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EUROPEAN SOCIETY FACED WITH

THE CHALLENGE OF NEW INFORMATION TECHNOLOGIES:

A COMMUNITY RESPONSE.

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SUMMARY

1. At their conference in Bonn in July 1978, the Heads of State and Government of the Community recognised the need to identify new sources of growth and employment to offset the difficult adjustments that traditional industries such as coal, steel, shipbuilding and textiles are being forced to undergo. At Strasbourg they agreed that the dynamic complex of information industries based on the new electronic technologies offered a major source of such economic growth and social development and invited the Commission to study the matter and report.

The following note summarises the analysis of the situation made by the Commission and the actions it is proposed that the Community should undertake.

THE INFORMATION SOCIETY AND THE IMPACT OF ELECTRONIC TECHNOLOGY

2. Modern European society is already an "information society", which scientific and intellectual activity of all kinds, economic transactions and the whole pattern of daily life on a subtle network of information.
3. The new family of electronic technologies is transforming the way this network of information can work, promising to reduce its cost enormously to transform office work and industrial production, and to offer the citizen a vast range of new or improved goods and social services. The speed and skill with which these new technologies are developed and applied are critical to the social development of any modern community, to the efficiency and productivity of its industry and services, and, not least, to its position and influence in the world.

4. The keys to this transformation are two technological revolutions that have combined to change radically the economics of the electronic world. The cost of communicating is being dramatically cut by the introduction into telecommunications of digital, electronic techniques (computing methods and technology) and new transmission techniques (satellites, optical fibres). The cost and availability of artificial intelligence (the power to process the revolution in components which enables the power of a large computer to be condensed into a single chip.

These changes mean that virtually every industrial product or production process, from automobiles to machine tools and toys, and very many services are open to enhancement or improved efficiency by the application of the new "microelectronic" technology. It means that distributed intelligence in terminals, computers, or the family television set can be cheaply linked in European and world-wide networks of great power.

THE CHOICES BEFORE EUROPE

5. European society will be obliged to apply these technologies on an immense scale. They are essential to the competitiveness of its industry in world markets and necessary for the mastery of the information processing and flows that are its lifeblood. But whether the process is a painful one, or a positive one that generates new economic growth, new social possibilities and hope will depend on how the new revolution is handled, on the social, industrial and political choices that are made.

6. In terms of employment, the new technologies will certainly bring a reduction in jobs of a repetitive nature whether in the office or in the factory. The question is whether the industries and services of the Community can generate new products and services for the world market on such a scale that the new jobs created outnumber those lost.

In terms of markets Europe already provides one third of the 26 billion u.a. world market for telecommunications equipment (growing by some 7 percent per year), 26 percent of the 53,3 billions u.a. market for data processing systems (growing by 17 percent per year) and 19 percent of the 5 billions u.a. world market for integrated circuits (growing by 25 percent per year). The question is whether this rich and rapidly growing home market and indeed the world market as a whole is to be largely supplied from outside Europe or whether European industries and services are to take a major and growing share.

In social and political terms the new technologies could offer new tools for individual development and expression, new possibilities for small to medium-sized enterprises, new communication facilities for distant regions, new facilities for the underprivileged, whether the handicapped or the immobile old. Will they be used for these redeeming purposes or as an instrument for reinforcing central political or corporate power? These questions have hitherto been largely debated on a national basis. Since they are fundamental for the future of European civilisation it is time to ask how the Community can help to ensure a positive answer.

EUROPE AND ITS COMPETITORS

7. The present industrial scene leaves much to be desired. Europe's intellectual contribution to the new technologies is still remarkable, but in the commercial and industrial field, it is the United States and Japan that lead.
8. European-owned computer companies command a mere 16 percent of the world market compared with 73 % for the American industry. In the key perinformatics area, the share of European-owned companies, though creditable, has fallen from one third in 1973 to one quarter in 1978.

In software and telecommunications, the European industry position is far stronger and indeed has a substantial export surplus, but the European telecommunications industry faces fierce new competitive challenges in the world market from the United States and Japan; while in the crucial microelectronic component sector, Europe imports over 80 percent of the integrated circuits which are the adaptable and powerful buildingblocks of the electronic age.

9. The world leadership of the United States industry owes much to the innovative Continental market in which it flourishes, to the immense procurement power of the United States Federal Government (over 20 billion u.a. per year) and the massive financial support which defence and space programmes have given to research and development in all branches of electronics.
10. Japan's remarkable progress in world markets for electronic equipment has also been the fruit of a systematic longterm national strategy supported by large Government funds : the national plan for telecommunications, the Plan for the Information Society (1967) which established the Japanese computer industry as a major rival to IBM (at a cost of some 400 million u.a.) and the 200 million u.a. VLSI programme, supported by the Government and the three leading telecommunications and computer companies, which has enabled Japan to leaptrog the United States in key areas of microelectronic technology during the last five years.
11. In the major Community countries (France, UK, Germany) substantial national aid programmes have helped to redress the balance and enable a national computer industry to survive. The three leading European computer companies (ICL, Siemens, CII-HB) and the perinformatics industries of France and Germany (terminals, mini-computers) have all received substantial aid, while new programmes are now being developed with the accent on microelectronics, application, education and the social impact of informatics.

12. These programmes, however, despite their size, have not redressed the grave imbalance set out in paragraphs 8 to 10 above. The truth is that Europe has so far failed to mobilise its major asset, continental scale. Though its total informatics market is half as large as America's, it is still divided by different standards and practices, and different ways of solving the same application problems. In telecommunications, the separate national monopoly administrations have developed their own distinct technologies, procure largely from firms based in their own countries, and implement distinctive tariff and service policies of their own. The result has been that trans-national business services do not exist of the character low cost and scale of those in the United States.

13. Europe has not succeeded in creating the common market of ideas or the mobility of talent that exists in the United States; the different national aid programmes have fostered competing national enterprises while leaving key longterm needs unmet. Europe has neither the Continental market of America nor the common strategy of Japan, while the great social debate has so far been confined to national bounds.

THE COMMUNITY RESPONSE

14. A first political response, at Community level, to these challenges, was provided by the pluriannual programme for data processing, adopted by the Council in September 1979. The merging of informatics and telecommunications, and the penetration of electronic technology into industry and every walk of life, however, require a wider overall approach. Such an approach does not require the creation of new Community financial instruments. But there is a need to mobilise and coordinate the efforts made by Member States and by specialized international agencies within a wider framework, to make use of the Community's normative powers and the purchasing power of public authorities to create new European markets, to catalyse bilateral and trilateral industrial collaboration, to put the new information technologies at the service of the Community itself and its institutions, and on certain exceptional occasions, like the key sector of microelectronic technology identified in the Council Resolution

of September 1979, to develop certain common actions.

Above all, a wide debate is needed on the social implications of the new technologies, supported by a major effort to ensure that Europe's working population can acquire, in time, the necessary skills.

