COMMISSION OF THE EUROPEAN COMMUNITIES

SEC(73) 4300 final   Brussels, 21 November 1973

COMMUNITY POLICY ON DATA PROCESSING

(Communication of the Commission to the Council)

CONTENT

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* refers to paragraph's numbers

COMMUNICATION OF THE COMMISSION TO THE COUNCIL
A Community Policy for Data Processing

Introduction

1. The Summit Conference called for the progressive and effective opening of public sector purchases and for the establishment, in the advanced technology industries, of competitive companies at European level. In few industries are these objectives more relevant than in data-processing. Now the third largest world industry after chemicals and cars, growing at some 15 % per year in the U.S.A. and 20 % per year in Europe (see Annex point 1 for details), it penetrates increasingly virtually every walk of life, transforming management and administration, education and science. The very structure of society may be determined in the future by the way it uses information systems. As labour-intensive industries move towards developing countries, Europe needs to develop,rapidly, industries requiring concentrated skills of a high level; of these data-processing is a classic case.

2. Yet though European minds conceived many of the basic concepts of the industry and Europe still has a powerful intellectual and technical potential in this field, it has yet to transform it into effective industrial strength. Over 90% of the computers installed in Europe are based on American technology. Some 60% of the world of European market is held by a single dominant firm based outside Europe (IBM). Though this company has made and continues to make a massive contribution to the commercial application of data processing, its position enables it to determine the pattern of prices and standards, to dictate the pace of commercial innovation and the pattern of the market. In no other key industry is a single firm so dominant in both Europe and the world. The Commission, in accordance with its obligations under Article 86 of the Treaty establishing the European Economic Community, will be vigilant to ensure that there is no abuse of such a dominant position.

3. The most effective guarantee of good behaviour is, however, the existence of strong and viable competitors. Competition is at present provided by other international companies based outside Europe and operating within it (see ¹Annex point 2), but there is no certainty that they will remain in the competitive race and the social, political and economic importance of this industry are such that Europe cannot afford to opt out altogether.

4. A flourishing European data processing industry must include strong european based companies in both hardware and software side by side with the important companies controlled from outside Europe. In an expanding market there is room for both.

5. The leading world position of the American companies owes much to commercial skill and good management, but much, too, to the fact that the United States first provided a rich Continental market for the commercial applications of data processing, while in the last twenty years the Federal Government has provided a huge, sophisticated market for the U.S. industry and stimulated its growth by development contracts (See Annex point 3).

Any support needed in the next few years by the infant industry in Europe must not be seen as a form of permanent protection, but as a mean of redressing this imbalance by providing comparable opportunities to the European-based companies so that they too can acquire continental, indeed world dimensions, and stand competitively on their own feet.

A Community policy for data processing must include two main types of actions : to develop the capacity of the European-based industry and to promote the effective use of data-processing. These main thrusts of activity need to be complemented by a limited number of background measures. This communication will examine the problems in this order concluding with proposals for Community action.

A. Building a strong European-based industry
Central Processors

6. At the strategic heart of computing systems is the central brain or processor (IBM's 370 series, ICL's new range, Unidata's new X series from CII, Philips and Siemens for instance). Europe's most evident industrial problem in computers is to develop a viable structure capable of competing with the dominant producer in the development, production and marketing of such a range.

7. In pursuit of this objective, at least three Governments (the British, French and German) have, in the past ten years, supported national computer companies, by means of financial support for computer development and preferential purchasing policies, details of which are given in the Annex, Point 3. The share of world markets of the four leading European computer companies (ICL, CII, Siemens and Philips) together is, however, approximately 6 %, or roughly equal to the smallest of the remaining American competitors with the world leader. Both the losses made by certain European companies in the past and much evidence (See Annex point 4), suggest that separately, European-based firms will have great difficulty in attaining the minimum necessary scale to be economically viable on their own without permanent Government subsidy. The breakneck speed of growth in the market (some 20 % per year) means that companies have to work hard to maintain even their existing market shares. A regrouping of the industry which respects the rules of competition under the Treaty is the only route to a major jump in relative size.

8. To be fully successful and competitive, a computer company should penetrate and have access to the major advanced markets of the United States and Japan. Collaborative agreements with non-dominant companies outside Europe offer one mean of acquiring this, and of tapping new technology and capital resources. But such partnerships can only bring their full benefits to Europe if they are based on a real equilibrium between the partners and not on an open or disguised absorption of the European firm. A regrouping of the major European based firms must be seen as a key objective, making it easier not harder to find balanced relationships with firms outside.

9. It is for the companies concerned to seek out and negotiate
with compatible industrial partners and,subject always to a
more through examination of the terms of the agreement, the
Commission welcomes the formation of Unidata (by Siemens,
CII and Philips) and the discussions going on with a view to
further regrouping.Governments and the Community also have an
important part to play by ensuring that procurement policy
does not obstruct such moves and by pooling the financial
resources with which they support the industry. It must be a
legitimate concern of the Community and of Member States to
rationalize and control public financial support for the data-
processing industry in favour of the strongest possible in-
dustrial groupings.

10. Even if all the major European based companies grouped into
a single entity, there would be no danger of monopoly or market
domination given the incomparably greater size and strength of
IBM. Such a combination is however unlikely in the immediate
future, given the existing plans of the key companies; in the
next three years the two major groups of companies may continue
to coexist competing with each other in the marketing of separate
series of computers.

