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Report

drawn up on behalf of the Committee on Energy and Research

on the communications from the Commission to the Council

I - 'Towards a European strategic programme for research
    and development in information technologies'
    (COM(82) 287 fin)

II 'Laying the foundations for a European strategic
    programme of research and development in information
    technology: the pilot phase' (COM(82) 486 fin)

Rapporteur : Mr P. VERONESI

The President of the European Parliament authorised the Committee on Energy and Research to draw up a report on the following Communications from the Commission to the Council :

I - 'Towards a European strategic programme for research and development in information technologies' (COM(82) 287 fin)

II - 'Laying the foundations for a European strategic programme for research and development in information technology: the pilot phase'; (COM(82) 486 fin)

the Committee on Economic and Monetary Affairs and the Committee on Budgets were asked for an opinion.

On 7 July 1982, the Committee on Energy and Research appointed Mr P. Veronesi rapporteur.

At its meeting of 24 September 1982, the Committee considered the report and unanimously adopted the motion for a resolution.

The following Members took part in the vote: Mrs Walz, chairman; Mr Seligman, vice-chairman; Mr Veronesi, rapporteur; Mr Bonaccini (deputizing for Mr Ippolito), Mr Ghergo (deputizing for Mr Sassano), Mr Herman (deputizing for Mrs Phlix), Mr Kellet-Bowman (deputizing for Mr Moreland), Mr Linkohr, Mr Müller-Herman, Mr Pedini, Mr Percheron, Mr Petronio, Mr Purvis and Mrs Viehoff (deputizing for Mrs Lizin).

The opinion of the Committee on Economic and Monetary Affairs will be presented orally in the plenary assembly; the opinion of the Committee on Budgets in the form of a letter is annexed to this report.

C O N T E N T S

The Committee on Energy and Research hereby submits to the European Parliament the following motion for a resolution together with explanatory statement:

MOTION FOR A RESOLUTION

on the Communications from the Commission to the Council:

I - 'Towards a European strategic programme for research and development in information technologies' - COM(82) 287 final.

II - 'Laying the foundations for a European strategic programme of research and development in information technology: the pilot phase' - COM(82) 486 final.

The European Parliament,

A   having regard to the various resolutions of Council and Parliament between 1972 and 1981 on the importance of the development of advanced technology,

B   having regard to the proposals from the Commission (COM(82) 287 final and COM(82) 486 final),

C   having regard to the decision of the European Council of 28 and 29 June 1982,

D   having regard to the resolution of the Council of Research Ministers of 30 June 1982,

E   having regard to the report by the Committee on Energy and Research (Doc. 1-682/82), and the Committee on Budgets,

F   whereas
   (a) simultaneously with the present economic crisis, Europe is experiencing a period of decline in the competitiveness of its industries,
   (b) information technologies play a major role in determining economic development, as they help to increase productivity and competitiveness and, at the same time, constitute a sector which is itself expanding,
   (c) if the European information technology industry is not to succumb to the masssive pressure from its counterparts in the US and Japan, where public aid is granted on a large scale, it needs similar incentives to enable it to develop,
   (d) with rapid developments in information processing systems, there is a need for continuous support for back-up research,
   (e) the high levels of investment needed to carry out studies and research mean that international cooperation will be necessary,

1. Approves the programmes proposed by the Commission in principle, but hopes that the collaboration apparently envisaged for private companies will also be extended to the programmes run by the national authorities;

2. Regards the choice of areas for action as interesting but requests the Commission to define more precisely the specific objectives to be achieved, placing them in order of priority according to its assessment of their respective potential for the future of European industries;

3. Agrees that there is a need to implement pilot projects;

4. Urges that the procedures for implementing the various phases of the programmes be speeded up as much as possible;

5. Calls for a realistic assessment of what level of funding will be necessary to meet the real requirements of the programmes, which should not simply be cosmetic;

6. Recommends rigorous management and scientific monitoring of the implementation of the research projects, a process which should be open to scrutiny and subject to supervision by the Committee on Energy and Research of the European Parliament;