PROPOSED ACTIONS

15. It is therefore proposed that the Community :

a) develop a social policy to prepare the climate for innovation, and in particular,

- pool studies on the impact on employment and other social consequences

- explore with the social partners measures such as collective agreements, designed to ensure that innovation is introduced in an acceptable way

- establish a programme in the key fields of education, training, and dissemination of knowledge, designed to reinforce the efforts of Member States in particular in schools and in industry itself

b) Use the normative powers of the Community to create a homogeneous European public market for telematic equipment and services through Council decisions which

- commit the telecommunications administrations to introduce common harmonised services on the new digital networks from 1983, and to purchase for them only harmonised equipment from 1985

- establish the principle of an open Community market for terminals, in which private industry can compete

- initiate in 1981 a first phase of action by the telecommunications administrations to enlarge their potential sources of supply at Community level
- commit the public administrations of Member States from 1983 to buy informatics equipment and software only when it conforms to common standards

c) Promote a European information industry by :

- facilitating investment by the private sector in data bases and related services
- fostering provision of information to small and medium enterprises
- promoting accessible public data bases, by coordination and rationalisation between Member States and Community action where appropriate
- stimulating worldwide exports of European information industry products

d) Foster industrial and user collaboration by :

- implementing, as a first step, the provisions for support for applications in the pluriannual programme for informatics
- providing a catalytic framework for ad hoc collaboration between industrial companies on a bilateral or trilateral basis, with a view to specialisation agreements or joint development of products such as peripherals
- ensuring that Community industry has access to the latest micro-electronic technology in the mid 1980s by promoting development of the key equipments and computer aided design technologies in accordance with the Resolution of the Council of September 11, 1979

e) Enhance the value of national and European programmes in the fields of satellite communication and detecting earth resources by :

- bringing together users to establish markets
- establishing standard interfaces for earth terminals
- encouraging the timely establishment of effective structures for managing the use of satellites on a European scale
- establishing legal and policy frameworks which permit the most effective Community-wide use of new facilities such as television satellites, as well as in third world countries.

f) Apply the new technologies to the Community itself by

- developing Commission data bases of general interest and making them accessible to the outside world via Euronet
- enhancing efficiency by developing a network of new telematic services linking the Community institutions and the member governments

Follow-up

If this broad programme of actions is accepted by the Heads of State, the Commission will undertake studies, or put forward proposals, where necessary, and report back on progress in May 1980.

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European society faced with the challenge of new information technologies :

a Community response

FOREWORD

Over the last five years, Europe has ceased to expand as rapidly as before and its position in the world has undergone a relative setback : its annual growth rate, on average one of the highest among OECD member countries before 1974, was lower than that of the other industrialized countries in 1978.

The prospects for 1990, if the present trends continue, are hardly encouraging. Clear signs that the population is becoming smaller are compounded by uncertainty as to the capacity and determination of society in the Community to react to its enormous energy dependence. A considerable effort will have to be made for the Community, its citizens, its cumbersome social structures and its fragile political balances to react in a positive way by adapting to the new economic and political realities of the world today.

The adaptation required is both internal - from a society of plenty but also of waste to a more sober and more interdependent one - and external - from a heavy structure based on industrial processing to a system of development that involves a growing proportion of technology and services.

This coming change in the traditional image of the economy of European countries can only be conceived in the context of actions which make the most of the possibilities offered by the continental dimension of the Community.

It was in this spirit that the Commission's report on some structural aspects of growth (COM(78)255 final) was conceived; during the European Parliament's sitting of 25 April 1979, the President-In-Office of the Council recognized the merit of :

"having provided food for thought for the European Council, whose general conclusions were essentially the same as those of the Commission".

It is essential that technical creativity and redeployment towards new sectors of activity can be expanded and accelerated appropriately. The Commission for its part must check whether what is currently being done in the Community in this sector is providing adequate preparation for the long-term future, and to propose the necessary measures when discrepancies are observed between the needs and the realities.

This document is devoted to information technologies : this is a field in which a major revolution is taking place and playing a part in the present transformation of European society. Confronted with this state of affairs, it is an overall strategy that will enable Europe to take advantage of the benefits which this revolution can bring and to prevent the advent of these new technologies from contributing to its decline.

PART ONE : THE JUSTIFICATION AND AIMS OF A COMMUNITY RESPONSE

1. FACTORS IN THE ASSESSMENT

1.1 The convergence between requirements and technologies : its impact on society

1.1.1. Information technologies, a vital field for the economic, social and political future

The employment of information is becoming one of the vital factors of economic activity. Recent surveys indicate that the proportion of the active population of the United States concerned with the processing of symbols, has increased from 25% to 45% since 1940. This fundamental change can be related to the quantitative and qualitative evolution of employment. From 1950 to the end of 1977, employment increased in the USA by 53%, that is, by almost 32 million; however, only 2.6 million of these - i.e. 8% - were involved in the production of material goods; while the other 29 million swelled the ranks of the tertiary sector.

This development - which, is also occurring in Europe and in Japan - has been made possible by the increased automation of production equipment and by the use of information on the market for the guidance of production.

The decisions of public authorities, of undertakings or social organizations are today based on the analysis of a quantity of information that would have been unthinkable several decades ago.

Society requires increasingly expanded public services with regard to their type and extent. Whether these services concern health, education, safety or urban problems, they all involve the exchange and the immediate and complex processing of a variety of information.

1.2. Technology's contribution to meeting requirements

There are potential responses to all the needs and responses already in preparation; the relevant instruments and systems are emerging in the course of the sudden burst of growth in the information processing and transmission technologies. However, the innovations specific to data-processing and to telecommunications, having taken separate paths, will now have to be increasingly closely integrated to cope with technological progress.

The common denominator of this progress is now the assembly of electronic components assembled in a single micro-miniaturized circuit ("chip"), a real miniature computer integrated on a single board and manufactured by means of automated processes so that its marginal costs are showing a rapid downward trend.

This growing convergence of information transmission and processing facilities is culminating in a single technological complex based on integrated circuits, computers, their environment, and new transmission techniques. It is the whole of this complex that will meet the need to master the growing volume of information circulating within society.

Several characteristic applications of this combination of technologies (baptised "télématique" in France, from which the English term "telematics" is derived) are already at an advanced stage of development, including the electronic transfer of funds, electronic mail and "bureautique" (office automation); some of them first saw the light in Europe, such as Viewdata, which will transform the telephone and the family television set into terminals of an information-handling network for consulting data bases intended for the general public.

1.1.3. The impact on society

a) In an economic context, the developments outlined below will have far reaching effects :

- (i) They concern a sector which is limited but has a rapid annual growth : about 15% on average.
- (ii) Its market is world-wide and the requirements in this field are manifold and fundamental : collection and processing of information, communications, data transmission, modernization of industry and services, education, research, health.
- (iii) The competitive capacity of most of our industries and services will give rise to improvements in productivity made possible by these new technologies : the widespread use of integrated circuits means that any routine industrial, commercial or administrative process can henceforth be automated at a cost that, in most cases, is well below the cost of current manual or semi-automatic operations.

b) In a social and cultural context, telematics will raise problems to which solutions must be prepared at once :

(i) The defence of the citizen's rights with regard to the computer.

(ii) Employment will experience both adverse and beneficial effects of this new technology.

The productivity of industry and services will greatly increase and the number of jobs in several sectors will fall, particularly unqualified jobs, but it could also be the basis for a vast range of new activity which will create new jobs in industry and services.

The extent of this evolution and the difficulty of synchronizing the effects of its development require immediately both social preparation and other measures, including the reorganization of working hours.

(iii) Cultural changes: in particular, the average level of technical training and individual initiative in the population will have to be substantially improved, and this will call for efforts in the way of education at all ages and of lifelong training on a scale far beyond what is being done today.

c) In a political and strategic context, the private and public decision-making processes will be profoundly affected by telematics : access to a consistent set of data (economic, social, demographic, scientific and technical) and to computer models for decisions will be capable, according to how they are used, of increasing centralization or of providing important social openings.

