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Communication from the Commission to the Council

Community data processing policy

FIRST PRIORITY ACTIVITIES :
THREE JOINT PROJECTS ON COMPUTER APPLICATIONS

FIRST ANNUAL REPORT

COM(78) 761 final.

SUMMARY AND PROSPECTS

The first priority activities in the field of computer applications decided by the Council in July 1976 are now under way.

They relate to public health (data bank for organ and blood matching), the improvement of the legal documentation retrieval system in the Community and future developments in computer-aided design techniques for the benefit of two important industrial sectors, advanced electronics and construction.

In September 1977 the Council decided on a second set of priority activities; its aims are more ambitious and relate to the industry itself (software portability), research cooperation (three studies in support of the use of data processing) and applications of future interest to European remote data processing (high-speed data transmission) and to the management of the customs union and the Community agricultural market. This second set of projects is now being put in hand.

Both the first and second sets of projects consist of feasibility studies intended to lead to practical applications under the future four-year data processing programme now under discussion in the Council. These applications were chosen because of their general interest and the real impact they will have at industrial, economic and social level in the Community. It is of course too early to draw conclusions from the implementation of these projects, but some interesting aspects are already apparent.

The invitations to tender issued under these programmes aroused keen interest in the relevant circles. As a result, consortia have been formed and this is helping to create industrial links between firms which will sometimes prove to be more than temporary. Although management procedures are rather cumbersome and costs higher when work is carried out by a consortium, optimum results can nevertheless be obtained since these unfavourable aspects are offset by the fact that the actual situations in all Community countries are properly understood and taken into account in the course of the work.

A crucial problem in the context of these projects is the use of the results obtained. There are plans to put them to practical use under the multiannual programme, but in any case it is vital that the results of current studies be disseminated and discussed with the circles concerned so that their precise value and their impact on the relevant sectors can be assessed.

The Technical Committees of users set up for each of these projects provide a forum for discussion and dissemination of information during the course of the projects. Later, the Commission and national administrations will use their own information facilities to disseminate the results. The Commission also intends to make use of symposia both to keep specialists informed and to obtain their comments and assessments.

It is therefore organizing in November 1978 a symposium at which the results of the studies on computer-aided design for electronic circuits will be examined. It plans to hold a further symposium in 1979 on legal data processing.

For almost two years the Commission departments have been gaining experience on the management and utilization of computer studies in this field. The implementation of these projects with the assistance of the Advisory Committee on Joint Data Processing Projects has already produced a number of results that can be regarded as promising. They indicate that there are reasonable prospects of successfully extending the existing system to the management of various projects included in the proposal for a multiannual programme.

Community data processing policy

FIRST PRIORITY ACTIVITIES :
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FIRST
ANNUAL REPORT
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decision n° 76/632/EEC of July 22 1976,
Article 3.

FIRST PRIORITY ACTIVITIES :
THREE JOINT PROJECTS ON COMPUTER APPLICATIONS

INTRODUCTION : The Community approach to a data processing policy

The Council Resolution of 15 July 1974 on a Community policy for data processing (1) had established the principle of giving a Community orientation to policies for encouraging and promoting data processing which initially was to take the form of priority proposals from the Commission on a limited number of joint projects of European interest in the field of data-processing applications.

Following proposals from the Commission (2), the Council adopted in 1976(3) a series of three joint projects on the following subjects :

1. the setting up of a data bank for matching organs and blood;
2. requirements in the field of legal document retrieval systems in the Community;
3. developments in computer-aided design applied to logic circuit design aids and construction management.

Another Council Decision taken on the same date (4) set up an Advisory Committee on the Joint Data Processing Projects adopted in the earlier decision; this Committee was to assist the Commission in the execution of these projects.

This report deals mainly with the implementation of these projects by the Commission and their current status.

In its 1974 Resolution, the Council also referred to the desirability of priority proposals concerning collaboration on standards and applications and in public procurement policy and concerning the promotion of industrial development projects on areas of common interest involving transnational cooperation.

