TELECOMMUNICATIONS
EUROPE'S ELECTRONIC NERVOUS SYSTEM

The development of European telecommunications will arguably be the single most important factor in the EEC economy over the next 10 years.

Cables and broadcasting frequencies are to the late 20th century what railways and canals were to the early 19th: they carry the bulk of the economy, which now depends more on the exchange of information than on the exchange of goods. In the Community, 55% of total added value and 62% of jobs already depend on information services.

Most business communication is still done by telephone and mail. Computerized post offices still send postmen out on foot. Yet a wide range of electronic information services is waiting to be introduced, in the factory and the office, the home and the high street. The telecommunications networks that will carry this traffic, like the airlines and highways that replaced the canals of the first industrial revolution, must be efficiently linked. Here the Community is handicapped by its fragmentation into 10 separate national networks.

With its variety of languages and cultural traditions, legal and business environments, the Community is a patchwork which cannot readily adopt the blanket coverage offered by telecommunications and information technology. As electronic transmission increases world-wide, complex questions arise concerning national control of the international flow of information. Social consensus must gradually be acquired over the far-reaching changes in living and working conditions, in central and regional development, brought by information technology and telecommunication.

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ECU 150 BILLION OVER 10 YEARS

Meanwhile, the European economy needs rapid decisions on the technology itself. Total Community investment in new telecommunications is estimated at more than ECU 150 billion in the next 10 years, during which telecommunication equipment and services will become the biggest business in the EEC. Decisions to be made shortly will be critical in determining whether the Community is to have the coherent, modern telecommunications infrastructure it needs to stay competitive and independent in a world increasingly dominated by the economic super-powers. The Commission has a leading role to play in these decisions.

EEC countries have been world pioneers in telecommunications and, as the world's biggest exporter, the Community has a trade surplus of some $2 billion in telecommunications equipment. The world's 600 million telephones represent the biggest single machine ever built, much of it by Europe. But a turning-point has been reached. Telephone and telex are giving way to the second and third 'generations' of technology, to telematics and wideband networks which can carry far more information. Unless the Community acts collectively and makes a reality of its potential internal market, national initiatives will no longer be enough to maintain Europe's electronic nervous system and telecommunications industry at the level of its world competitors.

The first problem is the price of the new technology. Manufacturers need a significant share of the world market(for instance 5-10% for switching) to cover the costs of research, development and engineering. European manufacturers have often restricted themselves to sheltered home markets, protected for them by government policies. Now national markets are becoming too limited to generate enough new investment, while the need for that investment is increasingly apparent.

The Community needs more fist generation equipment (up to 40% less telephone lines per head than in Sweden, Japan or the USA). It needs more modern services (3% of telecommunications traffic is data transmission in the Community, against 5% in the USA). Expenditure on equipment is lower in the EEC ($32 per head) than in

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Japan ($46) or the U.S.A.($80). And the Community needs more of its own micro-electronic components, 83% of which are now imported: these are fundamental to the incoming technology and already represent 7% of the average cost of information technology systems.

The Community has the scientific capacity to maintain its success on world markets. A Community-wide market can provide the strong home base needed if the European telecommunications industry is to remain competitive. But users, carriers (network operators) and manufacturers of telecommunication equipment need national and international agreement on what is required before the necessary massive commitments can be made.

Telecommunications have a powerful multiplier effect on the economy - increased overall turnover will be double the investment in networks and terminals, while individual firms can look forward to a fivefold return on investment. The contribution of telecommunications equipment and services to Community GDP should grow from 2% to nearly 10% by the year 2000. At the same time lack of concertation between users and manufacturers multiplies the hesitation in Europe over the choice of new telecommunications technology. Uncertainty at national level is magnified by uncertainty at international level. The telecommunications equipment market in the Community (some 19% of the world market) is now growing at 6% to 7% annually as against 8% in the world.

Meanwhile, Japanese and American competition is increasing. Deregulation in the USA has broken the ATT company's hold over the home market, encouraging the electonics giant to look for overseas gains, while Japan is investing heavily in an Information Network System intended to provide integrated information services throughout the nation.