11. In this situation, Community policy for the support of the
industry can usefully be seen in two phases : in the short run, at
least a limited collaboration, falling short of a full merger or
combination, should be encouraged, both to achieve ends useful
in themselves and to prepare the way for a further industrial
combination later. Steps by the industry towards such a
combination would facilitate the development, in a subsequent
phase, of a more coherent and complete Community programme for
the support of the data processing industry and its applications.
Success in the second phase will largely depend on the effective-
ness of collaboration in the first. Here a look at the other
sectors of the industry - peripherals, electronic components and
software - is necessary, for they too are essential to a
strong industry.

Peripherals

12. What has been loosely called "Peripheral equipment" comprises more than half the value of the hardware in new systems, and this share is growing,for computing systems increasingly involve an ever-widening range of terminals for transmitting and receiving information linked by networks to a central brain or brains, as well as a number of functional units (eg. memories, storage capacity, which are essential to, but detached from, the central processor). In the production of terminal peripherals and small computers, a number of specialised European firms have already proved successful. Some of these are small; some, like Olivetti, the largest European firm in this field, or Nixdorf, are comparatively large. Yet the "near-in" peripherals which form an essential part of all systems (disc-units tape decks etc.) are dominated by external producers and the overall picture is of a growing payments deficit and technological dependence in a key sector of the industry.

13. In terminal equipment, there are good commercial opportunities for a variety of European companies to enlarge their market share, and the most appropriate general form of public support at Community level for innovation appears to be the proposed Community Contracts for Industrial Development.* At the same time, if the european based manufacturers of central processors are to become an effective force, they may need to pool research, production and marketing capabilities for certain "near-in peripherals". Further examination at Community level is needed to see whether a specific limited programme of joint support for such development is needed in the form of "programme-oriented" development contracts.**

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* The Commission's current proposal on Community Contracts for Industrial Development /¯Doc. COM (72)710 final July 1972_7 is designed to support collaborative innovations of small to medium/size proposed by companies from any sector of industry.

** A different form of development contracts which may be called "programme-oriented development contracts" will be needed to support collaborative developments in the framework of specific sector programmes such as data processing. In such cases the Council,on the basis of proposals from the Commission would decide the objectives of a programme and allocate the appropriate funds.

Electronic components

14. Components form a third major element in the computer industry; this too grows in relative importance as the manufacturers learn to group hundreds of electronic circuits upon a tiny chip (see Annex point 5). Here the first need of the computer manufacturer is to have access to the latest technology at the lowest possible price. In part this need may be met by purchasing from outside companies, including companies based outside Europe. Some internal capability is however needed, both to make use of the latest component technology in system design, and as a guarantee that companies have access to the most advanced technology.

15. The overall problems of Europe's semiconductor industry, now entering the crucial phase of developing Large Scale Integration, will be discussed in a separate paper from the Commission. More special to the computer industry is the need to participate in the latest memory technologies (LSI, Bubble memories, holography and so on) any of which may prove later to have great industrial importance. These fields require an important effort of research and development, if the European based computer industry is not to run the risk of being left behind by radical new developments in the latter years of this decade. Here again a joint development effort involving the main computer companies would be essential and could be started now, using programme-oriented development contracts.

Software Bureaus and Consultancy

16. Buying the "Software" the programmes by which the information and needs of the outside world are translated into computer language - costs as much to the user, in most computer systems, as the hardware; and a strong industry is equally important for Europe (for details, see Annex point 6).

17. The development of the software industry has been led from the United States because of the strength of the American hardware industry and because the market for new applications is both larger and tends to develop there first. But because size of

firm and investments are less important, the European industry
is less at a disadvantage than in hardware and in those fields
where European firms are active and well managed they can
provide programmes and services competitive with those in the
United States.

18. Certain weaknesses, however, might be usefully redressed by
Community policies. Despite the formal "unbundling" introduced
by IBM, which is far the largest software company, a great many
user software programmes are in fact tied to particular types
of hardware, or adapted, at a cost, from programmes designed
for them. There is a need to develop a real "market" in user
software in which applications programme packages are easily
transferable from one type of machine to another. There will
be an incentive to develop such transferable packages if
public users jointly commit themselves to use them. There
is also a case for using programme-oriented Community
development contracts to support the development of "Bridgeware"
programmes which make it possible to transfer existing applica-
tions from one machine to another. Further study is also
needed to define means of protecting property rights of software
products.

19. There is also a need to stimulate European capabilities, parti-
cularly in the public sector, by joint applications development
programmes, which will place the European producers well for ser-
ving future public needs. Such programmes, if carried out by
consortia or associations of European software and if necessary
hardware companies, would act as a spur for the regrouping of an
industry parts of which are too fragmented. The great defence and
military projects which have been an immense stimulus to the
American industry, need a realistic European equivalent designed
to serve civilian needs. Here the needs of the industry rejoin
those of the user. It is a theme to which we shall return in
Section B below.

B. Applications : Serving the needs of the User

20. No less important than building a strong industry is a second Community objective : to promote the effective application of data processing to the needs of the European user, in particular those of the public user and those which have an international or European character. There is much ground to make up, for in all too many organisations the use of computers is in its infancy.