It also considered it desirable to prepare, in the medium-term, a systematic Community programme to promote research, industrial development and applications of data processing. This programme, the central aim of which should be to ensure that there is a fully competitive European-based industry by the early 1980s, would provide for the coordination of national promotion and Community financing in appropriate fields of joint interest.

(1) OJ N° C 86/1 of 20 July 1974.

(2) Initial proposals for priority data processing projects, COM(75)35 final of 5 March 1975.

(3) Council Decision N° 76/632/EEC of 22 July 1976 - OJ N° L 223/11 of 16 August 1976.

(4) Council Decision N° 76/633/EEC of 22 July 1976 - OJ N° L 223/16 of 16 August 1976.

As a result, the Commission forwarded to the Council a second set of priority proposals (5) comprising projects in the main fields listed in the Resolution. These projects were intended to pave the way for the Community programme, the foundations of which had been laid by the Communication, and to lead on to activities that would fit into this programme.

In a number of decisions taken in September 1977 (6) the Council adopted some of these proposals :

- three of the studies proposed by the Commission in the field of software portability intended to lead to industrial developments,
- three studies in support of the use of data processing to be carried out by a group of national centres, thus instituting Community research and development collaboration.
- two studies on computer applications, one of which (77/619/EEC) was included in the first set of proposals; the Council decision on it had been postponed.
- a number of exploratory studies to pave the way for other computer applications projects under the future programme.

At the same time the Commission extended the terms of reference of the existing Advisory Committee to cover these projects.

This report also contains information on the first steps taken by the Commission to implement these projects, which in view of the dates on which the decisions were taken are still in the initial stages.

At the end of 1976 the Commission sent the Council a proposal for a four-year programme on the development of data processing in the Community (7) which is still being discussed within the Council.

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- (5) Second communication from the Commission to the Council on a Community policy for data processing - COM(75)467 final of 10 September 1975.
 - (6) Council Decision N° 77/615/EEC adopting a series of informatic projects in the field of software portability.
Council Decision N° 77/616/EEC adopting a series of studies in support of the use of informatics.
Council Decision N° 77/617/EEC adopting an experimental application project in high-speed data-transmission techniques.
Council Decision N° 77/618/EEC adopting a number of exploratory studies in the field of informatics.
Council Decision N° 77/619/EEC instituting a study of informatic systems for the processing of data on imports/exports and on the management and financial control of agricultural market organizations.
Council Decision NO 77/620/EEC amending Council Decision 76/633/EEC setting up an Advisory Committee on Joint Data Processing projects.
All these decisions are dated 27 September 1977 and are published in OJ N° L 255 of 6 October 1977.
 - (7) Third Communication from the Commission to the Council on a Community data processing policy - COM(76)524 final - Volumes I to IV - 9 November 1976.

1. CONTENT OF THE INITIAL PRIORITY PROJECTS

The first three projects decided on by the Council concerned computer applications in medicine, the Community's legal documentation and computer-aided design.

They were of interest mainly in view of their social, economic and technical spinoff; their industrial scope varies but is in all cases limited. They should be regarded above all as an initial indication of a willingness in the Community to cooperate in computer applications.

1.1. Study on the setting up of a data bank for matching organs and blood

At present kidney transplants can greatly increase the patient's survival prospects when the characteristics of the donor's and the recipient's blood are identical as regards antigens having relevance to transplantation. A kidney transplant between HL-A (human leukocyte antigens) identical siblings have approximately a 90 % four-year organ survival rate, which falls to 50 % or less for transplants between HL-A non-identical siblings. The likelihood of HL-A identity is low for 40 % of patients and consequently if the blood data of a large number of potential donors are stored in a data bank the chances of discovering an identical or similar formula are increased. It is estimated that data on 5 000 individuals are required to provide reasonable prospects of success. There are at present several kidney banks in the Community with computer facilities :

EUROTRANSPLANT in the Netherlands, SKANDIATRANSPLANT in Denmark,
FRANCETRANSPLANT in Paris and THE BRISTOL SYSTEM in the United
Kingdom,

but their installations are not compatible.

The aim of the study is therefore to establish the conditions for setting up a joint data bank giving direct access to all donor files and allowing future extensions.