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OBJECTIVES AND STRATEGY OF THE PROGRAMME: PROPOSED ACTION

The preoccupying issues concerning the future of the tele-
communications sector become clear from the analysis above ：

- inadequacy of the markets;

- volume of investment required, particularly in the
  Community's more disadvantaged regions;

- technological fragility;

- strategic uncertainty.

The action programme aims to help fight these weaknesses. It
has three objectives ：

- to provide users, as quickly and economically as possible,
  with the equipment and services necessary to ensure an
  adequate level of competitivity;

- to stimulate European production of telecommunications
  equipment and services so as to create the conditions in
  which the Community telecommunications industry can keep
  its strong place on the European market and maintain its
  position as the world's leading exporter;

- to enable carriers to meet the coming technological and
  industrial challenges in the best conditions and at the
  least risk.

The measures presented by the Commission to the Council, along
the lines of its Communication of 29 September, 1983, can be
classified in four main categories ：

A. Creation and stimulation of a Community telecommunications
   market

The object is to create a Community market in terminals,
through action on standards and conformity procedures, and
to progressively open the market for network components. The
Commission will be assisted by a consultative liaison group
in carrying out the following tasks ：

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1. <u>Standards</u>

   - identifying the specific needs of the Community

   - drawing up a Community standardisation programme,
     identifying the priorities and establishing a
     timetable.

   An initial programme should be drawn up by the end of 1984.

2. <u>Conformity of terminals</u>
   Carriers will be asked to take the requisite measures
   leading progressively to mutual recognition of conformity
   certificates, beginning with the mutual recognition of the
   results of testing by recognised national laboratories, for
   conformity with standards.

   The technical work required under this programme on standards
   and conformity will be carried out by the CEPT under an
   arrangement to be agreed.

3. <u>Carriers</u>
   Markets for network operation should be progressively opened :

   - as regards the procurement of terminals, carriers will extend
     calls for tender to cover all Member States;

   - for other equipment required by carriers, the Community
     proposes a progressive opening of the markets, beginning
     with a certain percentage (e.g., 10 % of carriers' annual
     expenditure on equipment) which could be increased as
     the overall Community programme is implemented.

B. <u>Reduction of uncertainty concerning development strategies</u>
   through the creation of a framework for consultation and
   concertation on the development of services and networks,
   and the implementation of joint infrastructure projects.

   This framework will be constituted by a <u>multidisciplinary
   group for analysis and forecasting</u>, whose work will initially
   cover three areas :

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- the development of new services through the rapid intro-
  duction   of integrated service digital networks
  (narrow-band ISDNS),

- the establishment of cellular radio-telephone services,

- the development of videocommunications and the implementa-
  tion of wide-band transnational networks.

