

COUNCIL DECISION
of 27 September 1977
adopting an experimental application project in high-speed data-transmission techniques

(77/617/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 235 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parliament ⁽¹⁾,

Having regard to the opinion of the Economic and Social Committee ⁽²⁾,

Whereas, with a view to giving a Community orientation to policies for encouraging and promoting data-processing, the Council agreed in its resolution of 15 July 1974 on a Community policy on data processing ⁽³⁾ to adopt, on a proposal from the Commission, joint projects of European interest in the field of data-processing applications;

Whereas, to this end, priority should be given to projects likely to meet users' needs and increase the capacity of the Europe-based informatics industry so as to satisfy these needs on the European and world markets;

Whereas the evolution of ground networks and satellite links for data transmission requires the development of advanced techniques and procedures to provide the reliability necessary for transmitting large quantities of data at high speeds;

Whereas such a project seems necessary in order to attain certain Community objectives within the functioning of the common market;

Whereas the Treaty establishing the European Economic Community has not provided the necessary powers,

HAS DECIDED AS FOLLOWS:

Article 1

A joint informatics project on the experimental application of high-speed data-transmission techniques is hereby adopted.

This project is defined in section II of the Annex.

Article 2

The duration of the project shall be four years. The necessary appropriations for carrying it out, which shall amount to 420 000 units of account, shall be entered in the budget of the European Communities.

Article 3

The Commission shall be responsible for carrying out the project. It shall be assisted by the Advisory Committee on Joint Data Processing Projects.

The Commission shall submit a report to the Council annually.

Done at Brussels, 27 September 1977.

For the Council

The President

A. HUMBLET

⁽¹⁾ OJ No C 28, 9. 2. 1976, p. 6.

⁽²⁾ OJ No C 131, 12. 6. 1976, p. 8.

⁽³⁾ OJ No C 86, 20. 7. 1974, p. 1.

ANNEX

EXPERIMENTAL APPLICATION OF HIGH-SPEED DATA-TRANSMISSION
TECHNIQUES

I. INTRODUCTION

The project covers the experimental development of a computer application and comprises a series of experiments in computer-to-computer communication by users using the orbital test satellite (OTS) designed by the European Space Agency (ESA). The project provides for experiments with advanced high-speed data-transmission techniques using facilities designed by the various participants in the project: ESA, European Organization for Nuclear Research (CERN) and their associate laboratories.

New data-communication techniques are already having an impact on almost all aspects of human affairs. The experiments carried out on the ESA Orbital Test Satellite (OTS) in the area of informatics for high-energy physics research will greatly benefit the organizations involved, and should provide valuable information.

1. Background and OTS requirements

The Orbital Test Satellite (OTS) is an experimental communications satellite built by the European Space Agency (ESA). The satellite operates on two narrow band channels for use in high-speed data-transmission experiments. The purpose of the OTS is to pave the way for the planned European Communications Satellite and to try out the new ideas and techniques which the latter will use.

The development of the high communication capacity satellite is already being funded by ESA. Users and potential users of computer-to-computer applications requiring high-speed data-transmission facilities are invited to examine the possibilities of the OTS. Practical experiments should be conducted in bulk data-transfer with particular reference to error-checking and error procedures. Such experiments would be valuable as a source of early operational data based on real usage of a satellite link which could be used in the planning and design of standard equipment by industry. Simple, low-cost, ground stations handling data rates not in routine use today will require the development of appropriate antennae, radio frequency amplifiers and receivers, data-transmission equipment and formats.

2. Background and CERN requirements

Hundreds of scientists of the Member States come to CERN to carry out high-energy experiments. Experimental data on

bubble chambers is collected every year at CERN on film and on tens of thousands of magnetic tapes and the great majority is eventually analyzed on computers in the researchers' home laboratories. At present the means of transport of the data (by aircraft or by road) is inadequate. This constraint makes it impossible to use computers in the scientists' home laboratories in order to monitor the progress of their experiments at CERN, analyze significant data samples and return the results in time to correct errors or malfunctions. These sample calculations have, therefore, to be done at CERN. The physicists have to develop and maintain two sets of programs, possibly for different makes of computers, with all the extra work and possibilities of error which this entails.

An advanced economical system of data transmission between the various laboratories allowing remote use of computers would increase the efficiency of CERN's operations, and make for a better balance of work between universities and CERN.

CERN is thus very interested in current developments in international data networks and is ready to participate in their development in any way consistent with its task and resources. Several other high-energy physics laboratories have manifested a similar interest and desire to join in experiments on international data transmission.

CERN and its collaborating laboratories are particularly well placed to help in tests involving realistic heavy traffic, since the high-energy physicists form a community accustomed to exploiting large quantities of data but work with equipment and services which do not have public-service reliability and availability.

It is therefore proposed that CERN and interested associated laboratories would be provided with the necessary equipment to establish a satellite link. This would require the installation of a transmitting/receiving ground station at CERN and of appropriate ground stations at the various laboratories. Several associated laboratories of CERN have shown interest in these experiments, notably the 'Rutherford High Energy Laboratory' (RHEL) in the United Kingdom, the 'Deutsches Elektronen-Synchrotron' (DESY) in Germany and the centre of Saclay in France, whose preparations have already reached an advanced stage. Other possibilities are centres in Amsterdam and Bologna.

II. DESCRIPTION AND TIMETABLE OF THE PROJECT

1. Description

Installation of transmitting/receiving equipment at CERN, in order to provide a high-speed link from CERN to the associated laboratories and a low-speed link in the opposite direction.

The key elements include :

- the development and testing of the equipment necessary to establish a computer-to-computer link via the OTS system at high data-transmission rates,
- the experimental use of the OTS satellite for bulk transmission of data with particular emphasis on the development of error-checking techniques and error-control procedures. The implementation of the project will be carried out in close cooperation with the P & T administrations concerned.

It is also intended to use the expertise existing within the COST 11 project 'European Informatics Network' (EIN), in

order to ensure that the technical options chosen are geared to the future requirements of computer-to-computer communications and to the development of data-transmission techniques in general.

The financial contribution referred to in Article 2 of the Decision will cover only the cost of the joint equipment located at CERN and of the interfaces between transmitting/receiving stations and the informatic equipment of RHEL, DESY and Saclay (the transmitting/receiving stations of these centres being financed at national level).

2. Timetable

Tests by CERN and its partners could commence, on a part-time basis, during the six months following the launching of the OTS satellite. The main data-transmission experiments will begin only later. The project is scheduled to last four years.