - Italy has just developed an electronics programme in the framework of its law on industrial reconversion and restructuration;

  - the United Kingdom is planning actions to support the micro-electronic components sector.

Outline of a Community strategy

The Community strategy for telematics proposed by the European Commission is specifically not aimed at a centralised policy requiring large financial resources and the recruitment of even more staff. Its intention is rather to encourage the dynamic operation and integration of numerous actions by national governments, individual companies and Community institutions.

The key points sector by sector of a European strategy are as follows:

- telecommunications:

  - international harmonisation — based on a common position amongst the Nine — of the basic characteristics of the systems, should permit an integrated digital network to be introduced at the truly European level which would ensure transmission of information (traditional forms such as telephone for example, but also new services) in the form of digital data which could be processed more rapidly and in greater quantities by data processing means;

  - the first European information system linking Community institutions and Member States should facilitate the transmission of data between public authorities and stimulate the development of new equipment and services by both industry and by the national telecommunications networks;

- satellites can be expected to beam TV programmes directly to households in all or part of Europe, to serve as a relay for transmitting data between companies and their subsidiaries or partners, be used for remote monitoring of the environment and to keep track of the resources of the earth and sea. As a

complement to actions undertaken by the European Space Agency – to whom we owe the successful launch of the European rocket Ariane at the end of 1979 — the nature of these services and the extent of their distribution calls for coordination of European efforts and a common approach to management structures. We must ensure, in particular, standardisation and compatibility of ground terminals and develop and make good use of remote sensing programmes, etc.;

- ☐ data processing: a Community programme with a budget of 25 million EUA for 1979-83 caters for general actions (standardisation, public markets, collaboration between research centres, study of technology and its impact on employment, protection of citizens rights and data security, legal protection of computer programmes). Progressively, the Nine should adopt common norms for all of their equipment to permit easy exchange of information by 1983. The European programme also calls for support for the development of software applications, and users are encouraged to coordinate their requirements at the Community level to open up a market in which European industry can work;

- ☐ perinformatics (terminals, etc.): the Community should encourage specialisation agreements or the creation of joint subsidiaries by supporting them financially, if needed, by coordinated national aids or by European assistance;

- ☐ opening the world market to European services: two privileged directions are open to our exports: the markets of other industrialised countries and those of the Mediterranean and of the African, Caribbean and Pacific countries associated with the Community. In the satellite and data bank areas in particular the needs of potential African clients must be taken into account.

But it is not sufficient just to promote research, industrial development and larger markets. The social environment must also be prepared for information technology to ensure the maximum results from the techniques and minimise the risks during transition periods:

- ☐ employment: to prevent difficulties and, at the same time, create a climate of confidence favourable to innovation, the methods and the speed of introduction of these techniques should be determined clearly and in full consultation:
  - through consultation with the social partners;
  - by periodic evaluation of the impact of these new techniques;
  - by setting up a European pool, centralising study and research;
- ☐ training: adapting workers, users and the general public to the new technologies should be facilitated by:
  - systematically studying future needs according to region and qualifications (a first report is scheduled for 1981);
  - the use of the European Social Fund for training and reconversion projects into electronic techniques;

- encouraging the exchange of experience on the education of and uses of new techniques in schools;

- the expanding exchange of experiences and the organisation of specialised seminars for company chiefs and trade union representatives;

□ protection of liberties: Western European countries who are members of the Council of Europe are attempting to harmonise their legislation through the adoption of a Convention on the protection of individuals against the computerised processing of data of a personal nature. A specific Community directive can be expected if all the Nine do not adhere to the text currently being negotiated within bodies which are larger than the Community.

△

The information technology revolution is under way; and it cannot be stopped. As with all technological breakthroughs it is full of opportunities and risks. Working together, Europe can deal with these risks more easily and seize the real chances which are offered. It is not too late yet, but time is getting short ■

Commission of the European Communities

Information offices (countries fully or partially English speaking*)

Ireland 29 Merrion Square, Dublin 2 — Tel. 76 03 53
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