The project has been divided into three phases :

Phase 1 :

Analysis of the present mode of operation in the existing transplant organizations and the drawing up, in collaboration with users, of specifications for running a system for matching kidneys and blood within a common scheme.

Phase 2 :

After the specifications have been agreed with the users, computer consultants will investigate the various data processing alternatives and recommend an appropriate system. During this phase, the question of the location of the necessary computer or computers will also be examined and recommendations made.

Phase 3 :

Detailed specifications for the system will be prepared, including the financial implications of the installation, staffing and running costs of the foundation responsible for directing this common scheme.

1.2. Study of requirements in the field of legal documentation retrieval systems in the Community

Community law is a recent creation resulting from the establishment of the European Communities; each Member State must have immediate information, in the appropriate language and form, on the effects of Community legislation in its territory.

The rapid growth of Community legislation (25 000 texts adopted by the Institutions by the beginning of 1973 and 4 000 new texts in the course of that year) has made manual processing of this information impossible.

The Commission has set up a computerized system known as CELEX for legal information retrieval, but this is limited to the main requirements of the Institutions.

Several Member States have started to develop national systems for the processing of legislation and court decisions.

The main aims of the study are as follows :

- i) to make an inventory of the legal documentation systems used in the Member States and a survey of their future development plans;
- ii) to analyse users' requirements (institutions, government departments, professions and others);
- iii) to make a systematic collation of the information on technical standards used for the exchange of files and selective information at European and international level in this field, as a basis for the decisions to be taken on common standards;
- iv) to propose a long-term programme for the introduction of systematic link-ups at Community level with access in the Member States, with the possibility of using networks such as EURONET;
- v) to recommend if necessary the development of software suited to these needs;
- vi) to formulate specific proposals for the development in priority phases of systems in the Community, including estimates of costs and timescale for each phase.

These proposals could cover an extension and development of the Commission's own system and of those in the Member States, in order to ensure effective access to Community law in all the official languages.

1.3. Development studies in computer-aided design (CAD)

CAD techniques are now sufficiently developed to be applied successfully in various industrial sectors.

Two sectors have been chosen to study the desirability of Community development projects on the applications of CAD :

- the design of electronic logic circuits which will in particular have an impact on the future of computer
- construction management, a field in which significant work has already been done within the Community.

1.3.1. Study, definition and evaluation of logic circuit design aids offered by CAD techniques

In recent years the design of logic circuits has been greatly affected by spectacular technological developments leading to increasing complexity and a higher degree of integration of components, to such an extent that a circuit can now be regarded as a traditional sub-system.

Equipment manufacturers are tending more and more to require conceptualization of the logical processes rather than definition of the circuits themselves.

CAD techniques applied to model building and performance forecasting have reached a plateau and use of the best packages developed recently calls for precise planning and capital investment that can exceed one million EUA.

The aims of this study are therefore :

- to determine the state of the art, taking into account the cost-benefit ratio, user requirements and the impact of technological developments, to assess the adequacy of existing techniques in relation to requirements and to identify the main problems;
- to forecast requirements and possible solutions for the period 1979-82;
- to investigate the advisability of future developments in the Community in the light of achievements in the United States and Japan;
- to prepare recommendations regarding these developments, including a precise plan of work if appropriate.

1.3.2. Study on construction management

The construction industry is seeking processes for the complete integration of design and construction. which will warrant the development of computer systems because of the complex nature of the problems involved and the extensive capital required.

It is necessary to identify the sources of expertise and existing systems and to define the areas common to the variety of uses envisaged so as to decide whether further developments are desirable. The study should embrace industry as well as research and development organizations throughout the Community and should be conducted in three phases :

1. Sources of expertise, existing and planned systems, gaps in software development, portability;
2. Hardware and system response requirements, relationship between design and field of application, economic benefit of application programs independent of the data base;
3. Broad outline systems specifications and further development strategies.

2. MANAGEMENT OF THE PROJECT

The arrangements set up to manage projects of this type are at three levels :

- within the Commission, a project team has been set up (some members being on temporary contracts), with a project leader for each specific study or sub-study;
- the Advisory Committee on Joint Data Processing Projects set up by the Council consists of representatives appointed by the Member States assisted where necessary by experts;
- technical sub-committees assist and advise the project leaders and represent users for each of the projects.