Work on the first area will be covered in a report on
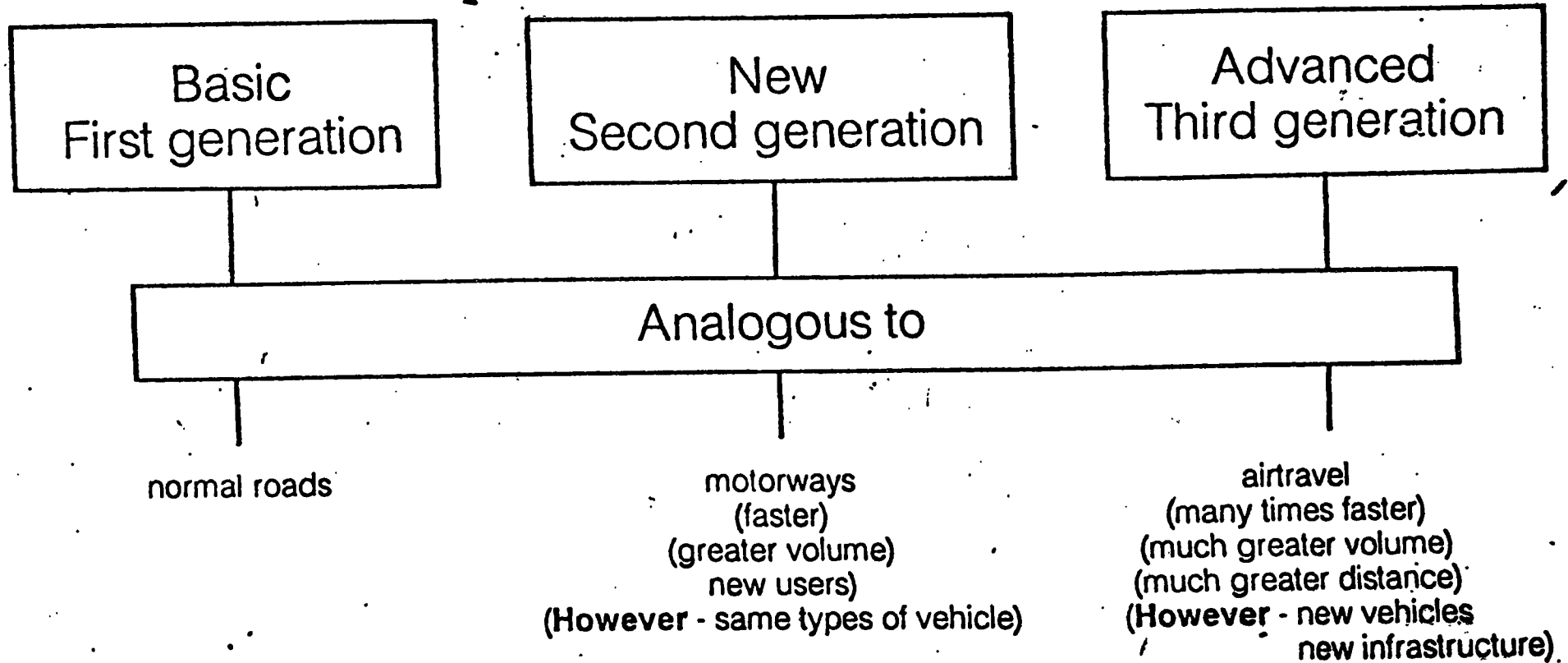31 December, 1984 and on the other two areas in a report
on 30 June, 1985.

C. Improved technological capacity through a collaborative
programme of industrial R&D, now under preparation, which will
be put to the Council in the second half.

D. Aid for the modernisation and upgrading of networks in the
Community's least advantaged regions by increasing the
proportion of financing for telecommunications in these
regions from Community financial instruments (Regional Fund,
EIB, New Community Lending Instrument).

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The Commission will be assisted in the implementation of the
overall programme by the consultative Senior Officials Group,
set up with the agreement of the Council in November 1983
to prepare the programme. The Commission will ask the Council
to renew the mandate of this group.

THE THREE GENERATIONS OF TELECOMMUNICATIONS INFRASTRUCTURE

Basic First generation	New Second generation	Advanced Third generation

Analogous to

normal roads	motorways (faster) (greater volume) new users) (**However** - same types of vehicle)	airtravel (many times faster) (much greater volume) (much greater distance) (**However** - new vehicles new infrastructure)

THE THREE GENERATIONS OF TELECOMMUNICATIONS SERVICES

Basic Services (First Generation) Current Basic Telecommunications Infrastructure	New Services (Second Generation) Enhancement of Basic Telecommunications	Advanced Services (Third Generation) New Telecommunications Infrastructure
— Telephony	— Integrated basic services with some speed enhancement (ISDN)	— Videotelephony
— Telex, teletex	— Digitized voice	— Videoconferencing
— Low-speed data	— Textfax	— Fast facsimile
— Mobile telephony	— Audiographic teleconferencing	— Bulk document transfer
— Low-speed facsimile	— Electronic mail	— High speed data
	— Wider availability of mobile telephony	— On-line graphical design
	— Higher resolution videotex	— Remote printing and publishing
		— Dynamic computer load-sharing
		— Burst-mode host-to-host transfer