Opening Public Purchases and Coordinating Public Procurement Policy

21. Public users of information systems have an interest, not merely in purchasing from the cheapest and most efficient supplier of systems, but in pooling their requirements, sharing in the solution of their common problems and thereby reducing costs and achieving more efficient answers.

22. The American industry has benefited greatly from the immense and sophisticated demands of the U.S. federal Government (see Annex point 3). State and city Governments and universities also have a number of cooperative arrangements for developing and purchasing systems together and thus saving public funds.

23. The power of procurement is already used today in several member states as a mean of promoting a national industry. That weapon, used nationally, not only infringes the Treaty but may increase costs to users and inhibits the European industry from working on a Continental scale.

24. In response to the need for the progressive and effective opening of public sector purchasing, expressed at the Paris Summit. the Commission has already proposed a series of legal measures concerned with the coordination of tendering procedures in these markets.*

    As a complement to these measures, the time has come to move on from national procurement policies to a close collaboration

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* See document on industrial and technological policy SEC(73)1090

at Community level in procurement. This must be designed to
support rationalisation and standardisation, to achieve
greater economies for the user, through joint purchasing and
development and the construction of common networks or
services. It must also be designed to redress the competitive
balance by providing opportunities to European-based industry.
A systematic joint analysis of future requirements should made it
possible to identify well in advance areas where users can usefully
collaborate on applications and benefit from joint procurement.*

Collaboration on Applications

25. European Governments are devoting growing resources to computer
applications (see Annex point 3). How can they best collaborate
to pool and save scarce public funds, providing a stimulus to
the European industry at the same time ? Collaboration on three
links could bring benefits.

a) Common international projects

26. Certain types of public application have an inherently interna-
tional character. Environmental monitoring, meteorology, air,
sea and land traffic control, customs and trade statistics,
international technological information systems are examples.
For such applications, international development and management
are becoming not merely desirable, but essential. The Commission
believes that the best way to fulfil a real public need and
stimulate the technological capability of the industry soon is
to plan and implement a small number of such projects on a common
basis now. It has commissioned the first part of a study
designed to help identify priority projects of this nature.
It asks the Council to support such projects and will make
proposals during 1974 with a view to decision by the Council
before the end of the year.

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* See document COM/73/459.

b) **National needs common to several Member-States**

27. Such inherently international projects are not the only
applications where benefits could flow from pooled resources.
Many national or local public applications are common to
different member states and savings could flow from collaboration
or even joint development and procurement. Central Government
administration, social security systems, health and hospital
systems, education are examples.

Two meetings of the data processing sub-committee of the PREST
group have already usefully helped the Commission to identify
areas where collaboration or joint action would be useful;
a continuous further process of coordination and confrontation
will be necessary in the future to expose areas for cooperation
or common development.

c) **Coordination**

28. In certain fields, coordination ought to be started now :

Data Banks

29. Large banks of data are now being established for a widening
range of public and private users (for details see Annex point 8).
A growing proportion of these banks in both the public and private
sector will have an international character (banking, technolo-
gical information systems, health, or police records), while
in other cases (local Government, taxation, censuses), the
difficult problems of managing the information are being tackled
in parallel by many public authorities throughout Europe.
Economies and greater efficiency will result if public users
can jointly develop new methods of programming and managing this
information (Data Base Management Systems), standardise the many
features which are necessary to facilitate communication between
them, coordinate the planning of their introduction, and identify
technical problems where studies and development work might
benefit from Community support.

Data Communications

30. The problems of data-communication, which may match the volume
of voice telephone traffic in Europe within ten years (See
Annex point 9), are increasingly a Community concern. The
Commission is preparing wider proposals on telecommunications
policy, but these will take some time to implement and in
the meantime it is important that new data-communication
networks develop as European systems and do not engender new
technical divergences harmful to the user. The COST project
11, though a useful pilot research scheme, does not deal with
the practical problem of the systems that are actually being
installed. A procedure for the joint planning and management
of data networks is needed.

31. A further area in which coordination can usefully start now
is the field of health and medecine, an area of public spending
growing in all member states.

Industrial Applications

32. Outside the public sector a mere effective application of data
processing to a range of industries important for Community
policy (shipbuilding, aircraft, textiles) could raise productivity
and enhance the capability of the European computer industry.
As in the public sector, judicious development contracts for
applications technology could be a means.

C. Complementary Measures

33. To provide a favourable environment for the twin policies of
building a strong European industry and supporting the more
effective application of computer systems certain additional
measures are needed :

Standardization

34. For both the user and the computer industry the development and effective application of common standards in hardware and software is an urgent priority. At present users are often tied to a particular company by the language and form of the programmes they use. If a real exchange of methods and a genuine market in software which could liberate the user is to develop, users, industry and standardisation organisations need to agree on and put into use common high level languages, for example for real time applications.

35. The manufacturers of peripherals also need standard interfaces which will make it easy to plug independent peripherals into larger systems. Standards are talked about in many international fora. The main need at Community level is to put a few key agreed standards into practice through coordinated procurement.

Support for leasing

36. In addition to the need for support for development, the European based hardware industry faces severe problems in financing the leasing of computers. Small companies lack the immense inward cash-flow enjoyed by companies with a large existing customer base. Moreover, a company attacking a market held by an established firm, with a new range of computers, may run higher commercial risks and find it difficult to lease on terms equivalent to the market leaders.