2.1. Selection of project leaders

The selection procedure was established by the Commission after consulting the Advisory Committee and is as follows :

- 2.1.1. A project leader is needed for each of the following projects :
 - Study on legal data processing
 - Study on CAD (electronics)
 - Study on CAD (constructionand a project coordinator for the medical study.
- 2.1.2. Applications are received by the Commission after an official notice for each of the above posts based on profiles agreed with the Advisory Committee.
- 2.1.3. A selection Board consisting of independent Community experts meets to report on the order of merit of candidates selected after individual interviews.
- 2.1.4. The Advisory Committee delivers an opinion on the Commission's choice.

Following this procedure, posts have now been taken up by :

- the Coordinator for the medical study, in November 1976,
- the project leaders for the study of CAD (electronics) in December 1976 and for the study of CAD (construction) in January 1977,
- the project leader for the legal data processing study in January 1977.

2.2. Procedures for invitations to tender, examination of the replies and results

After the Advisory Committee had been consulted, an open invitation to tender was published in OJ N° C 24 of 1 February 1977 for the studies on legal information retrieval systems, CAD in electronics and CAD in relation to construction management, the closing date for tenders being 18 March.

In March and April 1977, the tenders received were examined in accordance with the procedure approved by the Advisory Committee. In May, this Committee delivered its opinion on the choice of contractors and the content of the industrial contracts; the selected contractors were as follows :

- a consortium headed by the firm SAGET in Luxembourg for the study of CAD in electronics;
- a consortium headed by the firm SFS, West Germany, for the study on legal information retrieval.

The best tenders received for the study of CAD in relation to construction management needed clarification and additional details. The Advisory Committee therefore asked the Commission to obtain these details. Once these had been examined, a contract was concluded with CIAD. These three contracts came into effect on the following dates :

- 8 June 1977, for a period of eighteen months, for the study on legal information retrieval. The total amount is 249 965 u.a. (8)
- 13 June 1977, for a period of fourteen months, for the study on CAD in electronics. The total amount is 229 956 u.a.
- 1 October 1977, for a period of twelve months, for the study of CAD in relation to construction management. The total amount is 219 330 u.a.

On the advice of the Advisory Committee, a restricted invitation to tender was issued for the medical survey, the amount for which was only 30 000 u.a. This was limited to a list of ten potential contractors drawn up by the Technical Committee for the project.

(8) The change to EUA did not take effect until 1 January 1978

After careful examination, the contract was awarded to a consortium formed by MESCON B.V. of the Netherlands and REGNECENTRALEN, Denmark, and took effect on 1 June 1977 for a period of six months, the total amount being 30 000 u.a.

3. STATUS REPORT

3.1. Description of the work done on the first priority projects

3.1.1. Study on the setting-up of a data bank for matching organs and blood

The first phase of the work carried out by the Project Working Party culminated in the adoption of the report on the specifications for a kidney and blood matching system in line with an agreed scheme. The report, approved by the Technical Committee, recommended that the contractors should explore methods of :

- a) providing communications between the files maintained by the four centres concerned;
- b) maintaining in each centre the combination of files from the four centres.

The contract concluded for six months with the consortium (9) on 1 June 1977 (see 2.2.) covered the second phase of the project.

At the end of this contract, the contractors defined four possible methods :

- one based entirely on software,
- another based on a telephone link between intelligent terminals in each centre,
- a third based on a combination of existing hardware and DECNET software,
- the fourth based on the use of Euronet.

The contractor's report was accepted by the Working Party of doctors for the project. The solution recommended, which was the development of a system for reciprocal consultation by intelligent terminals of the files held in each of the centres, was approved by the Technical Committee and this concluded the second phase of the project. Preparation of the development proposal, which is the third and last phase, is now in progress in the Project Working Party and Technical Committee. It is planned to present the proposal to the Commission in September 1978.