7. Considers that these programmes, like their predecessors, will be condemned to failure unless they are accompanied by measures designed to improve the organisation of the European market with a view to its simplification and expansion;

8. Urges concentration on establishing Community standards timeously so that they become world standards, thus giving Community industry competitive advantages for the long term, but such standards should not inhibit innovation and new concepts in this fast-moving area;

9. Insists that the Commission ride hard on the Community's PTTs and communications organisations to ensure an efficient, user-responsive, reasonably priced and innovative network system, as an essential condition for the success of ESPRIT;

10. Hopes that the ESPRIT programme will concentrate above all on providing the necessary environment for motivating and encouraging the development of ideas, inventions and techniques whether from individuals, universities, small or large companies;

11. Considers that the adoption of the new programme provides an opportunity for an exhaustive critical appraisal of previous experience in order to make all current and future activities more effective and relevant;

12. Recommends that an overall view be taken of the development of information technology so that its wider use and further growth do not cause unemployment and social tensions but, on the contrary, help to prevent them;

13. Considers that giving young people training in information technology will increase the pool of highly qualified technicians, an essential prerequisite for the success of the ESPRIT programme, and recommends that sufficient funds should be earmarked for this purpose in the budget;

14. Instructs its President to forward this resolution and report to the Council, and the Commission of the European Communities, the governments of the Member States and the presidents of the national parliaments, to be forwarded to the appropriate committees.

B

EXPLANATORY STATEMENT

I - INFORMATION TECHNOLOGY IN THE MODERN INDUSTRIAL WORLD

I.   It may appear to be stating the obvious to say that, in modern industrial society, information and its generation and transmission - i.e. INFORMATION TECHNOLOGY - are a fundamental economic resource. Even the less attentive observer is aware of this fact, though perhaps not consciously. It is sufficient to mention one simple yet striking example, namely the fact that hundreds of millions of people can 'see' and 'follow' as it happens an event in any part of the world, perhaps at a distance of thousands of kilometres.

2.   Historically, the origin of information technology can be traced back to the beginning of human language (phonemes), its first basic advance - the invention of writing (morphemes) - leading finally to a decisive stage with the development of richer and more effective morphemes once logic and mathematics became established.

But we are interested in the present. The present situation began to take shape in its more complex form during the post-war period, even though the first signs of the modern phenomenon - important at the time - came with the invention of the printing press (Gutenberg, Castaldi) in the fifteenth century, the invention of the telephone (Meucci, Bell) and the use of electromagnetic waves (Maxwell, Hertz, Marconi) during the second half of the last century and the early decades of this century.

Particular stress must be laid on the overwhelming speed of the advances (in technology, equipment and methods) in the processing of data in recent decades; this process began to gather momentum at the end of the Second World War.

3.   There is a vast body of specialist literature and less specialized popular publications on this complex subject. It has been studied from various angles; technical, economic, social and ethical. Each of these aspects is of equal importance in terms of the organization of the life of human society and it would be a serious political mistake to underestimate the value of any of them. A comprehensive view of the problem is essential if one is to arrive at a balanced overall judgement; uncritical eulogies of the phenomenon and, at the other extreme, blanket condemnation are equally misleading and misplaced.

It is perhaps more accurate to say that very rapid technical developments have so far outpaced all attempts to analyse the other aspects of the problem outlined above. In other words, social and ethical analyses have always had to deal with an already existing phenomenon, developed independently of social and ethical guidelines. Economic appraisal, on the other hand, is directly involved in the chain of cause and effect from technical progress to the development of information technology; economic considerations of productivity act as incentives for the development of information technology, which in turn has an impact on and changes the nature of economic activities.

4.   The rapporteur has no intention whatsoever of examining all these questions. It would be pointless as well as presumptuous; presumptuous because the many facets of the problem require very extensive specialist knowledge in many radically different areas, and pointless because the members of our committee are well aware of the fundamental issues involved.

