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** At the beginning of July 1972 the European countries will have to decide whether to PARTICIPATE IN THE POST-APOLLO PROGRAMME which has just been launched in the United States. ANNEX 1 contains a short review of THE PRESENT EUROPEAN SITUATION IN THE SPACE SECTOR.

** TECHNOLOGICAL FORECASTING can be of great assistance to firms in drawing up their long-term plans. However, it is still very little used by medium-sized firms, which usually do not have sufficient resources to undertake their own forward studies. The Commission of the European Communities has therefore had a preliminary study carried out in an effort to ascertain technological forecasting requirements and the resources required in order to help firms to meet them. ANNEX 2 contains some of the conclusions arrived at in the study which was conducted by the Institut für Wirtschaftsforschung (IFO), of Munich, and the SEMA, of Paris.

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Commission of the European Communities
Directorate-General for Press and Information
Division for industrial and scientific information
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1040 Brussels – Tel. 3500 40

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The information and articles published in this Bulletin concern European scientific cooperation and industrial development in Europe. Hence they are not simply confined to reports on the decisions or views of the Commission of the European Communities, but cover the whole field of questions discussed in the different circles concerned.

PRESS AND INFORMATION OFFICES OF THE EUROPEAN COMMUNITIES

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Torre A, Casilla 10093
Avda Providencia 1072
Tel. 43872

WASHINGTON, D.C. 20037
2100 M Street, N.W.
Suite 707
tel. (202) 296–5131

** In reply to a written question from Mr Oele, a member of the European Parliament, concerning RECONVERSION IN THE LORRAINE IRON AND STEEL INDUSTRY, the Commission of the European Communitees points out that in line with its regional policy it is urging Member States to cooperate with the Community in supporting the programmes of action required for the development of certain types of priority region, particularly those suffering from the decline of their dominant activities.

The Commission is of the opinion that the restructuration of the iron and steel industry is a basic feature of the changes in the industrial structure of the Lorraine region, and that the creation of new activities is particularly desirable in Lorraine. At the request of the French government, the High Authority of the Coal and Steel Community (ECSC), and later the Commission, have participated in nine industrial installation operations in Lorraine, representing a total investment of 124.7 million u.a. This investment has been made possible by loans totalling 28.6 million u.a. and has led to the creation of about 6,000 new jobs which are reserved primarily for workers from ECSC industries. Five of these operations were conducted in the iron mining area; they represent a total investment of 79.2 million u.a., including 19 million in the form of ECSC loans, and have resulted in the creation of 5,600 new jobs.

In addition, in 1968 the Commission stepped in to provide an investment of 8.5 million u.a. for the construction of four industrial areas in the region.

Appropriations by the Commission for the retraining of Lorraine iron miners and steel workers, as provided for in the ECSC Treaty, amount to 2.5 million u.a. and affect more than

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6,200 persons. In addition, loans for considerable sums have been granted to coal and steel firms under Article 54 of the ECSC Treaty in order to assist the implementation of investment programmes, particularly in Lorraine.

** A report on REGULATIONS GOVERNING THE DISMISSAL OF WORKERS in the Member States has just been submitted to the Council by the Commission of the European Communities. The Commission remarks that owing to the growing interdependence of the European labour markets and the current structural changes in companies resulting from the operation of the Common Market, it is less and less justifiable in the field of labour law to apply different regulations leading to different results in comparable situations. The European Commission therefore proposes to initiate a discussion on the question of dismissal, with particular reference to reasons, period of notice, compensation and assistance, the role of workers' representative bodies, the role of the authorities, measures to provide additional protection to certain categories of workers and special regulations in the event of mass dismissal. It suggests certain considerations which might serve as a basis for the discussion of each of these points.

In more general terms, the Commission insists in its conclusions on the need to adopt a policy of "continuity of employment" the main object of which would be to create conditions such that, when the termination of employment cannot be avoided, it will at least be possible to ensure that the person concerned obtains a new job of equivalent level as soon as possible.

