

Speech by Liam Connellan, Director General, Confederation of Irish Industry to the Conference on "The Single European Act - Challenge and Opportunity for Ireland" at NIHE Limerick, on Friday, 13th May 1988.

THE COMMUNITY'S PROGRAMME FOR RESEARCH AND TECHNOLOGY

1. INTRODUCTION

It is indeed appropriate to address the question of the Community's programme for research and technology in this theatre which bears the name of Jean Monnet. His commitment to the development of post-war France was contained in the plan for economic expansion (1947-1953) produced under his aegis as the first Commissionaire au Plan. He quickly realised the inevitable reality that if France was to take its rightful place in the world it could only be as part of a European community of nations working together towards common economic and social goals. The planning capability and vision of Jean Monnet was thankfully matched by the political courage and determination of Robert Schumann and resulted in the realisation in 1951 of the European Coal and Steel Community, the forerunner of the European Economic Community as we know it today. I salute his courage, his determination, and his vision which has enabled us to meet here to-day to discuss the enlarged role of the European Economic Community in developing the research and technological capacity of its member states.

2. COMMUNITY'S PROGRAMME FOR RESEARCH & TECHNOLOGY

From the early 1980s the EEC Commission, under the impetus of Viscomte Davignon, began to emphasise the growing need for Community countries to co-operate in the field of science and technology, if they were to compete successfully on world markets with the US and Japan. The co-operative research to be undertaken at Community level was to be at a pre-competitive stage, thereby ensuring the development of know-how and skills which would ultimately bring new products to the marketplace, while at the same time working to harmonise technical standards, so that the benefits of the Single Internal Market could be fully exploited. While it was recognised that major resources, both financial and human, were devoted to research and technology in the different member states, it was also recognised that much duplication of effort took place. If the economies of scale necessary to compete on a world level with the US and Japan were to be realised then it

was essential that Community programmes of co-operative research must be introduced.

Emphasis on such co-operative research was to be placed, not only on the development of the new technologies (information technology, biotechnology, new materials, telecommunications etc.), but equally importantly on the application of new technologies to traditional industries.

3. FIRST FRAMEWORK PROGRAMME FOR RESEARCH AND TECHNOLOGICAL DEVELOPMENT (1984-1987)

The first framework programme on research and technological development was adopted by the Council of Ministers on the 25th July 1983, to cover the four year period 1984 to 1987. The budget agreed for the first programme was IR£2.7 billion.

Looking at the participation of Irish firms and third level institutions in programmes operated under the first framework programme for research and technological development, it can be seen that over 180 Irish projects were approved totalling £28.76 million during the period 1984 to 1986. (slide 1) The emphasis of the Programmes was on pre-competitive research and development. The following points can be made about the three main programmes within the overall first framework programme :

ESPRIT Programme (European Strategic Programme for Research and Development in the New Information Technologies). (Slide 2)

Objective: Parity over 10 years with the US and Japan in the field of information technologies.

Fields of Action: Pre-competitive long-term research in five key areas:

- * advanced microelectronics
- * advanced information processing
- * software technology
- * office automation
- * computer integrated manufacturing.

Community Funding: IR£540 million over five years (1984 to 1988) to fund pre-competitive research on a 50-50 basis with industry.

Irish Contracts: Over the period 1984 to 1986 Irish firms and third level institutions have participated in 38 project contracts with Community funding in excess of IR£11 million. The Irish success rate has been the highest of any member state at over 50% against the EEC average of 25%. It has involved participation by a number of small indigenous Irish enterprises including Mentec Limited; Cops Limited; Captec Limited; Baltimore Technologies, and Farran Technology Limited. For a company to successfully participate in the ESPRIT Programme it is essential that the pre-competitive research being undertaken forms part of the company's overall strategic plan for the future. In any review of Irish participation in the ESPRIT Programme it would be important to ascertain the extent to which development work stemming from the pre-competitive research has in fact been carried out in Ireland. There is a danger in such co-operative pre-competitive research on a European level that a reverse flow of technology will take place. Ireland's need is obviously not only to develop its research base but also to ensure that the products which are developed are developed in Ireland for export markets.

RACE Programme (R&D in Advanced Communications Technologies in Europe) (Slide 4)

Objective: The long-term objective of RACE is to establish an integrated broad-band communications (IBC) system for Europe (i.e. a telecommunications network capable of carrying all services; sound, vision, and data).

Community Funding: On 25th July 1985 the Council of Ministers approved funding of 14 million ECU (IR£9.8 million) towards the costs of an 18 month RACE definition phase, the objective of which was to define a suitable reference model for an IBC system.