Detailed proposals may be made by the Commission after discussion with interested parties. One possible form for support might be a European leasing company to back the industry.

Education and Basic Research

37. Neither a strong industry nor effective application of the computer sciences by users can be achieved without a continuing basic research effort and a strong educational effort designed,

in particular, to raise standards, end the shortage of highly qua-
lified people and promote mobility (see Annex point 10). There is
also a need to ensure that education in computer sciences is not
tied to particular companies. Consultations have already shown
that to meet these needs the existing high level courses ryn by
the PREST group on Education in Computer Sciences need to be exten-
ded; The social Fund* could also be used to finance training or re-
conversion of manpower in certain sectors. Further initiatives may
also be needed to support collaboration in computing theory (where
a European association already exists) and to establish a European
Software Engineering Institute in the form of an association of
national institutions developing, in particular, basic software.

Structure of Employment

38. The expected evolution of the sector in the next few years due to
growth, industrial change and alterations in requirements for skilled
manpower will inevitably bring appreciable shifts in the structure
of employment. The Commission intends to follow this evolution clo-
sely, bearing in mind the necessities of regional policy and with a
view to ensuring that social considerations have their proper weight
in a Community programme for the industry.

Protecting the Citizen

39. The creation of data banks joined incrasingly by international links
will oblige the Community to establish common measures for protection
of the citizen. When police, and tax, and medical records, and the
files of hire purchase companies concerning individuals are held in
data banks, the rules of access to this information become vital.
This is a matter on which a wide debate is needed in the Community**.
In view of its basic constitutional importance, the Commission belie-
ves that public "hearings" on the matter are desirable. It would be
better for the Community to seek a genuine political consensus on
this matter now with a view to establishing common ground rules, than
to be obliged to harmonise conflicting national legislation later on.

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* See document 71/66/CEE
** See document COM(73)1250

D. Community Action

40. In the light of all these needs, the Commission submits the atta-
ched draft resolution to the Council. It seeks to do three things -
to lay down the broad direction of a data processing policy for
the Community, to provide a impetus for coordination of national
policies in certain fields, and to pick out selected priority areas
for common action.

41. The procedure proposed to give a community orientation to
policies for encouraging and promoting data-processing, in
particular by collaborating in procurement policies, standards
and applications has not so far been mentioned in this report.
The range of subjects on which specialised groups may be needed.
and their composition are so varied, that it seems appropriate
to handle this matter pragmatically, bringing together the
key national officials responsible for overall policy, or
those responsible for procurement, or those responsible for
certain types of application, as and where approriate.

42. The priority for common action would be to undertake in common
a small number of major applications development projects of an
international character. The Commission will make detailed
proposals on these during 1974 with a view to decision by the
end of the year. Such projects, while serving identifiable
public needs, will also provide a stimulus for collaborative
effort by the European industry without being dependent on any
particular industrial structures.

43. The draft resolution also asks the Council to consider (though
not at present to commit themselves to) possible proposals
from the Commission for common support for selective collabo-
rative industrial developments. In the Commission's view these
are likely to be initially in key areas of electronic components
and peripherals, or software.
Here a word of explanation is needed. This report has shown
that the crucial strategic area in which Europe should pool
resources if its indigenous industry is to be competitive is

that of central processors, but it is also clear that with two
major indigenous groups in existence this is not yet completely
possible and that in these circumstances common funds are not appro-
priate for the support of such R & D. There are however certain
areas of electronic components and key functional subassemblies such
as memories ("near-in peripherals") where common development now may
be considered strategically vital and possible and may even include
the two major computer groups which are competing together in other
fields. Certain areas of Software development may also be tackled
at once. Further consultations and technical examination are needed
before such proposals are made. Common finance may be appropriate
in such cases if a common industrial organisation such as a joint
subsidiary is set up to do the job.

44. As far as wider support for the R & D of the companies is concerned,
the Commission has accepted in the course of examinations under
article 92 of the Treaty that under present circumstances existing
aids may continue to be given on a national basis. An effort must
however be made to move on from the limited collaboration that is
possible in the immediate future to a systematic programme for the
development of European data processing which would provide a frame-
work for future financial support. Such a programme would cover not
only central processors, but the development of software, electronic
components peripherals and applications. In conjunction with Commu-
nity regional policy it should also ensure a reasonable distribution
of this growth industry throughout the Community. In this further
phase, there is a case for introducing a larger element of common
finance to support the overall programme. Financial support for the
European based industry, however, should not be regarded as permanent,
but as a temporary help designed to achieve the central objective of
a viable European industry capable, by the early 1980s of standing
on its own feet.

45. The draft resolution clearly does not cover all the needs raised in
the Commission's communication (including for instance leasing, edu-
cation and research). In such matters, further proposals will be

made when necessary by the Commission, against the background of the growing collaboration which the resolution is designed to initiate by May 1974. This communication moreover is itself designed to provide no more than the essential starting point for an evolving Community policy. The Commission proposes to review progress in a report on the state of data processing in the Community to be completed before the end of 1975.