1.2. The information technology market : Europe and its competitors.

1.2.1 The world dimension of the market

The world market is characterized by very high growth rates, and the European market accounts for a considerable proportion of it in each of the sectors involved :

- the world market in telecommunications equipment was assessed as being worth 26,6 thousand million EUA in 1977, about 20% of which fell to Europe, and forecasts of the annual growth rate point to about 7% up to 1987;

- the Data-processing (computers, peripherals and services) system market increased from 24 000 million EUA in 1973 to 53 300 million EUA in 1978, with an annual growth rate of about 20 %. Of this, the European market accounts for about 29%.
- the world market in integrated circuits has grown from 2 600 million EUA in 1976 to 5 200 million EUA today, and it is anticipated that it will rise to 11 000 million EUA in 1975. The annual growth rate is close to 25 % and the European market accounts for about 25% of the total.
- the world wide turnover achieved by automated data services open to the public is of the order of 2 000 million EUA per annum and is increasing annually by 22-23 %. However, the market value of the data used by companies and public authorities for their internal requirements must be somewhere between 40 and 50 000 million EUA. In both instances Europe's share is too low, amounting to about 25 % of declared requirements but only 15 % in terms of services supplied.

1.2.2 The United States :

The industry in the United States is the principal world supplier; it has a vast home market which it supplies almost entirely on its own. The main factor in this growth has undoubtedly been the massive orders placed by the Federal Government for more than a quarter of a century. The number of computer installations in Federal Agencies alone represents more than one-third of the total in the whole of the United States.

In addition, the NASA space programme was a springboard for research and development on the components and programmable micro-miniaturized processors. The great reduction in programmed logic prices is a direct spin-off and a major cause of the current technological revolution and the headway gained by the universal micro-processor and semiconductor manufacturers in the United States.

In the telecommunications sector, the American users enjoy a range of cheap rates for long-distance calls combined with the advantages of competition between suppliers for the leasing of dedicated lines.

The size and uniformity of the continental economy and the traditional drive of the American undertakings, combined with a confirmed position on the world market in the case of IBM, open-mindedness towards innovation and the possibility of developing new undertakings around new products or processes have contributed decisively to the capacity of the industry to make full use of the opportunities presented by support from the public sector.

In addition, to keep this overall lead, the Defense Department has decided on a six-year programme for the development and production of very high-speed integrated circuits (VHSI) with a commitment of US\$ 200 million, a large proportion (almost half) of which is earmarked for industrial equipment.

1.2.3. Japan :

Although the Japanese computer industry is not comparable in scope to that of the American industry, it is starting to make up the ground in a spectacular way. This is a consequence of the Plan for the Information Society established in 1967 and adopted by the Japanese Government. Initially it was a protectionist reaction, associated with support and promotion measures as part of a consistent plan.

More recently, the Japanese Government launched a plan for the production of very large scale integrated circuits (VLSI), which included a subsidy of 30 000 million Yen (115 million EUA) for the period 1976 - 1979.

In accordance with a strategy similar to that which they employed to create specific slots for themselves in the steel, motor vehicle, consumer electronics, etc.. industries, the industry and the Japanese government are methodically preparing to gain an increasing foothold on the world market by ensuring both that the products offered are of a high technical standard and that the volume of sale will allow very competitive prices. It can consequently be expected that, within five years, Japan will have become a formidable competitor on the international markets and that it will have acquired complete technological independence in the manufacture of advanced components.

1.2.4 The Community

The European industry (on the basis of the world turnover of firms in which European interests have a majority stake) covers a varying fraction of its market :

- In the large computer industry, it virtually satisfies its own needs, but the leading firm of European origin is in eighth place, and is hardly more than one-twentieth the size of IBM. The European position in very large computers is retreating.
- In peri-informatics (peripherals, terminals and mini-computers), even though the situation is better, the trend is towards a rapid retreat in the face of the American mini-computer industry: the share of the world market of manufacturers of European origin decreased from one-third in 1973 to one-quarter in 1978.
- Where software 1) is concerned and in data processing, Europe is, however, making rapid advances, doubtless because the multiplicity and the diversity of the data-processing equipment and markets have forced the European data-processing experts to give full rein to their ingenuity and imagination.

1) Software : all the programmes and processes introduced into a computer which enable it to carry out a logical sequence of abstract operations on data supplied to it.

- In telecommunication, Europe's position has up to now been a relatively strong one. The European telecommunications industry supplies 30 % of the world market, two thirds of this proportion being accounted for by wholly European companies.
- In the basic electronics trade, Europe's position is satisfactory but its retention will depend on its mastery of the basic technologies, in particular integrated circuits.
- However, the situation giving rise to the greatest concern involves the European components industry, which in the case of integrated circuits is supplying barely 10% of its market, even though it is a key sector which is being fully revolutionized.
- Finally, as regards the information industry, while more than 600 data bases of all types can be consulted in the United States through simple access systems set up by industry, Europe has at present very few of these services, many of which are in any case of American origin; apart from the IRS data base managed by the European Space Agency, only the DIANE-EURONET, developed jointly by the Commission and the national Post Offices, and now being put into service for scientific and technical documentation is on a Community-wide scale.

1.3. Europe's lag

1.3.1. Current approaches and their inadequacies

In spite of success in certain areas (software, services, terminals, office automation - "bureaucratique", etc..) control over the "telematics system" as a whole is slipping away from Europe to an ever-increasing extent. It will be some time before the ground lost in the large computer field, where 76 % of the market is held by American firms, is made up.

Neither can it be guaranteed that, despite the efforts of the public authorities, the Community will succeed in acquiring a sufficiently solid basis in areas which are being developed rapidly, such as peripherals, mini-computers, integrated circuits and data bases.

Lack of success in these areas could, moreover, jeopardize the integration of the system in telecommunications equipment where Europe is still ahead.

The Commission considers that in this field the only possible objective must be that of building up an industrial complex capable of securing a share at least as large as that now held by the capital goods industry in the market likely to constitute in the long term by the developing countries while offsetting relative drop that can be expected in the export of other goods and services; this implies winning back a substantial share not only of the internal market but also of the world market - a share that may be estimated at a third.

Present strategies, sometimes alternative, sometimes cumulative, according to the country concerned, appear clearly inadequate, even where some tangible and important success has been recorded in respect of each of them.

- One possible strategy consists in imitating the Americans and the Japanese. This strategy offers some short-term advantages, namely, the acquisition of information, profitability, etc. In the long term it will not permit Europe, as a mere imitator, to take its proper share in this field.

- Some purely national strategies have been valuable but insufficient to raise our undertakings to the level of the world markets. The European states' resources and markets are no longer commensurate with this technological revolution.

The national approaches adopted so far have been specific and uncoordinated and have pursued different and partial aims; the national markets which are limited in size, have meant the support of undertakings which are too small to compete with American and Japanese companies, a progressive lag in the technological developments which determine the future, and domination of the market by American and Japanese firms.

1.3.2. Depressing prospects

If the present situation is maintained and supposing the Member States' budgetary resources enable the efforts made hitherto to be merely continued, it is beyond doubt that the overall aim described above will not be attained.

A dangerous situation then - the opposite of what the Member States and their industries are trying to create - is likely to come about. Domination of the telematics industry by the United States and Japan would, in the more or less short term, result in:

- the final loss of European control over an essential field;
- damage to the competitive position of the Community both in Europe and in the rest of the world;
- the loss of the potential new jobs, which should compensate for loss of jobs caused by the new technologies;
- a reduction in our independence in decision-making in all walks of public and private life.

2. A STRATEGY AT COMMUNITY LEVEL

2.1 Is a Community framework possible or necessary ?

The statements by the President of the Commission at the Strasbourg European Council about the Commission's intentions in this field was favourably received. Thus the governments of the Member States are, aware of the problems raised and they are prepared to examine possible solutions in a Community framework.

The Community offers an opportunity to maximize the results of the effort involved by widening the field to a continental scale.