** Mr Haferkamp, Vice-President of the European Commission, will visit Washington on 5-8 June 1972 at the invitation of the United States in order to discuss problems of ENERGY POLICY,

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and in particular oil supply developments with the United States authorities. Mr Haferkamp will also study progress in the peaceful use of nuclear energy with representatives of the USAEC and the President's Adviser on Research and Technology.

** In order to make the results of research carried out on behalf of the Coal and Steel Community (ECSC) available to all interested circles in the Community, the European Commission organized a seminar at Luxembourg on 29-31 May 1972 on the subject of AUTOMATION IN COAL FIELDS (see IRT No. 144). About 350 representatives from the six Community countries, Austria, Britain, Canada, Hungary, Poland, Switzerland and Yugoslavia participated; the proceedings will be the subject of a special publication by the ECSC.

The aim of the seminar was twofold:

1. To disseminate the results of the researches carried out on behalf of the ECSC in the field of telecommunications at the pit bottom, automation and remote control at the face, and automation outside the working area, thus providing an up-to-date picture of the progress of technology and its application to coalmining.

2. To facilitate an extensive exchange of experience at international level between technicians, scientists, operators, researchers and constructors.

The general conclusions arising from the seminar can be summed up as follows:

1. In order to improve productivity in the coalfields it is necessary to concentrate extraction both in time and geographically, and also to raise the output per working area; these changes necessitate the use of increasingly

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powerful machines and equipment, entailing high investment costs.

2. The aim of automation techniques must be to simplify machine operation and permit remote control, and also to raise the utilization factor by ensuring a more regular flow of work.

These are the lines on which automation will help to raise coalfield productivity.

** During the first four months of 1972, PIG IRON PRODUCTION in the Community increased by 0.3% as compared with the same period in 1971, and STEEL PRODUCTION rose by 3%. The table below shows the breakdown by country of pig iron and crude steel production in the Community from January to April 1972 as compared with the same period in 1971:

1000 tonnes

	Pig iron production			Crude steel production		
	1971 Jan.-Apr.	1972 Jan.-Apr.	Variation %	1971 Jan.-Apr.	1972 Jan.-Apr.	Variation %
Belgium	3,758	3,933	+4.7	4,402	4,785	+8.7
France	6,555	6,477	-1,2	8,184	8,189	+0.1
Germany	10,478	9,930	-5,2	14,169	13,631	-3.8
Italy	2,809	3,010	+7.2	5,626	6,529	+16.1
Luxembourg	1,525	1,518	-0.5	1,738	1,767	+1.7
Netherlands	1,085	1,408	+29.8	1,559	1,852	+18.8
CECA	26,209	26,276	+0.3	35,678	36,753	+3.0

** NINE TECHNICAL RESEARCH PROJECTS IN THE COAL SECTOR are to receive Community backing totalling 3,279,820 u.a. This has now been decided by the Commission after consultation with the Coal and Steel Community (ECSC) and on the favourable advice of the Council (see IRT No. 134).

** LONG-TERM TECHNOLOGICAL FORECASTING AND PLANNING was the subject of the annual meeting of the European Association for the Administration of Industrial Research, held in Stuttgart on 23-27 May 1972. A representative of the European Commission reported to the meeting on the Commission's experience of technological forecasting at governmental level.

** The European Commission has recently published the following documents:

1. The proceedings of the colloqium on the IDENTIFICATION OF IRRADIATED FOODSTUFFS, held in Luxembourg on 27 October 1970 (ref. EUR 4695 d-f-e).

2. The annual report for 1971 of the BIOLOGY AND HEALTH PROTECTION PROGRAMME, in two multilingual volumes (ref. EUR 4830 d-f-i-n-e).

3. The report prepared by the Fondation Industrie-Université, Brussels, on the POSTGRADUATE TRAINING OF SCIENTISTS in the European Community. This report is published in French (ref. EUR 4832 f).

All these documents are on sale at the Office for Official Publications of the European Communities (PO Box 1003 - Luxembourg 1).