DRAFT COUNCIL RESOLUTION ON A COMMUNITY POLICY
FOR DATA-PROCESSING

The Council of the European Communities

Conscious of the importance of data-processing to the development of the Community and its position in the world ;

Convinced that because of this importance Europe must contribute by its own efforts to the design development and manufacture of data-processing systems through strong european based companies existing side by side with the important companies controlled from outside Europe both of which can prosper in an expanding market,

Aware that the unbalanced competitive situation in the world computer industry makes necessary special measures to help european-based industry to become competitive on a lasting basis,

Believing that both a stronger industry and a more efficient and econmmical use of resources can be obtained through collaboration or joint action on procurement, standards and applications,

Acknowledging the necessity to strengthen the european based industry by associations between suppliers, stressing the efforts already made to this end and intending to give every encouragement to further steps by such companies to combine their efforts,

a)   agrees in principle that the Community will
undertake and finance in common a limited number of major
joint development projects of international character in
the field of applications, these to be followed by others
as needs are identified

b)   intends to give a community orientation to
policies for encouraging and promoting data-processing, in
particular by collaborating in procurement policy, standards
and applications and notes the Commission's intention of
arranging progressively the most appropriate procedures
for realising these objectives

c)   considers that it is desirable to develop a
systematic Community programme for the industrial development
and application of data processing, once the evolution of
industrial structure permits, with the central aim of
establishing, by early 1980s, a strong and viable european
based industry.

d)   will take decisions in the meantime on selective
proposals which the Commission might present for common
financial support for key collaborative industrial developments

e)   notes the Commission's intention, after appropriate
consultations, of presenting first detailed programme
proposals notably on the actions under a), b) and d) during
1974 with a view to decisions by the Council by the end of
the year and of preparing a progress report on the data
processing sector in the Community by the end of 1975.

ANNEX I

Economic data on the computer market

1. Growth rate.

a) "The growth rate of the computer industry is estimated at about 20% per annum for the coming decade :
15% in the US, 20% in Europe and 30% in Japan.

It appears certain that between 1970 and 1980 it will become the third largest industry in the world, after the oil and motor car industries."

(Source : Fourth Report from the Select Committee on Science and Technology, Session 70-71 (Volume 1)).

b) Estimate of the data-processing market, including software and services (turnover in millions of dollars):

Turnover in millions of $	1970		1975		1980	
	TOTAL	SERVICES	TOTAL	SERVICES	TOTAL	SERVICES
Europe	3900	470	8100	1500	12850	4600
US	10650	3345	22136	9750	36600	20800

(Source : DIEBOLD 1972).

c) Forecasts for the computer market in Europe and the world (in millions of dollars):

Central units

millions of $	1960	1965	1970	1975	1980	1985
World	1315.	2445	3500	6672	9533	13028
US	953	1917	2205	3684	4587	6068
Western Europe	265.1	345.4	693.0	1456.6	2346.4	3126.0
of which :						
West Germany	70.4	77.8	184.2	383.1	605.4	758.4
France	49.3	67.7	140.8	292.8	464.0	639.6
Italy	24.2	41.5	70.0	148.6	246.7	345.7
UK	59.7	69.7	138.7	272.4	410.7	525.8
Other Countries	61.5	88.7	159.3	359.7	619.9	856.5

Peripherals

millions of $.	1960	1965	1970	1975	1980	1985
World	1651	3192	6128	13784	23052	38394
US	1109	2333	3644	7117	10115	16238
Western Europe	414.1	612.2	1384.8	3399.9	6409.3	10465.5
of which:						
West Germany	109.8	136.3	372.3	893.9	1653.7	2543.1
France	76.9	120.4	284.5	633.2	1269.1	2145.4
Italy	38.0	73.7	135.3	346.7	673.0	1161.7
UK	93.3	123.9	280.3	635.6	1121.6	1758.2
Other Countries	96.1	157.9	312.4	839.5	1692.1	2857.1

(Source : Electronic Industries Association -
An economic, technological, political, and social look ahead at the electronic industries, May 1972, Section III, The electronics industry in 1985).

d) according to the figures given above, the estimated growth rates
   for 5 years are as follows :

	1970 - 1975		1975 - 1980	
	Europe	United States	Europe	United States
Central units	110%	67%	61%	25%
Peripherals	146%	95%	89%	42%
Services	219%	191%	207%	113%

2. The main manufacturers.

(a) Breakdown of the value of installed capacity at 1.1.1972 (Base 100).