Consequently, a Community approach might well be considered whenever such a course was considered possible from both the technical and the political point of view. However, an "à la carte" formula of this kind would mean the loss of valuable time. In an area where the decision-making processes come under considerable and continuous pressure from techniques and needs which are evolving at an explosive rate, any time lost represents a factor of failure. Such a formula, moreover, would be ineffectual since, in a field of such technological, commercial, economic, social, statutory and financial complexity, the choice of the wider dimension which the Community represents cannot, on pain of inefficiency, be divorced from an overall strategy.

2.2 Implementation of a Community strategy

A Community strategy will not necessarily result in the adoption of a common policy, managed on centralized lines and automatically backed up by the financial instruments. What it will involve, however, is the dynamic and operational integration of measures coming within the province of the various parties, by the companies, national governments or Community institutions.

2.2.1 Companies

The role of the companies, which is fundamental, does not warrant a lengthy description. What matters for the companies is to operate profitably in the market and to promote their own development under whatever conditions the public authorities may lay down. It is essential that these conditions be as favourable as possible.

2.2.2 National measures

In the past France, the United Kingdom and the Federal Republic of Germany have given impressive support to their computer industries and they are now in the process of launching ambitious programmes to cope, on a national scale, with the situation described above. The French plan for the computerization of society involves 392 million EUA over five years and has been supplemented by the decision to launch two national satellite systems (communications and television). A German outline programme on telematic systems and services is backed by a budget of 196 million EUA over four years; this will be coupled with a components programme and a new programme on the information technologies and their social impact and supplemented by the decision to launch a system of direct television transmission by satellite. In the United Kingdom, there is provision for support measures for the micro-electronic components sector. Italy has just completed its deliberations on the "finalized programme for electronics" in the framework of the law on industrial reconversion and restructuring.

From these considerable efforts at national level significant results in a large number of telematic applications are to be expected.

The national authorities, moreover, play an essential trade-promotion role through the placing of public orders. In 1978 total Community orders of this kind, for data-processing equipment alone, were worth as much as the purchases made by the US Administration.

However, European information-technology products do not have the advantage of a vast unified market like the United States, or a precise strategy like Japan. Only rarely are industries in this sector in a position to face competition from US and Japanese products not only in the export markets but also on their home ground.

Consequently, it is likely that, in a sector where, once the launching costs have been covered, development opportunities are largely conditioned by economies of scale, the achievement of the desired results will be rendered difficult and, at all events, highly expensive by virtue of the national dimension of the promotional and marketing effort.

2.2.3 The Community's role :

a) Exploitation of the continental market

National measures will, therefore, only be completely effective insofar as they form part of a broader strategy devised at Community level; they will be supplemented where necessary by Community action in the most cases, already provided for by the Treaty.

The Community's greatest potential asset is the opportunity it provides for the exploitation of a vast market of the same magnitude as the American market, but fragmented by technical and statutory barriers, the different standards governing different countries and producers national preferences and differences of approach.

Reducing these obstacles is the primary task of the harmonizing activity assigned by the Treaty to the Community. The political conditions for the success of this activity imply the definition of a certain number of functional principles :

- Community preference : failure to use this procedure wherever possible, in any of its various potential manifestations resulting from the Community's international commitments, means that the benefits to be derived from the creation of the market will be enjoyed by undertakings outside the Community;
- a competition policy which, as regards state aid and the rules of competition applicable to companies, particularly in the form of specialization agreements, will take account of the objective pursued;
- using the Community's financial instruments (Social Fund, European Regional Development Fund, New Community Loan Instrument, European Investment Bank) while respecting their objectives and rules, supplemented if necessary by specific measures chargeable to the Community Budget;
- an cooperative policy of public sector procurements designed to offer undertakings in the Community equitable opportunities to compete in quantitatively and qualitatively significant markets;
- lastly, possible ways of establishing transnational projects could be examined, although this would not necessarily affect all undertakings or all Member States.

2.2.3. b) Acceptance of change

The general introduction of information technology will profoundly alter the conditions in which citizens must live and work. Society will only accept the consequences of this change, if it is given the means of assessing its significance and influencing the plans of the authorities and undertakings in favour of mankind.

Several Member States have introduced information, training and awareness programmes, designed to create a climate of confidence and active support for change. The Community could take up these policies as well.

PART TWO : THE COMMUNITY'S RESPONSE IN DETAIL

3. PROPOSALS FOR SPECIFIC MEASURES

3.1 A social policy to prepare the society for innovation

In a period of expansion marked by reduced employment and growth, the potentially damaging effects on employment can only be attenuated in so far as the methods and rate of introducing innovation are clearly determined and agreed in advance.

Energetic action is therefore needed in order to introduce the new technologies into the industrial and social fabric at the rate at which the world markets are developing; equal weight must, however, be given to informing the public about such developments, preventing abuses and developing a policy which takes account of human needs.

Several Member States have already initiated publicity campaigns that are beginning to produce the desired effects; the general climate of confidence created by the mobilisation of the forces of the Community to meet the challenge of telematics is what will constitute the best way of preparing public opinion for its acceptance.

The measures delineated below are aimed at helping towards the generation of a Community-wide social policy which is both viable and humane in respect of these technological changes.

3.1.1 Forecasting and employment : the need to foresee difficulties

The effect on employment and working conditions of information technologies is one of the major anxieties of the trades unions and professional associations. Efforts to tackle the problem in the Member States must be strengthened, forecasts for future trends must be

made and the dialogue between both sides of industry must be extended to Community level.

In order to promote this dialogue, the Commission will take responsibility for :

- 1) consulting the two sides of industry in order to try to establish general principles which would facilitate the conclusion of outline agreements of collective wage agreements on the introduction of information technologies (staff involvement, working conditions and health and safety at work, retraining and further training), in line with what has been achieved at Community level with regard to vocational training.

In procedural terms, such consultations could in particular take place within the Standing Committee on Employment, which brings together representatives of the employers, trade unions and governments, and has entered on the agenda for its next meeting (in January 1980) the problem of the effect of microprocessors on employment.

- 2) setting up a Community pool in order to centralize studies, research work and information on the impact of new technologies on employment (ergonomics, qualitative effects). The Commission will be aided by the Advisory Committee on Programme Management responsible for data processing in organizing the gathering of information, under the medium- and long-term study of the sector (including regional aspects) scheduled in the multiannual data processing programme.
- 3) conducting a periodic assessment of the impact of telematic systems and services on society. In order to estimate the impact of the measures mentioned above or other similar measures on society, the Commission will every five years, in cooperation with the Member States, analyse the trend in the behaviour of the population of the Community in relation to telematic systems

and services.

In order to do so, the Commission intends to use - as have the Japanese with great success - the Delphi method which involves consulting a representative sample of individuals as regards the medium- and long-term trends in technologies and their significance in the political, economic and social contexts, followed by a synthesis of the answers and a second consultation in order to ensure that the final results are valid.

The Commission is also having talks with UNICE (Union of the Industries of the European Community) and the Economic and Social Committee in order to ensure that their main grounds for concern in these sectors are voiced.

3.1.2. Training, the key to society's adaptability

Unless an intensive effort is made to adapt the whole of society to the new tools, the desired development of the Community market will be impossible both at the level of industrial production and for consumers.

Measures of common interest are therefore implied :

- 1) There should be a systematic study of the medium- and long-term needs, broken down by region and by qualification based on studies already completed or in progress in the Member States and within professional associations such as ECSA (European Computing Services Association). The terms of reference of the Subcommittee on Training in Data Processing set up under CREST (Scientific and Technical Research Committee) should be clarified and confirmed as the collection centre for national studies. An initial report will be prepared by the Commission in 1981.
- 2) The Commission should prepare in 1980, for submission to a Council of Education Ministers, a programme of action for adoption in 1981 aimed in particular at stepping up exchanges of experience

on:

- the use and dissemination of new technologies in all disciplines and at all levels of the education system;
- methods of teaching and familiarizing pupils with these technologies in schools
- application to teaching of the handicapped;
- teacher training methods;
- the different budgetary instruments adopted.