The Community first confronted the problem of information technology in 1973 and the Commission has put forward various proposals. Part IV of the opinion contains a critical (political) examination and appraisal of this aspect. It is only right and proper, however, to point out that the European Parliament has had ample opportunities to discuss the subject.

5.   From the technical and economic points of view, in addition to the data set out in the Commission documents under consideration it is also worth mentioning a number of other facts and figures in order to give some idea of the rapid rate of development referred to above.

(a)   The development of microelectronics and large-scale integrated circuits (LSI - Large-Scale Integrated; VLSI - Very Large-Scale Integrated) has enormously increased the amount of information which can be produced without using large computers. Instead of large, general purpose machines, which are complex, delicate, costly and difficult to operate, smaller specialized units have been developed for specific purposes. In industrial terms, this process has made it possible for small firms to gain a foothold in the market as well.

(b)   Systems hardware costs - i.e. equipment, components and their assembly - have been falling over the past twenty years and are being reduced to one tenth every five years.

(c)   The cost of software - i.e. programming the computer - is being cut to one tenth every ten years, also as a result of the extraordinary rate of development.

(d) The fall in costs is expected to continue in the short and medium term.
It is interesting to note that, in the early '50s, hardward accounted for
30% of the cost of the system and software for 20%, whereas at the
beginning of the 80s this ratio has been reversed.

(e) The costs of data transmission, which with hardware and software is the
third component of the information system, have also been reduced to
one tenth in the last decade.

(f) All these factors have encouraged the structural decentralization of
systems and the creation of vast information networks.

6. Basically, the spread of information technology has come about not only
because of technological progress, but also for obvious and important economic
and administrative reasons.

It is clear that these technologies will become more widely used and
specialized, as they are laying the foundation for a productive, economic
and cultural revolution.

7. In conclusion, we must be aware that we are dealing with a very specific
and real phenomenon, with all its positive and negative aspects.

Humanity is facing the problems of post-industrial society and, at
the same time, the difficulties of a society in the process of development
as well as those of a society suffering from underdevelopment, often below
the minimum level necessary for survival.

The Community falls, for the most part, into the first category and
is in economic and political competition with the other countries which are
firmly established in the same category. What can be done therefore? What
choices can be made? What goals should be set? What strategies should be
devised and implemented?

In this complex situation, the rapporteur welcomes the Commission's
initiative, supports it and invites his colleagues to endorse it.

8. Having thus clearly and explicitly stated his position, the rapporteur
would like to point out that he is fully aware of the broader political
and moral questions involved. The Commission documents make no mention
of these, as they are merely proposals for specific action in the research field.

However, it is important to be aware of the general implications of the programme proposals. In particular:

(a) Account must be taken of the social and moral issues raised by the development of information technology. The European Parliament has discussed these matters at length and recent debates have covered:

- the SALISCH report dealing with the effects of technological development on employment,
- the SIEGLERSCHMIDT report dealing with the rights of individuals faced with the increasing development and widespread use of information technology;

(b) It is also interesting to note that on 28 June 1982 the Commission forwarded to the Council a communication on Vocational training and new information technologies and new Community initiatives during the period 1983-1987 (COM(82) 296 final), which has already been included on the list of working document with the number 1-419 (82), together with the report by the Committee on Social Affairs and Employment and the opinions of the Committee on Economic and Monetary Affairs and the Committee on Youth, Culture, Education, Information and Sport;

(c) the Community's obligations with regard to development problems and the North-South dialogue will not be sacrificed; on the contrary, the information technology programme should be conducted on the principle that every success by the Community in that sector will help bring about the swifter and more effective implementation of the aid programmes in form of Third and Fourth World countries;

(d) we should not overlook the problem which, as history shows, has always accompanied technological progress, namely that technology can be used constructively to achieve progress, but also to destroy and kill; politicians have a moral duty to bring all their influence to bear on favouring developments in the former direction, while steadfastly opposing, by their arguments and their political actions, developments of the other kind.