Non US manufacturers
in the US : 0

European : 6.5
Japanese : 4.5
Others   : 0.5

Pie chart:
- IBM outside US 23.5
- IBM in US 38.5
- Non US manufacturers outside US 11.5
- Other US manufacturers outside US : 1.5
- other US manufacturers in US 19
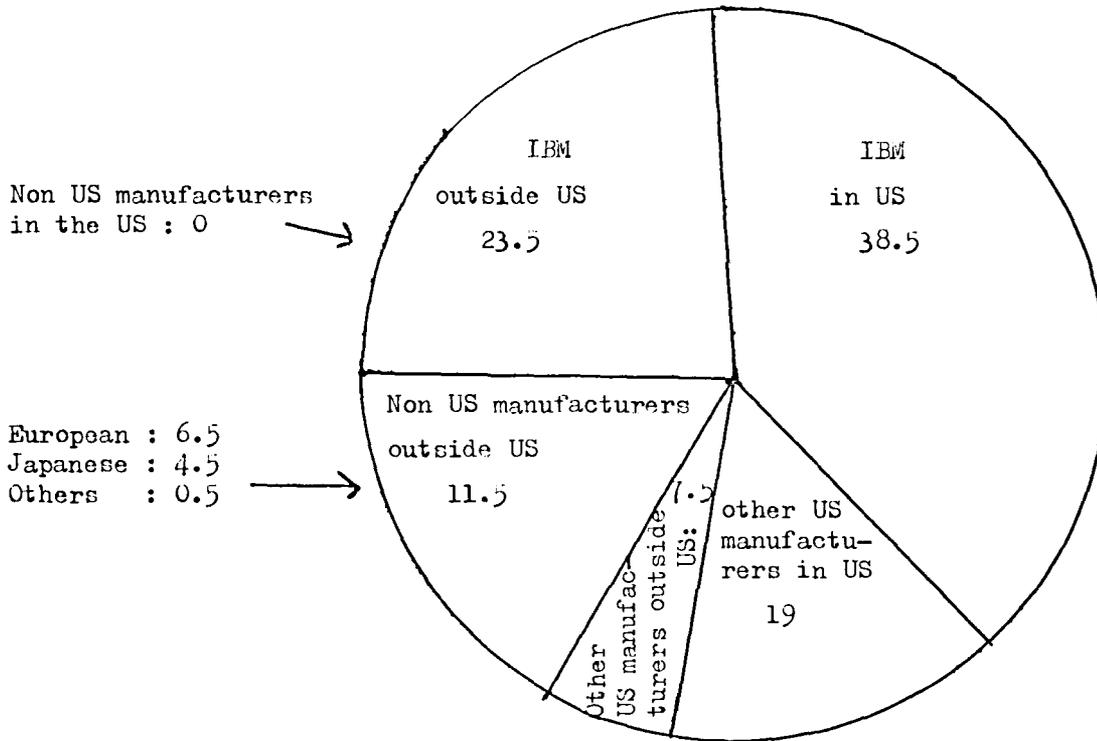
(Source : Délégation à l'Informatique, Paris).

(b) Breakdown of the West European computer market between the manufacturers:

expressed as percentages of the value of the installed capacity :

	IBM	HIS	UNIVAC	BURROUGHS	CDC	ICL	C.I.I./ SIEMENS PHILIPS	OTHERS	
GERMANY	57	8	3	3	3	0.5	16.5	9	100%
GREAT BRITAIN	38,4	7	3,7	3,9	1,8	34,7	0. 9	9,6	100%
FRANCE	57.5	18	3.5	1.5	3.5	3	12	1	100%
ITALY	73	11	7	2.5	2.5	-	2.5	1.5	100%
BENELUX	60	9.5	5	4	4	3	8	6.5	100%
OTHERS	65	6	4	3.5	4.5	5	2	10	100%
TOTAL %	59,47	10.0	4.4	3.12	3,27	7,85	6,93	4,85	100%

(Source : Délégation à l'Informatique, Paris 1972).
Department of Trade and industry, 1973)

3. **National helps ana other supports in the Community (in millions of u.a.) :**

	Hardware			Applications
Belgium	Progress contracts:	max. 25% of public contracts to Phillips max. 25% to Siemens		1971-73 : 4
France	1967-70: 109	1971-75:	158	1967-70 : 7.2 1971-75 :29
West Germany	1967-70: 65	1971-75:	190	1967-70 :15.6 1971-75 :150
UK	1968-Sept.1976 :	Support for ICL ∿144		

(Source : national delegations).

Estimated IBM expenditure on R&D: about 6% of its total revenue or $400-500 million/annum.

(Source : Fourth Report from the Select Committee on Science and Technology, Session 70-71 (Volume 1)).

In 1965, however, government participation in the USA in R&D on data-processing amounted to 300 million dollars, or 49% of the total R&D in this sector.

∕‾Source : Gaps in technology
Electronic computers, Table 24 - OECD, Paris, 1970‾∕

4. **The problems of scale faced by the European computer industry.**

A number of thresholds affect the size and viability of a computer manufacturing firm:

- the R&D threshold; this is an absolute minimum level of resources necessary to obtain an objective (development of a range of computers). It is dependent on many factors.

- The marketing threshold (services and technical assistance); this
demands a minimum volume of sales if the operations is to be
economically justifiable. For Europe, this can be put at 5-8% of
the European market.

The European market is, at present, divided up as follows:
(in value - source : Financial Times)

ICL   7.5%

UNIDATA   8%

IBM   55%

HONEYWELL-BULL   13%

The threshold for entry into the world market will be higher than
that for the European market.

- The "experience curve" indicates that the unit cost of a product is
reduced by approximately 15% each time the <u>cumulative</u> volume of
products on the market doubles. It can be shown that the unit
costs of IBM are about one half of those of European based manufacturers.
The present rate of growth (approx. 20%) of the Community market
shows that European manufacturers are already struggling to hold
their share of the market. Concentration is the only way of doing
better.