(9) MESCON B.V., Netherlands
REGNECENTRALEN, Denmark

3.1.2. Study of requirements in the field of legal information retrieval systems in the Community

The project leader is Mr N.H. Nunn-Price. The first phase, consisting mainly of an analysis of user requirements in Europe, was completed at the end of 1977 under a contract concluded with the consortium headed by SFS GmbH (10). A report (11) was produced and accepted by the Commission as complying with the specifications.

The report, based on two surveys of actual users of existing systems and of potential users, sets out a number of conclusions on the continuation of the work, in particular on the need for strict updating and a precise knowledge of the contents of the data base.

It has since been distributed through official channels to European centres working in this field.

The technical phase of the project started at the beginning of 1978; tests to evaluate systems in use in several of the main European legal documentation centres have been completed. While the results were being analysed, the possibilities of using networks, including Euronet, were examined.

The project team has now embarked on a detailed examination of operational requirements for a computerized legal documentation system suited to the Community environment and this will be followed by the drafting of development specifications which should be available by the end of 1978.

3.1.3. CAD studies

3.1.3.1. Studies of logic circuit design aids using CAD techniques

Immediately the contract for this study (project leader Dr A de Mari) was signed, the contractor (12) started to prepare three questionnaires intended for :

- users of CAD techniques,
- designers of electronic circuits not using these techniques,
- suppliers of CAD packages.

(10) SEMA Informatique, France, SCICON Ltd, United Kingdom,
SFS GmbH, principal contractor, West Germany and I.I., France

(11) Doc. III/458/78-E

(12) Principal contractor : SAGET, Luxembourg

Consortium : PLESSEY, United Kingdom

SEMA Informatique, France

NIXDORF, West Germany

BRUNEL University (United Kingdom).

After trying out the questionnaires, the contractor started a preliminary series of interviews (85 institutions in Europe, the United States and Japan).

An interim report containing data obtained from replies to the questionnaires and covering problems regarded as meriting priority was submitted to the Technical Committee for the study and approved.

The second cycle continuing the interviews in order to analyse the priority problems was completed at the beginning of 1978. This covered benchmark tests on CAD packages in use. The study focused on model building, simulation of testing and verification programmes and engineering data bases.

The results of the first two cycles were combined in a study report.

An analysis of the results, bearing in mind technological developments in the period 1978-82, led to initial conclusions on the advisability of the following measures :

- dissemination of technical information,
- establishment of a data base on component models, accessible through a European network,
- training and refresher training for circuit designers,
- formulation and promotion of norms and standards,
- development of packages.

Possible solutions are now being investigated and recommendations together with a detailed plan of action will be issued in the months ahead.

3.1.3.2. Study on construction management

As stated in section 2.2, the contract was not signed until 1 October 1977 so as to obtain further information on certain points that were insufficiently clear. However, the work had been properly prepared under the project leader Mr P. Van GALEN and the consortium (13) headed by CIAD started work immediately.

After documents concerning several systems in use in the construction industry had been examined, an initial postal survey amongst companies was carried out.

At the beginning of 1978, the examination of the results indicated the need for additional interviews with users in France and West Germany.

(13) CIAD, Netherlands, principal contractor
International R and D Co Limited, United Kingdom
TNO-IBBC, Netherlands
Atkins R and D, United Kingdom
Diaforsk, Denmark
G.O. Walford and Partners, United Kingdom

The initial results were discussed in the Technical Committee in June 1978; it was decided to conduct further interviews, this time with users specializing in these techniques. The second interim report is now being revised to incorporate certain software and hardware changes better suited to the specific requirements of the construction industry. It is expected to be finalized in the third quarter of 1978. Specifications on later developments will then be formulated.

3.2. Budget situation at 31 December 1977

As the Commission budgets are closed at the end of each year, there follows a statement of commitments and payments under the first priority programme at that date. The budget implications of the second priority programme will not really be felt until the 1978 financial year.