The Consultative Committee for Vocational Training will be consulted on the various aspects of training.

- 3) The use of the Social Fund in the data processing sector in order to promote training and retraining in electronics and data processing technologies for the benefit of young people and workers whose qualifications need to be adapted to technical change or who are leaving a sector in difficulty.
- 4) Select specialized seminars should be held for heads of undertakings and trade union representatives in the different regions of the Community. These seminars should discuss case studies that bring to light : the assets of new technologies, the repercussions on employment, the training needs and the different stages to be completed, the appropriate management structures and tasks.

These seminars could at a later stage lead to opportunities for organizing and financing pilot experiments on a limited scale in small- and medium-sized undertakings.

- 5) It is recommended that the Community reimburse the travelling expenses of industrialists or trade unionists who visit another Member State in order to find out about an innovation project.

3.1.3. Protection of freedoms

With the circulation of information at all levels of economic, social and cultural life throughout the Community, it is essential that individuals be protected against possible abuses. The following measures are proposed in order to achieve such protection :

- 1) The harmonization of legislation which was carried out under the Council of Europe's draft Convention on the protection of individuals with regard to automatic processing of personal data should be continued through concerted action by the Member States on the flow of data across national borders. Since a decision on the draft Convention within the political bodies of the Council of Europe is imminent, it will have to be made certain that all the Member States are prepared to accede to the Convention in the near future. If this is not the case, the alternative of a Community directive will have to be considered.
- 2) The action described above will be supported by the development, under the multiannual data processing programme, of studies already in progress, aimed at identifying additional measures which could be taken regarding standardization, technical studies for increasing the security of systems and the need for further legislation.
- 3) It will be necessary at the same time to define the practical consequences of any new Community project in this field, with particular reference to security and secrecy of data transfer.

4) The Community's responsibilities in this area are at present based on its legal obligation to remove technical barriers to trade. It is, however, evident that beyond this objective, the need is to protect the Community citizen's fundamental rights, and that an effective harmonization of the laws of the Member States would help to defend these rights.

Nevertheless, in the long term it may be necessary to examine whether the present legal bases completely satisfy the needs or whether a wide political debate would be justified.

3.1.4. Summary of proposals :

A climate of confidence should be created by providing ample information on the implications of new technologies and on the overall, coordinated, action of the Member States at Community level.

Difficulties in employment should be anticipated by pooling forward studies and intensifying the dialogue between both sides of industry.

Training schemes designed to help society at large to adapt itself should be coordinated and supported.

Individual freedoms should be safeguarded, in particular as regards exchanging data between Member States and with non-member Countries.

3.2. The creation of a Community market through standardization

Europe's biggest unexploited asset is its continental market and in particular the market made up by public procurements.

Europe can only become a genuine "information society" if the users of the new telematic services can communicate with each other and obtain these services throughout the Community under favourable financial conditions, and if firms can be certain that they will have a sufficiently large market for them to measure up to international competition.

In the United States the standards likely to create a common telematics Systems and Services market and infrastructure are laid down by the large firms (IBM and ITT) and the Federal Government.

In Europe, no public authority fulfils this function on a similar scale, since the authorities are national and the international organizations for standardization or collaboration in the telecommunications industry only issue recommendations which are not supported by strategic decisions of joint industrial policy.

The Community must fill this gap by using its powers of standardization in order to harmonize the public markets in the fields of telecommunications and data processing.

3.2.1 Telecommunications

In this field a unique opportunity to set up a harmonized basic infrastructure for the new information era will be provided in the years ahead when all the postal and telecommunications administrations develop integrated digital transmission and switching networks, thereby offering a whole gamut of new services. The administrations are already striving to lay down joint specifications for these networks and services, with the assistance of the Commission, at European level under the auspices of the European Conference of Postal and Telecommunications Administrations (CEPT)¹⁾

1) EEC and 17 Western European countries

and international level in the context of the International Telegraph and Telephone Consultative Committee (CCITT).

It is the Community's duty to support this work by taking a political decision and drawing up a timetable for it. It is therefore proposed that in 1980 a Council decision should be taken, to the effect that the Member States' telecommunications administrations undertake :

- henceforth to consult each other before introducing any new service;
- to implement the recommendations that will emerge from joint studies conducted within telecommunications organizations existing at European level (CEPT) and international level (CCITT) regarding the introduction of these new services into integrated digital transmission and switching networks;
- from 1983 onwards, should these recommendations not have been finalized by the CEPT and CCITT, to introduce the new services only to the extent that they have formulated a joint approach for offering them, so that compatibility is effectively ensured throughout the Community;
- from 1985 onwards, to buy only digital transmission and switching systems that are designed for progressive integration of the services, in so far as they are based on harmonized implementation at Community level either at their instigation or in accordance with the recommendations of the European organization (CEPT) or international organization (CCITT) for such systems.

In 1980, other Council decisions, in line with the aims of the Treaty and the Council Declaration of December 1976 on public procurement of telecommunications equipment should back up the process :

- from 1981 onwards, the user should be able freely to obtain terminal equipment either from the industry or from the postal and telecommunications administrations;
- from 1981 and for a provisional period of three years, the Member States' administrations will examine and introduce procedures and methods, for the progressive expansion of their sources of supply at Community level.

3.2.2. Data processing

With a view to creating a Community market for telematic systems and services, harmonization and standardization are essential for data processing just as they are for the telecommunications network

A consensus already exists among the Member States in this sector reflected in the standardization measures included in the Community's multiannual (1979-1983) data processing programme, in particular the promotion of standards in the context of international organizations (ISO) and the implementation of standards and procedures at Community level.

Nevertheless, the creation of a homogeneous market depends on an additional, fundamental condition : the imposition of common standards and requirements on procurements by public authorities. It is therefore proposed that by means of a Council Decision to be taken in 1980, the Member States will oblige their administrations to adopt common standards for all their equipment, to offer Community users the same approved data exchange facilities, and to see that these facilities are incorporated in all equipment they buy after 1983. In order to prepare the ground for implementing this requirement, they should jointly draw up and mutually accept a set of procedures for establishing hardware and software acceptance tests in respect of each standard. These tests should ensure that each product conforms to each of the applicable standards.

3.2.3. Summary of proposals

The Community will bring its standardizing powers into play on the basis of a political decision:

- through Council decisions which aim at creating a uniform public procurement market for telematics equipment and services;
- by ensuring that the requirements for Community standardization are applied in each of the areas mentioned in this paper;

3.3. Developing the industry and the market for information

A European telematics policy must be based on the Development of data bases of all kinds and on the promotion of a European information industry.

The second Three-Year Action Plan (1978-1980) for information and for scientific and technical documentation (Council Decision dated 8/10/1978) places the accent on the creation of the EURONET-DIANE network and on the development of a market for information. It follows that the third Action Plan, currently being prepared for the years 1981 to 1984 (Draft Council Decision to be put forward before the end of 1980), should look to creating the conditions necessary for nurturing and strengthening a real European information industry.

It would not be unreasonable for the Community information industry to set for itself the same target laid down as a general aim for the European telematics industry, which is to achieve 30% of the world market, although this would imply increasing annual output by a factor of 5.

The quantitative lag of Europe vis-à-vis the USA is re-enforced by a qualitative aspect which Europe will never be able to reduce nor make up unless it puts a massive effort into creating systems with a high value-added content. The unsatisfied potential comprises information about markets, about products and about producers. In the field of planning and economic strategy, decision-makers need information from economic models and from statistical series. Furthermore information, whether professional or otherwise, is also needed by individuals (doctors, chemists, accountants, lawyers...). In order to ensure that the industry is developed in parallel with the market for information, the specific role of the Community, based on Council Decision of 4/11/1978, will follow five principal directions :

3.3.1. The creation of a favourable climate

It is important to eliminate the various obstacles hindering the development of the market and to take appropriate measures to stimulate the creation and use of information services.