II - <u>THE BROAD LINES OF THE STRATEGIC PROGRAMME</u>

9. The Commission communication to the Council entitled 'Towards a European
    strategic programme for research and development in information technologies'
    (Doc. COM(82) 287 final) of 28 May 1982 is an excellent document on which to
    base any evaluation of the Commission's proposals. It summarizes, in only
    15 pages and with great clarity and effectiveness, the general, political,
    economic and technical reasons why the community must take decisive action
    in the information technology sector.

    It is worth remembering that this is a long-term and forward-looking
    proposal.

10. The contents of the Commission document are set out in logical sequence
    from which it is possible to extract some salient points.

A - <u>The introduction</u>

(a) recognizes how far high-technology industries in the Community are lagging
    behind and the resultant effects on the economy;

(b) confirms the great importance of information technology in modern industrial
    society and the strategic role it plays in the international economy
    (production and trade).

B - <u>The section on characteristics on the information technology sector</u>

(c) points to the breath-taking speed of technological and economic develop-
    ment in the information technology sector;

(d) stresses the correlation between technological change and investment and
    points out that the amount of investment needed rises as the speed of
    technological progress increases;

(e) notes the dominant position of the US and the solid presence built-up
    by Japan in the information technology sector.

C - <u>The section on the European information technology industries</u>

(f) notes the worsening situation in recent years of European industries in
    sector compared with those in the US and Japan;

(g)   refers to the ever-increasing dependence of Europe on imported
      technology;

(h)   lists those areas (microelectronic components, small computers, tele-
      communications, etc.) where foreign competition has grown stronger
      and increased its penetration;

(i)   outlines the alternatives facing European companies: 'Either they
      must increasingly rely on imported basic technology with the consequent
      risks of vulnerability to embargo, or they must opt out of the race to be
      in the forefront of high technology and fall back on lower technology
      products'.

D -   The_section_on_a_European_response

(l)   identifies the need for a long-term strategy for European industry if
      it is to maintain its market presence and obtain an appropriate market
      share;

(m)   notes the need for the Community to commit itself to urgent measures
      over the next ten years to support the national measures to help firms
      in the industry.

III - THE MAIN ELEMENTS OF THE PILOT PHASE

11. It is envisaged that ESPRIT, which is a fitting acronym for the European Strategic Programme of Research in Information Technology, should be preceded by a 'pilot phase'.

A brief but sufficiently clear description of the programme is given under headings E, F, G, H and I of COM(82) 287 final. After a rapid survey of the relevant industrial and economic policy factors, the communication from the Commission to the Council on 'laying the foundations for a European strategic programme of research and development in information technology: the pilot phase' (COM(82) 486 final) and the Annexes thereto provide a detailed explanation of the programme's content.

12. The programme has been prepared on the basis of the work of a hundred or so specialists from various large European companies who formed five technical panels and a coordinating committee.

The research topics which are singled out as the most important and most urgent and which reflect the current widespread growth of the informatics technologies, are as follows:
- advanced microelectronics,
- advanced information processing,
- software technology,
- office automation, and
- computer integrated flexible manufacturing.

13. The implementation of the programme calls for the completion of a number of short-term, preliminary pilot projects, the technical content of which, as we have said, is expounded in detail in Annexes I and II.

The rapporteur finds the statements on the cover pages to these Annexes, as forwarded to the Members of the European Parliament, somewhat disconcerting.

It is explicitly stated that they are working papers only (evidently drawn up by the panels of experts), which do not in any way commit the Commission of the European Communities or any of its services.

Without questioning their scientific validity, how reliable are these documents on the practical level and in terms of the options they propose? Although it is true that Parliament is required only to express an opinion, on what bases can and must that opinion be formulated?

A perusal of the material distributed to the members of our committee leaves one with a sense of vagueness, uncertainty and indecision.

The rapporteur is bound to point out that this somewhat woolly approach to the actual content of the projects envisaged does not really square with the urgency expressed by the Commission.

