

# industry research and technology

WEEKLY

REPRODUCTION AUTHORIZED

Brussels, 6 July 1971  
No. 106

- \*\* The number of VERY LARGE COMPUTERS in the Community and the United Kingdom might be 600-700 in 1975 and 1000-1500 in 1980. This emerges from a study on requirements and applications for high-power automatic data processing systems in the European Community and the UK which was carried out at the request of the Commission of the European Communities. ANNEX 1 summarizes the conclusions of this study, which has recently been published by the Office for Official Publications of the European Communities in the series "Industry", 1971, No. 6.
- \*\* A document recently published by the Commission of the European Communities on the preliminary guidelines for a social policy programme gives interesting details of the TREND OF EMPLOYMENT, vocational training, incomes and living and working conditions in the Community. ANNEX 2 contains some statistical data from this document.
- \*\* The broad outlines of the FUTURE MULTIANNUAL (1972-1974) PROGRAMME FOR THE JOINT RESEARCH CENTRE (JRC) of the Community were examined at a further

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This bulletin is published by the Directorate General Press and Information of the Commission of the European Communities

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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.*

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meeting of the JRC General Consultative Committee in Paris on 30 June, the basis adopted being a synthesis document prepared by the Director-General of the JRC, Mr Caprioglio.

This document described in particular the following matters:

- the back-up projects for the development of the Community's nuclear industry: research on light-water reactors, including a programme aimed at the improvement of fuel elements; continuation of the activities relating to high-temperature reactors; extension of the activities relating to fast reactors; work on nuclear materials; and nuclear safety problems.

- the public service activities; Central Bureau for Nuclear Measurements; research on the development of fissile material management techniques; and, beyond the strictly nuclear field, protection of the environment, pilot projects aimed at the creation of a Community bureau of standards, applied data processing.

- longer-term research: studies on diversification of the uses of nuclear energy (in particular for the production of hydrogen); condensed state physics, etc.

On most of these points extensive discussion resulted in determination of the areas of interest of the Community circles concerned.

The discussion will be continued on 13 July, and the Director-General of the JRC will then prepare a proposed three-year programme. The Consultative Committee intends to give a formal opinion on this proposal at another meeting, to be held at Brussels on 1 September.

It will be recalled that the JRC General Consultative Committee, created as part of the Centre's reorganization, is composed of three representatives of each member country,

who are respectively a civil servant, a scientist and an economist or industrialist (see "Industry, Research and Technology" No. 80).

- \*\* Being aware that MERGERS, and especially international mergers, raise SOCIAL PROBLEMS which it is desirable to resolve at the same time as the legal problems, the Commission of the European Communities has appointed a panel of experts to continue the Commission's examination of social problems raised by international merger operations, with a view to the development of an instrument of Community law.
  
- \*\* 45,426 dead, 1,185,931 injured: this is the staggering price which the European Community paid in 1969 for what is technically referred to as progress in road traffic, which it would be more realistic to call "the tragedy of the roads".

The Commission of the European Communities is fully aware of the gravity of the problems inherent in ROAD SAFETY IMPROVEMENT, and intends to promote a Community-scale project with this aim in view. To this end, the Commission of the European Communities plans to submit to the Council before the end of 1971 proposals relating in particular to:

- the harmonization and tightening-up of the conditions governing the granting and withdrawal of driving licences, and full mutual recognition of driving licences;
  
- the harmonization and tightening-up of regulations and checks concerning drunkenness;
  
- the harmonization of the regulations and procedures for compulsory technical inspection of road vehicles.

The Commission also intends shortly to present a fourth proposal relating to problems posed by speed limits and temporary bans on certain categories of road vehicles.

\*\* The level of CONSUMPTION OF ELECTRICAL ENERGY in the Community in April 1971 was practically unchanged compared with April 1970. The rates of growth in market demand reflected some weakening in the pace at which requirements were increasing. This emerges from a note published by the Statistical Office of the European Communities.

In April 1971, electricity consumption in the Community was as follows:

	COMM- UNITY	West Germany	France	Italy	Nether- lands	Belgium	Luxem- bourg
CONSUMPTION ON THE INTERNAL MARKET, including losses							
- in millions of kWh	47,075	19,600	11,928	9,522	3,284	2,525	216
- increase on same month in 1970 (after adjustment to the difference in the number of working days and to deviations from normal temperature)	+ 4.7%	+ 6.1%	+ 4.7%	+ 2.3%	+ 3.5%	+ 4.1%	...

\*\* The Council of Europe has asked the Commission of the European Communities to comment on two recommendations adopted by the Consultative Assembly of the Council of Europe in January 1971, relating respectively to EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY and THE COMPUTER INDUSTRY IN EUROPE.