Having organized a symposium on the information industry at which useful recommendations were put forward, the Commission is prepared to undertake studies on the market for information, on the policies in the Member States and also in other industrialized countries, with regard to information, and lastly on the effect of different taxation systems. Following these studies, recommendations will be made to improve access to information in governmental and semi-governmental organizations, to co-ordinate national plans and lastly to improve and harmonize the legal and tax regimes together with the position on copyright.

3.3.2. Aid to private investors

The second Action Plan recommends the "promotion of co-operation amongst information services within the Community with a view,

particularly, towards rationalization, improvement in quality and reducing overall costs within the framework of free competition" (Council Decision of 9/10/1978, annex 1).

In the light of the above, the Commission should aim to facilitate contacts between investors. It has already begun by encouraging, with due regard to the rules of competition, the creation of the Association of the European Suppliers of Information Services whose inaugural meeting will take place in Luxemburg on 26/11/1979.

A further field of activity will be to try to lessen risks run by companies in this sector. To respond to the wishes of industry this particular aid could be allocated to market studies, reports on the legal situation, the solution of problems related to the use of several languages and lastly the promotion of standardized software.

3.3.3. Acceleration of the transfer of information to small and medium-sized companies

The second Action Plan highlighted the need to "assist small and medium-sized companies in having access to information".

In 1977 the Commission organized a symposium on the Transfer of Information to Industry. A second symposium will be organized in 1980 with the aim of studying the needs of small and medium-sized enterprises.

Once particular needs have been identified, it will be appropriate to encourage the creation of information distribution systems as well as software adapted to the specific needs of this type of user and to undertake education and training as rapidly and as cheaply as possible of specialists in the use of up-to-date technologies, for example Videotex (Council Resolution of 24/6/1971).

3.3.4 Support for particular projects

As part of the first Action Plan, the development of information systems is essentially based on the principle of co-operation between the specialized public services in the Member States.

By now adopting a rather more market-oriented attitude, the Commission will shortly be calling for proposals, particularly in the areas of agriculture, food technology, biomedicine, the environment, and no doubt energy, although it will not be the intention to exclude other sectors. This action will be taken with the agreement of the CISTD 1)(decision expected at the end of 1979) and will use money available in the second Action Plan up to level of 1 to 2 million units of account per year. Its main aim is to improve those services which exist on a Community scale and to create new services.

The Community will use its existing financial instruments to launch support programmes essentially designed to encourage information systems of a high value-added content, notably in the fields of the economy, industry and business.

3.3.5. Opening up the world market to European information services

In order to enable the European information service market to reach a sufficient size, it will be necessary to obtain access to the markets of other developed countries for European information industry products (for example access to North American countries for EURONET-DIANE), which correspond to their real needs, and to offer technical, legal, commercial and financial assistance from the Community for projects in associated countries (LOME, MAGHREB, MASHREK and ISRAEL) whilst at the same time extending the necessary infrastructure, beginning with the extension of EURONET.

1) Committee for Information and Scientific and Technical Documentation.

3.3.6. Summary of the above proposals

It is important to support the creation of a European information industry

- by helping the private sector to invest in the creation of data bases and associated services;
- in making sure that small and medium-sized enterprises have access to the information required;
- by promoting accessible public data bases, through the co-ordination and rationalization of policies in the Member States and by joint Community actions where appropriate;
- by encouraging the European information industry to export its products to the world at large.

3.4. Development of industrial and technological capacities

In order to keep in close contact with manufacturers concerned with the telematics market, the Commission intends to organize a round-table conference which will act as an industrial consultative body responsible for testing the effectiveness of the measures envisaged.

3.4.1. Applications and software

As far as telematics applications are concerned, steps must be taken to structure the market by grouping the needs of the users on a European level and to promote and encourage an effective response by the manufacturers to the needs thus identified.

The role of the Community in the promotion of applications of European concern is already recognized and constitutes one of the objectives of the four-year data-processing programme which the Commission intends to implement once the qualified experts required are made available. Community support measures may be extended in the light of experience gained in the first two years. As each Community project is launched, the Commission will ensure that matters relating to data protection and social concerns are taken into account (see 3.1).

In addition, certain applications require harmonization at Community level (chap. 3.2.); three examples of which are:

- the exchange of data in the field of international trade requires the harmonization of terminologies and the creation of data communication standards.
- In order to permit expansion on a Community scale, the transfer of funds electronically between banks and savings banks requires an urgent and harmonized solution to the problem of a standardized system of personal identification as well as technical solutions to the problem of data protection;
- In certain important fields of application for telematics technology, such as air traffic control, an effective response to user requirements and the creation of a uniform industrial market require closer coordination of Community-level policies. The growth of air traffic is increasing the pressures on the present system, which is based on national organization and Eurocontrol¹⁾.

Standard and procedures must also be harmonized in this field and there must also be a greater degree of joint planning. The Member States and the Commission must prepare for such action for the renewal of the operating brief for Eurocontrol in 1983.

1) Eurocontrol: European Organization for Air Traffic Safety

3.4.2. Peripherals : a framework for bilateral or trilateral collaboration

The Community multiannual programme also involves studies designed to evolve projects in the peripherals sector whose development has not been decided. Nevertheless a number of European industries are expressing the need to develop and produce peripherals (for the mass market or of a high quality). The Community must therefore create an appropriate framework for promoting ad hoc collaboration on a bilateral or trilateral basis where this is compatible with the rules of competition for companies, which will result in the conclusion of specialized agreements or the establishment of joint subsidiaries. In the main, it will do this by carrying out a systematic analysis of tangible opportunities for cooperation and through the possible allocation of financial support in certain cases, either in the form of coordinated national aid or by recourse to Community financial instruments.

3.4.3. Microelectronics technology : an area for key strategic measures

In the case of basic technologies - and in particular microelectronics which will be used by the entire industry - another form of action is required.

In this sector, which affects all others in so far as it will be required to supply advanced microelectronics circuits serving as the technological common denominator of all future telematic systems and services, the need for Community action has already been recognized in a Council Resolution of 11 September (see Annex). The Commission is currently preparing proposals for projects which will involve joint financing, to be transmitted to the Council at the beginning of 1980. In accordance with the terms of the Resolution, these proposals will cover two areas of the future which are the key to real competitiveness :

- highly specialized industrial equipment used in integrated-circuit manufacturing processes;
- development of new computer-aided techniques for circuit design and testing.

It must be realized that the point at issue is a basic political option, different in character from other ambient conditions necessary for the promotion of telematic systems and services on a Community scale. The very question of whether Europe should equip itself with the basic technology, or continue to acquire it, is involved.

The role of industry is to create, by drawing on its own resources or on national resources, the new advanced technology products destined for the world market. However, the approach to and mastery of the key technologies frequently requires a level of resources beyond the ordinary means of the companies. The Community's role is to ensure that the European industry as a whole has access to these technologies in good time when the programmes of our principal world competitors are receiving massive public aid.

The main aim of the current major national programmes is to disseminate existing microelectronics technology. The role of the Community is therefore to underpin the long-term developments without which the European industry will find itself, in the middle of the next decade, on the brink of a new and even more serious technological abyss and condemned to continued decline.

Community action in the field of development will be supplemented by measures in the field of training and dissemination of knowledge with the particular aim of promoting, in coordination with national measures, "innovation workshops" centred round component manufacturers. When the initial projects, currently being prepared, are implemented, the Commission will re-examine other basic technologies

such as opto-electronics.