However, we should perhaps treat this as an 'accident' which it would be idle to pursue further. The rapporteur considers it of little importance and more a question of form than of substance; moreover, the two communications from the Commission to the Council will perhaps suffice for the Committee on Research to complete its work without having to refer to the specialist technical dossier.

The documents under consideration contain no precise budgetary estimates; only the first, COM(82) 287 final, gives a rough indication of the resources that would probably have to be committed for the pilot projects. This too would indicate that the Commission has been over-hasty in calling on the Committee on Research for its opinion, since it omits an essential item of background information.

Having made these necessary observations, the rapporteur takes the view that the above should not interfere with the schedule for the implementation of the pilot projects; indeed, the relevant financial formalities should be expedited.

14. The objective of ESPRIT is to provide basic scientific information on the computer technologies for European industry, to enable it to withstand the challenge from the USA and Japan, to which we have already alluded, on the world markets.

The Community's contribution, consisting of financial and organizational support, is intended to promote, through joint action, the study of topics which the individual Member States could not develop on their own, both because of the high costs involved and because of the shortage

of research workers and technicians.

ESPRIT must be developed in collaboration with the national authorities of the Community countries, but not taken so far as to call into question the free competitiveness of the relevant European industries.

15.   It is unnecessary here to give a detailed account of the research programmes proposed in the various sectors chosen. The rapporteur has already indicated that a summary is provided in COM(82) 287 final and that a more detailed and far more technical and specialized exposition is to be found in COM(82) 486 final. A succinct account of the reasons behind the choices made is perhaps all that is needed.

(a) As far as <u>advanced microelectronics</u> are concerned, attention should be drawn once again to the remarkable technical growth of the sector and to its extraordinary economic influence on hardware.

This may be seen from the following table, which refers to the control unit of a computer - the Central Processing Unit (CPU) - consisting of, say, a hundred active elements.

EVOLUTION OF A COMPUTER SYSTEM

hardware technology	number of components	volume m^3	price $
- thermionic valves (1955)	10,000	20	10^6
- transistors (1965)	10,000	2	10^5
- LSI (1975)	10,000	10^{-7}	10^2
- VLSI (1980s)	500,000	10^{-7}	10^2

The last line relates to prospects in certain areas only; for instance, the USA and Japan have a considerable advantage over Europe.

The reduction in prices is a consequence of a reduction in costs, which in turn is due primarily to the batch production of LSI circuits.

Twenty years ago soldering and assembling the parts of a 10,000 thermionic valve circuit required no less than 5,000 hours of manual labour to complete.

Ten years later, using transistors, the same work required a little more than 1,000 hours to complete.

Today, assembling and connecting the same number of active components on a single LSI chip involves no manual labour at all; the circuit is made by a computerized process of 'diffusion' on wafers of silicon which, in a single multiple-phase production cycle, makes it possible at the same time to produce a batch of thousands or some tens of thousands of exactly identical LSI circuits, each consisting of thousands of already interconnected components.

The VLSI circuits will permit a further reduction in volume by a least a factor of 5, a reduction in energy consumption by a factor of 10 and an increase in active component density by a factor of 8.

The rapporteur considers these data sufficient illustration of the appropriateness of the research topics chosen. It is also evident that for an undertaking on the scale and with the objectives envisaged, close collaboration between industry and the universities is essential.

(b) Advanced information processing and software technology are two research topics which are so closely interconnected that the rapporteur feels that they should be dealt with in conjunction. There is no logical reason for subordinating one to the other. Moreover, in the two Commission documents the two topics are proposed in reverse order.

The wide range of computer applications, which are becoming steadily more specialized and are expanding at the rate of 50% a year, calls for a parallel development of software and information processing techniques.

In the first case, the need is to improve and expand programming capacities in order to meet the great variety of new system requirements; to achieve this, research aimed at creating new and increasingly advanced and simpler 'formal languages' is called for. In the second case, the aim is to create reliable and effective systems for the simultaneous processing of the knowledge and information received direct by a large number of users.

This raises complex engineering and mathematical problems, which cannot be solved without the application of highly specialized skills and a very expensive research programme.