- \*\* Article 37 of the Euratom Treaty stipulates that plans for the DISPOSAL OF RADIOACTIVE WASTE by nuclear plants must be submitted by the State concerned to the Commission of the European Communities, which will determine whether the implementation of such plans is liable to cause contamination of the water, soil or air-space of another Member State. In pursuance of the Treaty, the Commission of the European Communities has just delivered a favourable opinion on the implementation of the project submitted to it by the West German Government for the disposal of radioactive waste from the Karlsruhe reprocessing plant (WAK).
- \*\* The STEEL INDUSTRY SAFETY Commission, which the Commission of the European Communities has made responsible for promoting industrial safety in the steel sector, held its seventh annual meeting at Luxembourg on 18 June. The problems considered up to the present by the General Commission have included safety organization, safety training, oxygen and gas tubing, blast furnace tapping, travelling cranes, first aid and rescue arrangements.
- \*\* Seven new TECHNICAL NOTES, each summarizing a result obtained under Euratom research programmes, have been issued by the Commission of the European Communities. The purpose of these texts is to enable industrial firms to assess the prospects for the industrial exploitation of the results described. The subjects of these new technical notes are as follows:
- No. 17/c logic unit
  - No. 18/c threshold discriminator
  - No. 19/c scaler
  - No. 20/c scaler
  - No. 21/c ratemeter
  - No. 22/c multiple time-of-flight converter
  - No. 699 supplementary lock.

\*\* The Commission of the European Communities has commenced publication of a technical bulletin entitled "CAMAC BULLETIN", which is designed to interest manufacturers and users of CAMAC equipment, principally in Europe but also in other countries. It contains information on the regulations drawn up by the ESONE Committee (an association of representatives of European research institutes) on ELECTRONIC EQUIPMENT USED FOR MEASUREMENT AND CONTROL PURPOSES.

The Growth of the Requirement for Large Computers  
in the Community and the United Kingdom

from a study published by the Office for Official Publications of the European Communities ("Industry" 1971, No. 6)

On average, more than 60% of the Community computer market is in the hands of US firms. In Italy the percentage is 98%. Only in the United Kingdom has the degree of US penetration been less marked, this being due to the presence of ICL.

The US superiority is particularly striking in the market for large and very large computers. US constructors dominate this market completely in Belgium, Holland, France and Italy. In West Germany and the UK, Siemens and ICL are also active in this sector, but have only a very small share of the market. Domestic companies in the European countries are prevented from expanding by the restricted market on which they have hitherto operated, the limitation of appropriations and the large number of manufacturers on the European market.

Country	Number	Value (millions of \$)	Annual rate of expansion 1962-1969	
			Number	Value
Benelux	1,964	128	45.5	41.9
France	4,663	348	46.5	40.9
West Germany	5,600	380	35.9	33.5
Italy <sup>1</sup>	1,644	142	29.0	28.7
EEC Countries	13,871	998	39.0	35.8
UK	3,575	320	33.7	37.2
USA	59,779	5,667	30.2	29.4

<sup>1</sup>The figures for Italy are underestimates owing to the difficulties involved in analysing the situation regarding table-top computers.



While the rate of growth in the number of installed computers is at present higher in Europe than in the USA, relatively faster growth is characteristic of any such process in its early stages of development. If investments are compared, it is found that the share of the gross national product accounted for by hardware in the Community in 1968 was only \$2.3 out of every \$1000 as against \$5.8 in the USA. Europe's "investment gap" was about four years in 1968 and is tending to widen.

The share of large and very large computers in the installed total is 2.4% in the Community, 4% in the UK and 5.8% in the USA. The number of very large computers installed in the Community countries and the UK in June 1969 was 138 (about 40% in France and 30% in the UK).

By making a series of assumptions concerning the trend followed by the structure of the installed capacity and the average price of computers, it is possible to estimate the number of computers in the Community countries and the UK during the coming decade, i.e.:

1. There will be 59,900 installed computers (including table-top computers) in 1975 and 96,600 in 1980.
2. The number of very large computers, i.e., those with a monthly rental value of more than \$70,000, might be in the 590-705 range by 1975 and in the 1,050-1,450 range by 1980. The number of computers with a monthly rental value of more than \$100,000 might be 90-105 by 1975 and 310-425 by 1980.

<u>Computer installation forecasts (1970-1980)</u>			
<u>Hardware expenditure per \$1,000 GNP</u>	<u>1968*</u>	<u>1975</u>	<u>1980</u>
EEC	2.1	6.9	9.6
UK	2.5	8.1	10.3
EEC + UK	2.2	7.2	9.7
<u>Hardware expenditure (millions of \$)</u>			
EEC	829	3,722	6,583
UK	303	1,213	1,860
EEC + UK	1,132	4,935	8,443

\*real value.