$\sqrt{}$ Source: Towards a European policy on the EDP industry

Y.S. HU,   1973

Study carried out under contract from the Commission.$\underline{7}$

5. Components

a) The percentage of the turnover of the electronics industry
absorbed by data-processing is as follows (1968):

EEC (without the UK)   19.8%

USA   23%

Japan   9.8%

b) It is estimated that in 1972 data processing used 31% of
   the semi-conductors in the EEC (37% in the United Kingdom).

c) On the integrated circuit market in the EEC (without the UK),
   the market was shared as follows in 1970:

Texas	24%	SGS	7%
Philips Group	20%	AEG-Telefunken	5%
ITT Group	15%	Sescosem	5%
Motorola	9%	Others	7%
Siemens	8%		

(Source : La recherche et le développement en électronique
          dans les pays de la Communauté et les principaux
          pays-tiers.
          BIPE study — October 1970).

6. The software industry.

a) It is estimated that in France and Great Britain in 1971 the share
   of the service companies in the turnover of the software sector
   came to 35% and 25% by value respectively. (Presse Informatique
   Nd 24 of 4.12.1972).

b) In 1971 there were approximately 1000 service companies in the
   USA, as against 500 in France and 750 in Great Britain. It is
   estimated that 3% of the service companies accounted for 57%
   of the turnover of the sector and that about 40% were running
   at a loss.

c) Productivity in 1971

Productivity of the software industry

	West Germany	USA	France	Great Britain
Turnover (in millions of u.a.)	75	300	51	40
Share of the market held by the 12 main companies	50%	51%	70%	41%
Data-processing specialists employed	4200	12000	3000	4350
Turnover per man in u.a.	17850	25000	18500	9100
Orders passed by the government (in millions of u.a.)..		118	4	2.9
Proportion of software (independent companies) be in relation to hardware		5.4%	8.3%	8.3%

(Source: 0.1 Informatique, no 161 B of 7.9.1971.
   "   : Handelsblatt, 6.3.1973).

7. Share of the data-processing market represented by the public and the ancillary public sector: ————————————————————————

a) Capacity held by the central administrations (1971):

      in France: 12% (by number), (Source: annuaire O.1 Informatique)

      in West Germany : 14.6% (by value), (Source: Diebold).

  If the ancillary public sector is included, the proportion for Europe is between 20 and 30%.

b) Service (1971)

      in France: 28% of the turnover of the service companies

      in the United Kingdom 23% of the turnover of the service companies.

        (Source : La Presse Informatique No 24, 4.12.1972

             based on a study by SESA-LOGICA)

8. Summary of public-sector data-bank projects in the countries of the enlarged Community: ————————————————————————

Country	Total number of projects enumerated	Operating or under construction	Operating or under construction					
			Access			Volume		
			Random	Sequential	Combined	Large $>10^9$c	Medium 10^7-10^9c	Very Small $<10^7$c
West Germany	49	23	14	13	4	4	18	–
Belgium	13	6	1	6	1	1	4	1
Denmark	15	12	2	10	–	1	7	4
France	Inquiry being carried out by the Délégation à l'Informatique.							
Ireland	4	4	–	4	–	1	2	1
Italy	7	7	–	–	–	–	–	–
Norway	18	14	5	11	2	2	10	2
Netherlands	4	2	–	2	–	–	1	1
UK	20	13	5	10	2	4	5	3

(Source : Document OECD DAS/SPR/71.44 – Annuaire des banques de données dans le secteur public).

9. **Planned expenditure on data communication in the United States up to 1980 :**

   a) "... between now and 1980, the United States will spend 250 thousand million dollars on setting up and developing data processing and telecommunications networks...

   These networks will be of vital importance if one considers that according to estimates the United States alone will, by 1980, have 2.5 million terminals permitting 250,000 million operations or "calls" per year".

   (Source: Doc. SP(71)19 OECD).

   b) "... American experts estimate that, by about 1980, $ 260,000 million will have been invested, $160,000 million in computer systems and $100,000 million in extending and developing telecommunications networks."

   (Source: same document, revision 1).

10. **Needs for comuter specialists:**

    a) According to the Second West German Data-Processing Programme, the manpower needs at the beginning of 1978 will be 250,000-400,000 (operators, programmers and analysts), including 200,000-300,000 for utilization. These figures are based on an average manpower of 6.9-9.0 per computer.

    At the end of 1970, computer specialists totalled about 100,000.

    b) A study by the BIPE (April 1970) estimates that in France 100,000 new computer specialists will enter the profession between 1970 and 1975. At the beginning of 1970 their numbers were estimated at 70,000.

    c) As regards Italy, an AICA study estimates that in the period 1971-80 the number of graduates or holders of equivalent diplomas to be trained for data-processing purposes will be 38,100-54,400, which probably represents about 20% of the total university degrees during this period.

ANNEX II

SUMMARY OF THE COMMISSION'S COMMUNICATION
ON A COMMUNITY POLICY FOR DATA PROCESSING

1. The effective application and industrial development of data proces-
    sing is crucial to the European economy; it is the third largest
    world industry, growing at 20 per cent per year in Europe; its
    applications penetrate almost every walk of life (§ 1) *.

2. This industry is, however, dominated by a single firm based
    outside Europe which has 60 per cent of the world market (§ 2).

3. The Commission has the obligation, under Article 86 of the Treaty,
    to ensure that there is no abuse of such a dominant position. The
    best guarantee against abuse is, however, effective competition.
    A flourishing European data processing industry ought to include
    a strong european-based element, side by side with the important
    companies controlled from outside. In an expanding market, there
    is room for both (§ 2-4).