There can be no doubt that this field of inquiry affords ample scope for the development of applications which will be of enormous economic and productive importance, while being readily adaptable.

(c) Little needs to be said about <u>office automation</u>. To realize its importance, we have only to think of the running of a bank fitted out with the latest equipment or, at a more mundane level, the operation of a travel office at which it is possible to book seats on any flight from any airport in the world to any other airport in the world.

Over and above these simple examples, it should be pointed out that the possible areas of application are legion, that there is currently strong demand on the relevant market and that this is likely to grow spectacularly.

If the European market is to be enlarged to accommodate, in the first place, European production, it is evident - as the Commission rightly observes - that many national bureaucratic procedures will have to be standardized.

At the sociological level, it must not be forgotten that the development of office automation has been responsible for the emergence of that sector of economic activity known as the 'higher tertiary' or 'advanced tertiary' sector and for the simultaneous movement of hundreds of thousands of workers from factory work to office work. This movement is still in progress and is encouraged by the spread of automation, the application of computer technology to the production cycles and the higher level of education and preparation of young people now reaching working age.

(d) Finally, a few words about <u>computer integrated flexible manufacturing</u>: essentially, the object here is to develop robots which are more sophisticated and intelligent than those existing at present, the ultimate goal being the establishment of production systems integrated by means of the computer.

The productive process, checked and monitored via a
systematic survey of all the reference and control
parameters, will be directed by a system which will integrate
design, production, tests, repairs, assembly, etc. by
means of a common data base.

All the industrial sectors will benefit considerably from
such innovations, which might include integrated circuits
that are even self-regulating or self-adjusting (these have
caught the imagination of a number of notable and inventive
scientists who have arrived at all sorts of fascinating and
bewildering conclusions).

Without speculating on theories that belong to the realm of
science fiction (though not all of them are so fanciful
as to be discounted), it may be said that, once it has
been sufficiently developed, this technology will bring
about a new cultural and industrial revolution which, in
these modern times, may well be a 'continuous revolution'.

16. In conclusion, the rapporteur considers that the programme
proposed by the Commission (notwithstanding the limitations
and uncertainties mentioned earlier) is fully consistent with
the schemes proposed by the FAST Group in accordance with the
guidelines set out in the working document of October 1979
entitled 'A changing Europe' (XII-725-29 R/79/-I). Consequently,
it should not only be endorsed but perhaps also employed and
improved.

If work was undertaken with this in mind, closer collaboration
and more frequent exchanges of view would be desirable, not
just with the industries concerned, but also with the trade
union organizations and with the representatives of the
public at large. The rapporteur feels that Parliament would be
able to deliver a more detailed and better informed opinion
if it was able to hear the views of all such sectors
of society.

17. A ten-year programme such as that envisaged for ESPRIT must be implemented with the utmost flexibility and must be amenable to modification and change in the course of its execution. This requirement, which derives from the intrinsic nature of every long-term scientific and technical research project, is rightly acknowledged by the Commission.

The Commission is also right in deciding that a series of preliminary pilot projects should be rapidly completed. This is an effective and appropriate method of proceeding since the objective is
- to build step by step on the results of the preliminary phase;
- to investigate and introduce new, simpler and more efficient ways of implementing the main programme.

18. The pilot projects should not be regarded as something extraneous to the central ESPRIT programme, but as part of it and as a kind of advance exploration of the fields of research proposed.

Fifteen projects have been selected, while a sixteenth has been devised to provide participants with a means of exchanging ideas and communicating findings during their implementation. This project will also afford a practical means of assessing the complex and difficult problems associated with methods of cooperation, while providing useful guidance for the overall management of the programme.

The pilot projects are broken down as follows:
- 2 for advanced microelectronics,
- 3 for software technology,
- 3 for advanced information processing,
- 4 for office automation, and
- 3 for computer integrated manufacturing (CIM).

19. The provisional timetable for implementing the programme is as follows:
- discussion and adoption of the programme during 1982;
- negotiation of contracts for its implementation in the second half of 1983;
- implementation to begin in January 1984.