Lastly, the Commission, in conjunction with the main public users (PTT administrations, European Space Agency) and industry, will look into the desirability of creating a forum at Community level so as to enable needs and achievements to be compared and to plan technological development and basic research on a sufficiently large scale as to ensure success.

3.4.4 Summary of proposals

Rapid Community action is needed in the following areas :

- applications and software : identification of requirements, forecasting of the repercussions for the Community and encouragement of the industry to respond;
- peripherals : promotion of specialized agreements and ad hoc collaboration;
- microelectronic technology : ensuring that Community industry is in a position to master the most advanced technology in the course of the next decade on the basis of common measures involving equipment and key techniques.

3.5 Information technology and space activities : the need to coordinate

With the advent of the telematic area, certain equipment of a general nature will assume an overriding importance both in terms of the vehicle (e.g. communications satellites) or the dedicated user (e.g. remote-sensing applications).

Full weight should be given to European efforts in these fields by incorporating them into a broader policy framework.

3.5.1 Communications satellites in Europe

These will be able to provide three types of service:

- "Conventional" communications satellite relay for telephone or television: the European space programmes have already been decided (e.g. the ECS programme) and a Community action is therefore no longer justified.
- New European business services (to be launched in 1982-83) : two-way services between users (voice and integrated data). The main effort must be devoted to setting up a European market for ground terminals, to be based on the standardization of satellite/terminal interfaces. The Council decision on telecommunication equipment and services (§ 3.2.1 above) should cover interfaces with the space sector.

Furthermore a scale of charges has to be agreed based on actual costs within Europe, irrespective of distances and frontiers.

In addition, in collaboration with the Post Offices, the Community should examine the problems of the necessary management structures.

Lastly, it is important for the Community to act as a forum, where needs can be analysed and made coherent and resources properly mobilized to meet them.

- Direct Television Broadcasting (1983) : television transmissions "beamed" over all or part of Europe and picked up by small individual domestic aeriels. This service allows coverage of a given area and greatly reduces the cost of introducing additional TV channels.

The main effort must be directed towards taking advantage of the size of the continental market through standardisation of satellite transmission specifications. Furthermore, it would be useful if the Community could work out an agreed approach towards questions such as territorial overlapping, rules covering commercial TV, etc.. with a view to the harmonization or convergence of national legislations.

In order to avoid growing congestion of the geostationary orbit to the advantage of the industrialized countries - which is being opposed with increasing bitterness by the developing countries - Europe will be compelled to restrict the number of satellites which it operates for "internal use" and to increase their useful load accordingly. As a result of this political pressure by the developing countries, individual national satellites of limited coverage are likely to be restricted in the long term in favour of heavy platforms serving several countries simultaneously. For this reason a study needs to be carried out to determine what kind of management structure could be created and, here, the Community has a promotional role to play plus the task of ensuring consistency among the Member States who will be sharing these platforms.

It is natural that this approach should be coupled with a joint and coherent analysis of requirements and to this end the Community can provide a framework for the submission and study of ideas.

3.5.2. Remote sensing

Other needs currently coming to light urgently require to be studied in the space/telematics context.

Several policies managed or monitored at Community level (agricultural policy, fisheries, environmental policy, regional policy, etc...) would be strengthened by advance objective information

on the state of earth resources. Remote sensing can already provide this type of information, the political and economic importance of which is fundamental and whose impact on integration is substantial.

In this area the Community is already developing pilot projects for research and coordination with national programmes. Accordingly, the Community has a specific role to play both by optimizing the R&D effort (setting-up of a forum for end-users, in most cases public administrations, on a sector-by-sector basis) and by helping to create a market by making the Community Institutions particular needs known.

Using this data, and in order to overcome obstacles and to create the necessary spin-off effect, the Community could decide to launch pilot projects aimed at improving the operation of certain of its policies (forestry and/or agricultural inventory, natural resources, etc..).

3.5.3 Access of the European Space Industry to the world market

Experience acquired both in Europe and the USA clearly indicates that a precondition of the expansion of the international space market is the credibility of the producing industry, guaranteed by the governments. This credibility is only attainable if Europe can present a common front both to its potential customers and to its competitors.

As far as Black Africa is concerned, competition among the industrialized areas for the supply of communications satellites has begun. As early as 1983 Europe will have the opportunity to embark on promotional measures in this field by including a "Black African telecommunications payload" on the first flight of the L-SAT satellite. The Community, in particular by means of its privileged links under the Lomé Convention, should support this initiative by providing the financing (EDF regional funds for the items of direct interest to the ACP countries and, at the request of the latter, indirect support to the industry producing the ground terminals and

the sources of power), by determining the structure capable of managing the operation of the system and by helping to promote the project among the African administrations concerned.

This action should be well received by the Maghreb and Mashrek countries, Israel, and possibly in the context of the Euro-Arab dialogue. It is worth remembering that Europe lost the ARABSAT contract to COMSAT (USA) mainly as a result of a lack of credibility at European level.

3.5.4 Europe's technical resources

The activities of the European Space Agency (ESA) are mainly concerned with the technical development of satellites and their control systems and do not deal with the environmental problems inherent in the space development. The task of settling these problems is left by ESA to its Member States on ad hoc basis.

In the Commission's opinion Community action would be the best way of improving this situation, not to substitute ESA action, but to create among the Member States which are parties to the ESA convention the necessary political and legal consensus.

3.5.5 Summary of proposals

In particular the following subjects are specific Community responsibilities :

- the Community alone possesses the means of imposing legally binding obligations, particularly in relation to standards. The timetable of work in this area is dictated by the entry into services of the new satellite systems (1982-83);
- the global nature of the services provided by satellites calls for a European approach to management structures (relationships between

services and markets);

- the Community represents the major part of the European market and provides a "gateway" to other countries. It is the Community's responsibility to carry out a coherent analysis of requirements and, if necessary in developing countries, to provide the necessary technical assistance.

3.6 The Community : an exemplary centre for an information system

3.6.1. The Commission's role

The Community, its institutions and the national governments with which it works constitute a vast information system per se, exemplified by its polymorphous and multilingual peculiarities. Accordingly, the Community is at one and the same time the user with the highest stake in the new services offered by the telematic sector and the supplier best placed to make available to all interested parties the mass of information which it collects.

It is acknowledged at Community level that a gap exists as far as the availability of general data banks is concerned. The major information centres are American and, while there are a large number of data banks of this type within the Community institutions and the national public- and private-sector departments, their accessibility is very limited.

Since an initial Community instrument already exists, Euronet and Diane, steps should be taken to make this the springboard of extending a common pool of data bases to be located at the nodal points of the network. Where necessary, the sharing of responsibility could be agreed among the Member States.

A Commission data-base-policy should therefore be drawn up which is designed to interconnect with the Member States and which is geared to the opening-up of the Commission's information resources to the rest of the outside world.

A working plan along these lines consists of the following stages:

- list of data bases in the Commission and other institutions including current and planned projects in the Member States relating to general and sectoral policies (agriculture, international trade economy, industry, energy, environment, steel, etc.) whose introduction into the EURONET-DIANE system is warranted.
- study of the technical problems to be solved prior to the introduction of these bases (compatibility, structure, interrogation modes, staff);
- identification of the main gaps in the body of the data bases listed and programme for the creation and compatibility of new data bases;
- study of solutions to cope with the multilingual aspects of the data bases;
- study of the technical and tariff solutions designed to create a wider market for the services provided under the system, with special reference to the countries of North America;
- study of the needs of the countries associated with Community (Lomé, Maghreb, Mashrek, Israel) and link-up procedures.