4. To achieve a strong european based industry, the key need is to
    develop an industrial structure capable of competing with the
    dominant producer in the supply of a range of central processors.
    In an endeavour to maintain a national capability, three governments
    have supported indigenous companies with finance and preferential
    purchasing. Given the small size of the European-based enterprises,
    (they have only 6 per cent of the world market together) there is
    much evidence that they will need to combine forces, if they are
    to achieve long term viability, make the best use of available
    funds and achieve a genuine European, indeed world dimension
    (§ 5-8).

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* see corresponding paragraph of Document I

5. A first welcome step towards this aim has been taken by the
   formation of the Unidata group by Siemens, CII and Philips.
   The separate commercial plans of this group and the other
   major European enterprise, ICL, mean, however, that a further
   regrouping between them in the near future may be difficult and
   that the immediate prospect is for two major European Groups
   competing with each other (§ 9-10).

6. In this situation, Community policy towards the indigenous
   industry is best seen in two phases : In a first phase, a
   limited collaboration should be encouraged both for ends useful
   in themselves and as a mean of encouraging a convergence of the
   companies with a view to a further combination later,which respects
   the rules of competition under the Treaty.In a later phase,a more
   comprehensive pluriannual programme for the support of European
   data processing is desirable (§ 11).

7. A policy towards the data processing industry must take account
   of the needs of the components, peripherals and software industries,
   which together account for a large and increasing part of the
   value of computer systems (§ 11).

8. In what is loosely-called "peripherals", though a variety of
   European companies have been successful, the overall picture
   is one of a growing payments deficit and technological dependance.
   Further consideration needs to be given at Community level to
   the question whether the industry needs to develop and the
   Community to support an indigenous capability to produce key
   sub-assemblies of computer systems (for example disc units)
   (§ 12-13).

9. In electronic components, it is essential f or the European
   industry to be abreast of the latest technologies, notably in
   the field of memory technology and especially Large Scale
   Integration, Further consideration should be given to the
   possibility of joint support for a common development and produc-
   tion capability, even during a period in which the major compa-
   nies are apart (§ 14-15).

10. In software, there is a need to develop a "market" in transferable software packages and to support the development of programmes which enable users to switch from one type of equipment to another. The best way for the Community to stimulate the growth and strength of the software industry would however be to sponsor one or more major international development projects which stretch its capability (§ 16-19).

11. Side by side with the objective of strengthening the european based industry, the Community should promote collaboration between users, particularly public ones, with a view to applying data-processing more effectively to society's needs (§ 21).

12. In the United States, the market provided by Federal Government procurement has not merely served users but spurred and stretched the industry. In Europe, procurement policies need to be combined at Community level with the dual aim of providing analogous opportunities for the european based industry and achieving economies for users by joint purchasing and development (§ 22-24).

13. In the field of applications, collaboration on three levels can bring benefits :

    a) certain applications have a basic international character (air traffic control, environmental monitoring, meteorology, customs and trade statistics, air, sea and rail freight systems for example). Major development projects in such areas could also provide an impetus to the development of the European-based industry. A small number of such projects should be undertaken, as soon as project selection, planning and organization can be completed, to be followed by others as the need arises (§ 26).

14.   b) in some areas, where common needs exist, further
savings may be achieved by specifying requirements
together, and jointly developing programmes or
systems which can then be used, in whole or in part
in several states : medical systems, social security
records, urban traffic, control and management are
examples (§ 27);

15.   c) in many areas coordination of national policies may
bring economies and greater efficiency : Data-
communication and the management of data banks are
priority examples (§ 28-31).

16. International projects as suggested in 13a above would
be appropriate subjects for common financing as would common*
development contracts to industry carried out jointly bµ
common subsidiaries. The Commission when examining national
aids under Article 92 of the Treaty has accepted that in
the present circumstances, existing aids to the overall R & D
efforts of the major national companies should continue.
However, in the later context of an overall programme for
Europe, providing support on a temporary basis for a regrouped
industry, a larger element of common finance would make
sense (§ 44).

17. There is a need to develop and apply common standards, notably
in the fields of high level languages and electronic interfaces,
in the interests of both users and the industry as a whole.
A combined public procurement policy at Community level can be
an important instrument for getting such standards applied
(§ 34-35).

18. Collaboration or joint action will be needed in a number of
other fields, including education, training of personnel, fun-
damental research, protection of software, and support for
leasing. The Commission will make appropriate proposals at a
later stage (§ 36-37).

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* see footnote § 13 Document I

19. The Commission intends to follow closely the evolution of
    the structures of employment, implied by the implementation
    of a Community policy, taking special account of the needs
    of regional policy (§ 38).

20. A wide debate is necessary on the subject of the privacy
    and protection of the citizen, with a view to the development
    of a Community policy in this field. Publics hearings are
    recommended (§ 39).

21. In the light of this situation, the Commission proposes that
    the Council resolve to encourage and support further associations
    between the companies, to give a Community orientation to poli-
    cies for encouraging and promoting data-processing, notably
    by collaborating in procurement policy, standards and applica-
    tions, and to decide on a limited number of major common
    development projects in the field of applications before the
    end of 1974. The Commission will present a progress report
    on the evolution of the sector before the end of 1975 (§ 40
    to 45 and resolution).