3.2.1. Statement of commitments at 31 December 1977 (UA)

	<u>Industrial costs (14)</u>	<u>Technical costs (15)</u>	<u>Total cost</u>
Organ and blood bank	30.000	7.099	37.099
Legal documentation	249.964	103.384	353.348
CAD-electronics	229.956	62.066	292.022
CAD-construction	219.330	71.134	220.464
	<u>729.250</u>	<u>243.683</u>	<u>972.933</u>
Administration and meetings of technical committee			80.078
			<u>1.053.011</u>
Still to be committed			68.989
Total appropriation for the programme			<u>1.122.000</u>

3.2.2. Statement of payments at 31 December 1977

At that date, 539 273 UA had been paid out of the total commitments set out above.

(14) Amount of outside study.

(15) Cost of project leaders, their technical assistants, the purchase of studies and the costs of attending congresses.

3.3. Launching of the second set of priority projects

(Council Decisions N° 77/615, 616, 617, 618, 619, 620 of 27 September 1977).

3.3.1. Selection of project leaders

In view of the date of the Council Decisions, the studies proper had not been started at 31 December 1977. The Advisory Committee, having received wider terms of reference, met several times to advise the Commission on the procedure for selecting project leaders, which followed a similar course to that described for the first set of projects (see 2.1.).

It was decided :

- (a) that a project leader would supervise all the studies concerning software portability (Decision N° 615);
- (b) that an assistant project leader would be particularly responsible for the studies by research institutes (Decision N° 616);
- (c) that for the project concerning high-speed data-transmission techniques (Decision N° 617), which involves Community participation in a project designed by ESA (16) and CERN (17), the Commission and the Advisory Committee did not consider it necessary to select a project leader as participation in the project would be supervised by representatives of the Commission itself;
- (d) that a project leader would be recruited for the study of import-export data systems (Decision N° 619);
- (e) that the exploratory studies (Decision N° 618) would be followed directly by the Commission team.

Consequently applications for the posts of project leaders were examined on the basis of the profiles established after consulting the Advisory Committee and the final selection was based on short lists prepared by boards of independent experts and was approved by the Advisory Committee in November 1977.

3.3.2. Negotiation of contracts with national research institutes (Decision N° 616).

As the Council Decision indicated that 50 % of the cost of the studies would be paid by the institutes themselves, the Commission made initial contact with representatives of these institutes to decide on contractual arrangements valid both for the studies proper and for any extensions.

(16) ESA = European Space Agency

(17) CERN = European Organization for Nuclear Research.

The technical specifications for the three studies have now been finalised and it is planned to sign the contracts in July 1978.

CONCLUSION : the development of Community data-processing projects under the proposed four-year programme

As indicated above, the execution of the studies in the first set of priority projects during their first year may be regarded as satisfactory.

The feasibility study on the data bank for organ and blood matching should lead to the establishment of specifications for the further development of the project by the end of the first half of 1978.

The Technical Committee considers that the continuation of this project is now of interest to Community health and medical authorities. It has requested the Commission representative to refer the matter to the relevant Directorate General.

The study of legal documentation systems should also produce development specifications by the end of 1978. The report concluding the first phase of the study was very favourably received by the circles concerned.

The studies on computer-aided design (electronic logic circuits and construction management) are expected to provide a number of detailed recommendations on the future development of the techniques.

In all these preliminary studies, careful attention has been paid to the software portability aspect, which is one of the main subjects of concern to the Commission.

In the second set of priority projects, those on software portability, which could have significant industrial spin-off, will probably not be developed until 1979 in view of the number of preparatory tasks in progress, and in particular :

- the preparation of specifications,
- the opinions of the Technical Committee and the Advisory Committee,
- the invitation to tender procedure planned for the end of the first half of 1978,
- the selection of replies with the aid of the Technical Committee and after consulting the Advisory Committee,
- the negotiation and conclusion of contracts.

As in the case of the study of import-export data systems and participation in the project on high-speed data transmission, most of these preliminary studies should lead to the definition of successive development stages which will each be incorporated in the future four-year programme.

Finally, the studies to be carried out by national research and development institutes are regarded by the Commission as the first stage in establishing closer collaboration between these bodies on a Community scale; as regards both information and training for users and the effective application of future norms and standards, these arrangements could evolve into a useful operational framework. All these developments will have to be examined in greater detail when the Council takes its decision on the four-year programme.