The outlook regarding demand for large computers in the various sectors of activity (Community and United Kingdom) is as follows:

- (a) The manufacturing industries will be among the principal users of the largest and most powerful systems in existence. The number of potential users of large systems is estimated at 31 in 1975 and 75 in 1980, with an investment capacity of \$553 and \$1,230 million respectively.
- (b) In the retail trade, the number of potential users of large computers is estimated at only four in 1975 and 11 in 1980, with an investment capacity of \$32 and \$131 million respectively.
- (c) The banks and insurance companies were among the first computer users in Europe. In 1975 there will be 19 potential users of powerful systems in the banking sector and five in insurance; by 1980 these figures will have risen to 35 and 15 respectively.
- (d) In the public services, 21 very large computers are already installed with nine users (five in the transport sector and four electricity and gas companies). A net increase in the number of users of powerful systems seems likely - 18 potential users, with an investment capacity of \$315 million, by 1975, and 28 users, with a capacity of \$612 million, by 1980.
- (e) The universities and service bureaus (lumped together here because they perform processing services for outside users) at present comprise a large number of users of very large computers. The estimate for 1980 is 76 such users. The investment capacity of the service bureaus will then amount to \$2,480 million.
- (f) Public administration (all sectors) is an ideal field for the future use of very large computers, because of the mass of data to be processed. The demand outlook cannot, however, be assessed exactly except as a function of the changes in governmental organization in each country.

The Trend of Employment in the Community

Some marginal data on the preliminary guidelines for a Community social policy programme.

The total Community population rose from 169 million in 1958 to 186 million in 1968, and to 188 million at the beginning of 1970. At the same time the proportion of the population of working age (15-64 years) fell from over 66% in 1958 to less than 64% in 1970.

- (a) Although the total volume of unemployment has been greatly reduced throughout the Community during the last twelve years, the situation differs from one country to another depending on the age group. Community-scale investigations carried out in the spring of 1968 and 1969 have shown that Italy, France and to some extent Belgium have extremely high unemployment rates for young people. In the case of those aged 14-19 this rate was more than 10% in Italy, more than 4% in France and almost 4% in Belgium (as compared with national averages of 3.2, 1.6 and 2.6% respectively). On the other hand, unemployment among older persons is a problem mainly in West Germany (unemployment rate of 1.6% among workers aged 60-64 years in the spring of 1968 as against the 0.8% average) and Belgium (5.6% as against 2.6% average).
- (b) The number of self-employed persons and family helps fell from 23 million in 1958 to about 17 million in 1970, i.e., by more than 25%. By contrast, the number of employed persons rose from 49 to 57 million during the same period - i.e., an increase of 17% - representing 68% of the working population in 1958 and over 76% in 1970.

The fall in the number of self-employed persons and family helps affected the agricultural sector considerably. In the tertiary sector, on the other hand, self-employed persons are already more numerous than in agriculture - approximately 5,000,000 compared with 4,000,000. Their numbers may be expected to increase in the years ahead.

- (c) In the next five years 2,000,000 persons of working age may be expected to leave agriculture, while manpower employed in industry will increase by a million and a quarter and in services and administration by two and a half million. In 1980 the percentage of the working population in agriculture will probably be about 6% and in services more than 50%.

In the coal industry, the labour force fell by 625,000 between 1958 and 1970, i.e., by nearly 60%. In West Germany the decline over this period was from 600,000 to 246,000, in France from 237,000 to 121,000, in Italy from 5,500 to 1,600, in the Netherlands from 63,400 to 25,400 and in Belgium from 153,300 to 41,100.

In the textile sector the number of workers employed slumped by more than 400,000 (i.e., by about a quarter) up to 1969, including 200,000 in West Germany, 100,000 in France and 70,000 in Italy.

In the shipyards the labour force decreased by about 50,000, i.e., by about one-sixth.

On the other hand, activity in many industries increased appreciably. This was the case above all in conventional industry, rubber, mechanical engineering and the electrical equipment, sectors in which the total number of workers increased by about two million. The expansion in employment was even more rapid in the transport equipment industries - motor cars and aircraft - and in the plastics industry.

- (d) A relative stabilization of demand for relatively unskilled manual and non-manual workers is noticeable, together with an increase in demand for workers with ordinary skills and a marked expansion in demand for skilled and highly-skilled manpower, the most rapid increases occurring in the intermediate categories, technical and middle executive grades. For example, in Holland the proportion of clerical and administrative workers, including higher technical grades and business managers rose from 18.5% in 1955 to 27.1% in

1967; in France, the middle and higher executive grades more than doubled from 1954 to 1968, rising from 1,400,000 to almost 3,000,000; in West Germany, the percentage of clerical and administrative workers and officials in the total number of employed persons increased from 29% in 1950 to 43% in 1968.

- (e) The national product at constant prices per gainfully employed person increased by more than 70% between 1958 and 1970. The proportion of the national income accounted for by the total wages and salaries bill varies at the present time from 62 to 68% and is thus increasing appreciably. This is partly attributable to the fact that during the period under consideration the number of employed persons rose by 7,000,000, while that of self-employed persons and family helps fell by more than 5,000,000.

Movements of workers' average earnings as a percentage of the national income per gainfully employed person between 1958 and 1970 were as follows (provisional figures): West Germany, 80.2 - 81.9; France, 81.7 - 80.8; Italy, 88.0 - 84.8; Holland, 76.0 - 81.1; Belgium, 77.8 - 79.6; and Luxembourg, 91.8 - 91.7 (1968).