It is also proposed that the pilot projects should begin in

January 1983. The Community contribution to these projects is likely to be of the order of 10 to 12m ECU, and this sum has been entered in the 1983 budget.

IV - CRITICAL COMMENTS

20. For the purposes of a thorough appraisal of the Commission's proposal, it will be useful to give a brief account of the action taken by the Community institutions in the field of informatics. This will enable us to make constructive comments and suggestions for improving the way in which the programme is implemented.

21. The following dates and events seem to be the most significant:

(a) October 1967: the Council adopts a resolution expressing its intention of undertaking a project relating to certain areas of the electronics industry; this project is an integral part of a medium-term economic development programme which hinges on an energetic campaign aimed at the rational planning of scientific and technological research and research into industrial innovation;

(b) October 1972: at a Paris Summit of the Heads of Government of the Community Member States, the need to develop European firms to work on advanced technologies is expressly recognized for the first time;

(c) August 1973: the Commission submits to the Council the 'First action programme for a policy in the field of science and technology'; apart from being the first document to refer explicitly to the importance of data processing, it expresses disquiet about America's lead in this field over the European Community;

(d) July 1974: the Council adopts a resolution in favour of a Community informatics policy; this affirms that a priority Community aim in the sector in question must be 'to create by the beginning of the 1980s a European industry which is fully viable and competitive in all sectors of common interest and open to transnational cooperation'; it also invites the Commission to submit a draft programme for the development of informatics before the end of 1975;

(e) September 1975: the Commission forwards to the
    Council a communication on a 'Community policy in
    the informatics sector - First elements of a
    medium-term programme - Second group of priority
    proposals' (COM(75) 467 final); this document is
    debated by Parliament on the basis of a report drawn
    up by Mr COUSTE on behalf of the Committee on
    Economic and Monetary Affairs and of the opinions
    of the Committee on Budgets and the Legal Affairs
    Committee (the opinion of the Committee on Energy
    and Research was not requested!);

(f) November 1976: the Commission submits to the Council
    a proposal for a 'Four-year programme for the development
    of informatics in the Community' (COM(76) 524 final);
    this proposal consists of three related documents:

    - objectives and legal basis of the programme
    - explanatory memorandum and technical annexes
    - growth of the informatics sector in the Community
      in relation to the world situation,

    and it too is debated by Parliament on the basis of
    a report drawn up by Mr COUSTE on behalf of the
    Committee on Economic and Monetary Affairs, and of
    the accompanying opinions of the Legal Affairs
    Committee, the Committee on Budgets and the
    Committee on Energy and Research. It is finally adopted
    as the four-year plan for 1978 to 1981;

(g) December 1979: on the basis of instructions
    issued at the Bonn Summit of July 1978, the Commission
    prepares a document entitled 'European society faced
    with the challenge of new information technologies:
    a Community response' (COM(79) 650 final);

(h) September 1980: the Commission submits to the
Council a paper entitled 'New information technologies:
First Commission report' (COM(80) 513 final);

(i) October 1981: the Commission forwards to the
Council a communication on 'Scientific and technical
research in the European Community: proposals for the
1980s' (COM(81) 574 final);

(l) October 1981 : the Commission produces a document
outlining the main features of a 'Policy for
industrial innovation' (COM(81) 620 final);

(m) October 1981 : the Commission forwards to the
Council a communication on a 'Community strategy
to develop European industry' (COM(81) 639 final).

22. This chronological summary is certainly not complete:
- firstly, because it makes no attempt to explain the content
of the documents cited;
- secondly, because some documents have probably been omitted
inadvertently;
- thirdly, because it has deliberately omitted the Commission's
proposals in the microelectronics and telecommunications
sectors, in which informatics play a crucial role.

