
BACKGROUND REPORT

HIGHLIGHTING RESEARCH AND TECHNOLOGY

FAST AND BIOTECHNOLOGY

Summary

Last October the Council of Research Ministers finally approved the European Community's five year framework research and development programme 1987-1991 (1). Some £3,700 million is to be spent in that period in order to help keep the Community in the forefront of technological development.

Two areas of that development, FAST - European Forecasting and Assessment in Science and Technology (2) - and biotechnology (3) are of particular interest to the Community. FAST is the research programme for forecasting long-term changes in the field of science and technology and assessment of implications and consequences of such future developments. Biotechnology research is intended to exploit the application of modern biology to agriculture and industry.

New technological and political changes require FAST research programmes to be adapted to meet the more complex world of the 1990s. Biotechnology is expected to be directed to protection of the environment and the evaluation and risks of new genetic technologies.

FAST

FAST research is concerned with new forms of growth, new strategic industrial systems, the transformation of service activities, and technological change (4).

FAST was created in 1978 (5) and its experimental programme ended in 1983.

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- (1) Decision 87/516, OJ L 302 of 24.10.1987
 - (2) COM(87) 502 of 26.10.1987
 - (3) COM(87) 481/2 of 19.11.1987
 - (4) See BR ISEC/B4/86 of 20.2.1986
 - (5) Decision 78/668/EEC, OJ L 225 of 16.8.1978

NOTE: Community documents are available from Her Majesty's Stationery Office (HMSO). Some documents are available from this Office Library.

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The programme was then extended to 31 December 1987 (1) and was more ambitious. While FAST still analysed scientific and technical change aimed at identifying long-term R&D policies, there was a shift from the technological 'family' of micro-electronics to a 'functional approach' of the service industries. Such services include relationships between technology, work and employment (TWE programme) and the integrated development of renewable natural resources (RES programme).

The FAST plans have been ambitious and adventurous in extending beyond immediate horizons of research. In practice, however, not all schemes have been successful, partly because of difficulties in organizing multi-national teams and sometimes because of inadequate funds.

Achievements

The Commission, however, sees forecasting as an indispensable tool of Community science and technological policy, and FAST has had its successes.

- FAST I (up to 1983) initiated the preparatory work for ESPRIT (A European Strategic Research Programme in Information Technology) and the biotechnological programme, including CUBE - the Concertation Unit for Biotechnology in Europe.
- FAST II in 1984-1987 concentrated on the growth of services, the uses of technology for social needs, core problems of complex modern communication, and anticipated 'future turbulence' in industry or services by the year of 2000 because of 'the convergence and integration' of new technologies.

FAST findings are already influencing Community attitudes, both through universities and research institutes, and through positive action via the FAST networks among the 12 Community countries. One result has been the launch of the Commission's Forestry Action Programme.

The new FAST from 1988

In the 1980s there has been a significant growth of Community research programmes. ESPRIT was one of the first such programmes launched in 1984, and followed later by BRITE (industrial technologies), RACE (Communications technologies), Non-Nuclear Energy, MEDIA (Measures to encourage the development of the audio-visual industry) and STOA (Scientific and Technological Options Assessment) set up by the European Parliament.

The Commission considers that the impetus of present specialist research programmes requires a modification of FAST policies, particularly in relation to new demands of the Single European Act (SEA). A new definition of FAST activity is expected to deal with short as well as longer term studies. Looking at the development of science and technology beyond 1992, and the effect on the economic and social cohesion of the Community, new schemes are expected to involve greater flexibility, such as short research studies of two to three years identifying a few key themes of major and global interest, more cross-disciplines and greater cooperation among Community Directorates-General, and strengthening the 12 FAST networks to encourage research cooperation.

The Commission recognises that FAST cannot today forecast or assess Community R&D alone. The world of the 1990s will be more complex than those of the

(1) Decision 83/519/EEC, OJ L 293 of 25.10.1983

1970s or early 1980s, and new technologies and methodologies require cooperation with other forecasters. In the next five years FAST will contribute to advances in methodology through seminars, meetings between researchers and users, and producing reports. Results could be shared with developed countries, such as the US and Japan, and with countries from Latin America, Africa and Asia interested in the objectives of FAST.

Three principal functions

The Commission sees the new FAST functioning in three ways - forecasting, assessment, and monitoring. Forecasting will require examination of industry, developments in human biology, and scientific and technological development of transport, energy, and communications in relation to new urban growth. Assessment will concentrate on factual and impact analyses of new technologies; monitoring will follow Community scientific and technological indicators and link the Community with global dynamics of this kind.

The FAST framework programme for 1988-1992 will require 19m ECU (£13.3m), 14m ECU from the Community budget and 5m ECU from other organizations at national level.

Revision of biotechnological research programme

The objective of the Community biotechnological research action programme (1985-1989) is to exploit the application of modern biotechnologies to agriculture and industry.

The Council of Ministers, adopting the Community five-year research action programme in 1985, included a reference to biotechnology aimed at promoting 'industrial competitiveness' (1). A Resolution approved in April 1985 (2) supported a framework research programme concerned with such matters as more efficient land use through the growth of crops which can provide feedstocks for European industries, environmental protection, new approaches in the detection, prevention and treatment of disease, and protection of health and environment against risks which may be associated by new biotechnological developments, such as genetic engineering.

The Commission has now published a periodic review of the 1985-89 biotechnological programme (3) and its relevance to the Community's general 1987-1991 R&D framework.

The review reveals the need for more money, while the next two years (1988-89) require some five developments:

- More efforts on the evaluation of risks of new genetic technologies and, particularly of the deliberate release of genetically engineered organisms;
- Use of information technology, data banks and electronic networks backing the harmonization of genetic and other culture collections;
- Studies and feasibility projects affecting R&D activities in 1990-1994, and linking of laboratories involved in the research programmes;

(1) Decision OJ L 83 of 25.3.1985

(2) Resolution, OJ C 208 of 4.8.1983

(3) COM(87) 481/2 of 19.11.1987

- Intensification of training schemes;
- Participation of Spanish and Portuguese laboratories in the revised programme.

The Commission requires 20m ECU (£14m) to meet the increased expenses of the revised 1985-89 programme, raising the total five-year cost from 55m ECU to 75m ECU (£38.5m - £52.5m). Apart from 12m ECU (£8.4m) to cover new contracts, the rest of the extra cost arises from Spanish and Portuguese participation in contract research of studies and feasibility projects, and extra staff.

Meanwhile, the Commission has proposed a new five-year research project (1988-1993) - costing some 80m ECU (£56m) - dealing with renewable resources available from agriculture. ECLAIR (1) - European Collaborative Linkage of agriculture and industry through research - will deal with research on the improvement of existing agricultural products and the development of new alternatives responding to industrial needs. Examples include the further adaptation of flax, sunflowers or rape, or cultivation of largely unknown plants, such as euphorbia, which can provide special fatty acids. Industrial projects could cite forms of developing biodegradable plant protection products which do not leave residues, or producing specific fertilisers which can be absorbed by the plant with a minimum of waste.

(1) Commission Memo 137/87 of 15.12.1987