The Present European Situation in the Space Sector

At the beginning of July 1972 the European countries will have to decide whether to PARTICIPATE IN THE POST-APOLLO PROGRAMME which has just been launched in the United States (see IRT No. 91). It appears, however, that Europe would not be invited to play more than a minor role in the construction of the space shuttle itself, the degree of European participation in the other items in the programme remaining open. Thus the decision as to whether the space shuttle - an essential element in the future launching system - will be made available to Europeans will depend almost entirely on United States goodwill.

In view of this, certain European countries will perhaps hesitate to abandon construction of the Europa 3 launcher and to divert the funds allotted to it to the development of the Post-Apollo system, where the guarantees of free employment do not appear to them to be satisfactory.

A. ESRO

The European space effort has for its part taken an important step forward with the approval by the Council in December 1971 of the multiannual ESRO programme (European Satellite Research Organization). ESRO, whose efforts had hitherto been mainly devoted to scientific satellites, is now giving priority to space applications. This innovation will be accompanied by a revamping of the Organization including a revision of its convention. All the countries in the Organization remain members, contrary to certain tendencies which appeared last year, and Norway proposes to join ESRO, of which it would thus become the eleventh member.

In the new budgets the Council has earmarked $283.6 million for the three-year period 1972-74, which bridges the gap between the present period and that of full engagement in the enlarged programme. For this period (1975-77), the Council has voted a "provisional" appropriation of $330 million, making a total of more than $610 million for the period 1972-77.

(a) The following three satellite application projects have been included under the multiannual ESRO programme; they are scheduled to terminate in the second half of this decade:

1. The first air traffic control satellite "Aerosat" should have been launched at the beginning of 1975 over the Atlantic, followed some months later by a second over the Pacific. This programme, which was to be implemented under a bilateral United States/European agreement, envisaged the creation of a satellite system on a 50/50 basis. After two years of negotiations, first with NASA and then with the Federal Aviation Agency (FAA), had apparently reached a successful conclusion in October 1971, a recent decision by President Nixon has reopened the whole question. The agreement will have to be renegotiated, since the United States no longer acknowledge the hitherto accepted principle of equal partnership.

   This decision is very disappointing for the Europeans, because it wrecks a project which was looked upon as a model for United States/European cooperation. It also increases the mistrust which certain countries have concerning proposals for space cooperation with the United States, and in particular for European participation in the Post-Apollo programme.

2. The first meteorological satellite will very probably be the "Meteosat" initially designed by the Centre National d'Etudes Spatiales (CNES, France) and then transferred to ESRO. It will require modification, and is not expected to be launched before 1977.

3. The first operational telecommunications satellite is not due to be launched until 1980 but will be preceded by a prototype satellite due to begin construction in 1975 and to be launched in 1978. This prototype is to be fitted with equipment which ESRO intends first to test on other satellites such as "Symphonie", a NASA technological satellite, or the United States/Canadian technological satellite also planned.

(b) All the scientific satellite projects will also be maintained, and all the ESRO countries will participate in the basic activities and programmes, i.e., they will activate the current scientific satellite projects (TD-1A, HEOS-A2, ESRO-4), initiate and carry through the two projects for large scientific satellites, "COS-B" and "GEOS", and participate in the construction of the small astronomic satellite "SAS-D" in collaboration with NASA and the British Science Research Council.

As regards the satellite "COS-B", which is to study cosmic radiation of galactic origin with the aid of a gamma-ray telescope, a contract for $19.9 million has been awarded to the CESAR consortium led by the West German company of Messerschmitt-Bölkow-Blohm and also including BAC and Ferranti (UK), CASA (Spain), ETCA (Belgium), Laben and

Selenia (Italy), SNIAS (France) and Terma (Denmark). Under the contract the launching is scheduled for September 1974.

(c) As regards the policy on launchers, the new position of ESRO on the purchase of launchers is as follows: the Organization will give the fullest possible consideration to the merits of launchers developed in Europe while at the same time taking care that the value of these missions is not thereby prejudiced. It will give preference to European launchers on condition that their launching price does not exceed 125% of the price of launching with a foreign rocket. Should the required launcher not exist in Europe, ESRO will purchase it abroad, usually in the United States. Should the foreign source refuse to supply a launcher for a given mission, ESRO would then obtain it in Europe, at production cost without participating in the development costs if the launcher is available, or at development plus production cost if the launcher has to be developed specially in whole or in part, or built under licence.