What, however, it does show is that <u>the problem has not
arisen just recently, but has been studied in all its
ramifications and as a matter of urgency for at least a decade.</u>

23. Although we have endorsed the programme submitted by the
Commission, there are a few legitimate and disturbing questions
that must be asked and to which convincing answers ought to be
given as soon as possible:
- in view of the dire warnings expressed in the documents we
have cited, why does Europe still lag so far behind, even
though it has been aware of the situation for more than a
decade?
- have the programmes elaborated in previous years been
sufficient to meet the international challenge?
- on what basis are we to evaluate the results of the
measures already taken?

- why, instead of closing, is the gap between ourselves and the more technologically advanced USA and Japan still widening?
- what are the reasons for this situation after ten years of sustained effort? Financial? Bureaucratic and organizational? Technical? Political?
- Is there a fault of leadership?
- Is it not conceivable that the outcome of the new ten-year strategic programme will be just as disappointing?

24. These questions must be considered seriously and dispassionately. It is essential to identify and weigh the factors that are proving to be an impediment to effective action. This is all the more important since, apart from the failure of UNIDATA, Europe's experiment in the sector, we are also faced with the scandalous precedent of EURÁTOM which, heralded as the institution which would bring into being a 'powerful European nuclear industry', has signally failed to do so.

A European industry in the nuclear sector most certainly exists today and perhaps even enjoys a measure of superiority on the world markets. Europe leads the way in breeder reactor technology, even if there is as yet no market for that technology and demand will probably be slow to emerge. Light water reactors are still produced in Europe under US licence. How far has the Community structure and the Community specifically envisaged by the Treaties contributed to the maintenance of such achievements? Can experience and the lessons of the past help us to cooperate more effectively in future on matters relating to technological research, which has such a vitally close bearing on industrial development?

25. The answer is yes: Community action must be based on past experience. But there are other questions that must be asked with equal directness:
- what role must the Community play - and it is worthwhile repeating this - in connection with the various technological research projects aimed at industrial development?
- what precisely is meant by the statement that the Community's contribution and support must go no further than the stage of 'pre-competitive technology'?

- how is this stage to be defined and identified?
- in this connection, what does the Commission really mean when it asserts in COM(82) 287 final that 'ESPRIT will improve the use of European R & D resources provided that it is in the nature of a building block. This means that there must be a dynamic approach to the programme.'?
- how far can the forms of cooperation which are envisaged between the IT industries of the various countries be reconciled with the defense of the free market and the rigid rules governing free competition, and on what bases is such cooperation to be established? Is the possibility of integration to be contemplated seriously?

26. The rapporteur has no answers to these questions, nor can he suggest any remedies. He would nevetheless express the conviction that the success of all the Community's economic and industrial ventures throughout the world depends on a greater degree of cooperation between, and integration of, the national economies, judiciously balanced one against another according to their respective strengths.

V - CONCLUSIONS

27. In spite of all the unsolved problems mentioned and the considerable difficulties which exist at present, the rapporteur is convinced that the programme proposed by the Commission should be approved and implemented promptly.

It will therefore be necessary to pay close attention to the management of the programme and the scientific monitoring of its implementation.

EC   Luxembourg 1.10.82.

Committee on Budgets   The Chairman of the
                                               Committee on Energy and Research
The Chairman: Mrs Hanna WALZ,
                                               European Parliament,
                                               Centre Europeen,
                                               Kirchberg,

                                               L u x e m b o u r g
                                               ----

Subject : European strategic programme for research and development in
         . information technologies (COM(82) 287 and COM(82) 486 final).

Dear Madam Chairman,

        The Committee on Budgets considered the above Communication
from the Commission at its meeting of 22 and 23 September 1982.

    The Committee considers that it cannot deliver an opinion on the document
at this stage, as the projects involved are still in the pilot phase and their
financial implications have not yet been set out in detail.

    The Committee further considers that the entry of the requisite funds in the
1983 budget will suffice to allow the Commission to implement these projects.
The Committee on Budgets will therefore raise this matter again in the course of
the present budget proceedings.

                        Yours faithfully,

                        (sgd)

                        Erwin LANGE

                                                        PE.79.969/fin.