3.6.2 Blueprint for an inter-institutional information system based on the new technologies

The new telematic services may constitute a powerful lever for rationalisation, especially for the internal needs of the institutions, in relation to the considerable mass of documents which they handle.

An initial operational project for integrated services covering the institutions and the Member States will serve as a dry run with regard to :

- the laying-down of standards for the exchange of data necessitated by developments in the telematics sector;
- the provision of incentives to induce the post and telecommunications administrations to provide the facilities inherent in an integrated communications network;
- the effects on industry.

As a priority, the system will seek to eliminate, whenever possible, the transmission of documents as part of the day-to-day business of the Community institutions. A start will be made by providing Members of Parliament with direct access to Commission held information.

The support of the Member States is necessary in order to accomplish such a project.

With a view to its execution, the project-definition phase to commence in 1980 will be directed along three main lines :

- information needs within the Commission, the other institutions and the Member States;
- project-definition study on standards, particularly with a view to the exchange of data;
- technical feasibility studies and justifications on economic grounds.

This phase will be followed by a design and development phase and the two phases will extend over a period of three years, in order that work can begin in late 1982.

3.6.3 Projects in the field of international trade

Since the primary task of the Community is the attainment of the customs union particular attention must be paid to those telematic applications which will speed this up.

A large number of private and public data-processing systems are already used in the field of international trade, and the increasing development of such systems can be predicted in the years to come. In order to promote this, steps must be taken to create the conditions necessary for the simple and rapid exchange of information between the parties concerned. Efforts to achieve standardization in this sector, involving the competent international agencies (Geneva-based ECE, CCC and ISO)^o are already under way.

CCC Customs Cooperation Council

ISO International Organization for Standardization

Furthermore, the Commission, with the approval of the Council, has already launched a broad study known as CADDIA (Coopération sur l'Automatisation de Documents et de Données Import/Export et pour l'Agriculture - Cooperation on the Automation of Import/Export and Agricultural Documents and Data) the main aims of which are to contribute to the gradual removal of barriers to trade and to improve the administration of the customs union.

Among other things, this study (the findings of which are expected by the end of 1980) seeks to set up machinery which will ensure that systems developed independently in the field of international trade are compatible and interconnectable.

Against this background, the Commission intends to embark, in the short term, on pilot projects designed to look into the possibilities of automating the Community transit arrangements as well as the question of automating the transmission of information required for the day-to-day administration of the customs union between the Member States on the one hand, and the Commission, on the other.

3.6.4. Summary of proposals:

The Commission should take steps to :

- strengthen its data-base potential, in order to provide all interested parties with wider access via Euronet;
- increase the Community's operating efficiency by setting up a network of telematic services linking the Community institutions and the Member State governments;
- devote special efforts to the dissemination of information relating to international trade

3.7. The function of the financial instruments of the Community

3.7.1. The Community's contribution to the development of telematic systems and services must primarily be at the policy level, and not financial. Investment in product development and marketing is primarily the task of the private sector, while the major investments in telecommunications infrastructure and education will fall inevitably to national governments.

Only in the case of a long-term technology such as micro-electronics or of the Community's own inter-institutional needs could specific measures involving modest funding from the Community budget be justified. Nonetheless, new financial instruments do not appear necessary since there are a variety of ways in which the Community's existing instruments could be used.

3.7.2. The existing financial instruments could in fact usefully assist in implementing the strategy set out in this document, within their present rules and respecting their specific priorities;

- the best ways and techniques of meeting the objectives should consequently be sought : particularly those which will promote information technologies in small and medium sized companies. This should be done in close liaison with the European Investment Bank.
- The use of the Social Fund in the information sector (see 3.1) will permit the financing of industrial retraining or education schemes.
- Proposals for Regulations, currently under discussion in the Council, have already been put forward with regard to methods of using the quota-free section of the Regional Development Fund for the introduction of new technologies in small and medium-sized firms.

As far as the main existing budgetary resources are concerned, apart from the multiannual data-processing programme (1979-83) and the second three-year (1978-81) plan of action in the field of scientific and technical information and documentation, a portion of the resources covering other Community policies (energy conservation, environment, agriculture, etc...) could be earmarked for data-processing projects.

3.7.3. Where transnational mergers are necessary to encourage groupings big enough to cope with the R and D required, the possibility of granting special tax, VAT or other financial status could be contemplated. The Commission could forward proposals to the Council along these lines.

3.7.4. In the event of Community policies being adopted for some or all of the sectors, Community financing could be envisaged subsequently, possibly by Community borrowing, for example for telecommunications, data banks, data processing, and satellite infrastructure.

CONCLUSIONS

The measures described in the preceding chapters - whether they involve standardization, coordination or integration - will shortly be the subject of proposals or other initiatives by the Commission. In particular, the Commission will be forwarding to the Council proposals on:

- training;
- a telecommunications policy and consolidation of the data-processing standardization policy;
- the promotion of an information industry;
- support for basic microelectronics technologies;
- the coordination of policies relating to space-technology applications.

Other arguments set out in the text, such as the application of the new information technologies for the benefit of the Community institutions and governments, will be the subject of exploratory contacts and studies which may later form the basis for more detailed proposals. It is clear that success will also depend on any necessary additional staff being made available by the budgetary authorities.

One of the yardsticks of success in this area is the speed with which decisions are taken. Accordingly, the Member States should introduce a procedure which is adequate for the purpose.

The way to raise the public resources needed to meet the telematic challenge and face up to international competition is through the judicious use of the Community's existing financial instruments and by coordinating in a broader framework the considerable sums committed by several Member States.

Joint action involving budgetary measures can be justified only in exceptional cases such as support for basic microelectronics technology or the introduction of telematics equipment in the institutions and governments.

It is by pooling a whole range of measures directed towards the same goal and by evaluating the overall situation in the light of broad discussions on the social potentialities of the advent of information technologies that the Community will see how to use them to best effect.

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(Information)

COUNCIL

COUNCIL RESOLUTION

of 11 September 1979

on a Community action promoting microelectronic technology

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Whereas, in order to meet in particular the requirements of the systematic Community programme provided for in the Council resolution of 15 July 1974 on a Community policy on data processing (1) Europe must possess technologies of the most advanced type;

Whereas the timely application of the latest micro-electronic component technology is of critical importance to the development of European industry as a whole;

Whereas dependence on external sources of supply of equipment, materials and technology in this field can delay the introduction of new products and render large parts of European industry uncompetitive;

Whereas the ability to apply microelectronic technology in a wide range of industries is linked to the availability of innovative engineers and technicians trained in the new technologies;

Whereas advanced computer-aided design and testing facilities will be essential to a wide range of industries;

Whereas major investments are needed to develop and make available in time the technologies and tools which could enable European industry to meet the competition of the most advanced products in 1985;

believing that these aims can be achieved only with the help of the main industrial users, suppliers and other experts throughout Europe;

INVITES THE COMMISSION TO:

1. examine the possibilities and methods of coordinating national projects in this sector and;
2. in the light of this examination to submit to it before 11 March 1980, specific projects at Community level, which the Council undertakes to act on as soon as possible. Such projects must comply with the following criteria:
 - (a) implementation of the project at Community level must have economic or technical advantages over implementation at national level;
 - (b) the project must be jointly proposed by undertakings, research bodies or users from several Member States;

(1) OJ No C 86, 20. 7. 1974, p. 1.

3. examine, as a matter of priority, the following areas:

(a) the development in the Community of the production of advanced equipment and methods needed to realize a leading European capability in microelectronic technology;

(b) further education with a view to increasing the number and mobility of engineers and technicians specialized in the new technology and its application;

(c) the development, with the aid of computers, of harmonized systems for the design and testing of VLSI components accessible to a broad span of European industries.

For the Council

The President

Ray Mc SHARRY