The Council has also decided to entrust ESRO with the task of coordinating and concerting all the space programmes for peaceful purposes planned by the European and national organizations. The first subject considered by ESRO will probably be the rationalization of the European tracking networks.

Because of the limitation of the scientific budget, the following two centres are affected:

1. The European launching range situated at Kiruna in Sweden (ESRANGE), which would have no further use after the

abandonment of the Organization's rocket-probe programme, and would therefore be handed back to Sweden after 30 June 1972.

2. The ESRIN establishment situated at Frascati in Italy, whose basic research on plasma physics will be terminated by September 1973; the Council intends to continue work at Frascati under the Organization's enlarged programme.

B. ELDO

After the failure of the first Europa 2 launching, the ELDO Council decided to set up a commission composed of experts from the Member States and chaired by the Director-General of ELDO in order to review the Europa 2 project.

Development studies on Europa 3 were completed in March 1972. A decision could be taken to begin construction of prototypes. For organizational reasons it is difficult to defer this decision for more than a few months. However, its preparation will be difficult, because it depends on the decisions finally taken concerning European participation in the Post-Apollo programme.

Technological Forecasting Requirments in Business (according to a study carried out for the Commission by the Institut für Wirtschaftsforschung, (IFO), Munich, and SEMA, Paris)

Although medium-sized firms recognize the potential value of technological forecasting in the preparation of long-term plans, very few of them as yet make use of it.

This state of affairs may be explained by the following factors:

1. Lack of information concerning the possibilities of technological forecasting.

2. Difficulties facing firms wishing to undertake their own forward studies - difficulties due essentially to lack of staff and time.

It is to be feared that in the absence of state encouragement the use of technological forecasting as an instrument of long-term management will make very slow progress among the type of firms which could benefit from it. In order to determine what kind of assistance could be given to firms in this field, and in particular to small and medium-sized firms which do not have the requisite resources, the Commission ordered a study to be made of the exact extent of technological forecasting requirements in business.

This study has indicated the need for two types of forecast, namely:

1. Specific forecasts - precise and detailed - concerning products and manufacturing processes connected with the firm's field of activity. These forecasts should cover a period of 5-10 years, and help firms to draw up their medium-term plans.

2. Overall forecasts concerning the branch of industry. These would be less detailed than the specific forecasts, and would predict the principal technological innovations and their impact on the branch, together with the consequences of new social and economic pressures. In particular they would warn firms of changes liable to have profound affects on the structure of their branch of industry.

The analysis and evaluation of information are operations requiring a highly qualified staff with a wide range of technical knowledge, in order to be capable of evaluating all the possible technological transfers. Thus most firms do not have the resources for making overall forecasts. On the other hand they could prepare their own specific forecasts if they were provided with information already sorted, classified, analysed and evaluated according to the requirements of the forecast.

Assistance to small or medium-sized firms in the matter of technological forecasting should therefore take the following forms:

1. A training programme, to be conducted in close collaboration with the professional associations and to have the aim both of informing firms of the possibilities offered by technological forecasting and of encouraging studies of specific cases. These would demonstrate how specific forecasts are made and how they can be incorporated in planning techniques.

2. A programme designed to provide firms firstly with classified and evaluated information and secondly with overall forecasts.

This assistance might be organized in various ways. For example,

the information-evaluation stage, which appears the most essential, might take the following forms:

1. Centralized organization, information being prepared and supplied by a single centre (yet to be created).

2. Decentralized organization at industrial branch level, the preparation and dissemination of information being perhaps entrusted to interprofessional research centres.

3. Decentralized but coordinated organization, each preparation centre working for its own branch, but following a uniform classification plan. They could thus exchange the results of their evaluation work, data processed by one centre becoming primary data for the others.