Irish Contracts: Under the RACE definition phase three, Irish organisations participated in RACE projects, with Community funding of approximately £70,000. (Slide 5) A new joint venture company,

Broadcom Eireann Research Limited, has been formed between Telecom Eireann and LM Ericsson with a view to competing on an organised basis for RACE projects under the main Programme. Broadcom Eireann subsequently secured the lead role and management of three major projects under the main RACE Programme, as well as participation in three other projects. The total value of all these projects is IR£35m of which Broadcom's share is IR£5m, sufficient to keep 15 research workers busy for the next five years.

There is no doubt that participation in the RACE Programme in conjunction with the operations of the STAR Programme (special telecommunications action for regional development) will facilitate the development of an integrated systems digital network (ISDN) in Ireland in the 1990s. This will be of immense benefit to Irish industry as a key infrastructural requirement for competitive development into the next century.

BRITE Programme (Basic Research in Industrial Technologies in Europe)

Objective: To promote the competitiveness of traditional industries by grant-aiding pre-competitive collaborative research on designated technological themes.

Fields of Action: The designated technological themes on which collaborative research will be carried out include:

- * Reliability wear and deterioration
- * Laser technology
- * Joining techniques
- * New testing methods etc.

Community Funding: IR£96 million over the period 1986 to 1988.

Irish Contracts: Nine Irish projects were grant-aided to an amount of approximately IR£1 million under the first call for proposals in January 1985. Companies which participated in these projects included Donnelly Mirrors, Arts Limited, and Tecno Design Limited. The BRITE Programme has been effective not only as a basis for pre-competitive

collaborative R&D but perhaps more importantly as a mechanism for technology transfer to traditional industries such as the textile and clothing industry.

In summary, the first Framework Programme on Research and Technological Development (1984 to 1987) resulted in significant financial transfers to Ireland over the period of the Programme and enabled researchers in industry and third level institutions to participate in meaningful collaborative research. Perhaps more importantly than this, it opened up business opportunities for participating firms through personal contact with other enterprises in Europe. The extent to which it has resulted in significant product development in Ireland from the pre-competitive research carried out, is as yet uncertain. It is a point, however, which merits serious consideration since for a small economy on the periphery of Europe it is vital that research carried out in Ireland should lead to product development at home rather than elsewhere in Europe.

4. SINGLE EUROPEAN ACT

Article 24 of the Single European Act ensures that for the first time, Community support for research and technological development in Europe will form an integral part (Title 6) of the EEC Treaty. (Slide 8) It states that "the aim of the Community's policy in this area shall be to strengthen the scientific and technological basis of European industry and to encourage it to become more competitive at international level". Of equal importance it states that to achieve this it shall "encourage undertakings including small and medium-sized undertakings, research centres and universities in their research and technological development activities; it shall support their efforts to co-operate with one another, aiming, notably, at enabling undertakings to exploit the Community's internal market potential to the full; in particular through the opening up of national public contracts, the definition of common standards, and the removal of legal and fiscal barriers to that co-operation." Thus the science and technology policy as outlined in the Single European Act is not simply about co-operative pre-competitive research but perhaps more vitally about the participation of small and medium-sized undertakings in a single internal market whose potential can be fully realised through the opening up of public contracts, the approximation of common standards and the removal of administrative and legal constraints. Coupled with the commitment to significantly increase financial support through the structural funds, within the

framework of cohesion, we begin to see the way in which a Community policy on science and technology could, in the broader sense, respond to the needs of a small peripheral region.

5. NEEDS OF IRISH INDUSTRY:

What are the needs of an island state on the periphery of Europe as opposed to the needs of industry situated more centrally in the Community? I believe the needs are the following:

* **Research and Development:**

Gross expenditure on research and development (GERD) in 1984 amounted to IR£125.7 million or 0.77% of GDP. An EEC-funded joint CII/NBST Survey showed that R&D expenditure by manufacturing industry in 1984 amounted to IR£61.9 million, an increase of some 46% over the 1982 level which is equivalent to a real increase of 20%. This was consistent with the trend shown between 1979 and 1982 when expenditure rose by 25% in real terms. Thus a lot of progress has been made in the first half of the 1980s but the challenge ahead is enormous if we are to reach the levels of R&D spending in other smaller economies in the Community. (Slide 9)

It is clear from the studies which have been carried out by Dr Tom Higgins on behalf of the EEC that technological gaps exist not only between the different Community countries but also within countries. If these technological gaps are to be closed and if the poorer regions of the Community are to benefit from an overall science and technology policy, then it is essential that political commitment to and, more importantly, practical implementation of the Commission's proposed programme on Science and Technology for Regional Innovation and Development in Europe (STRIDE) be realised. Such a Community programme will enable financial resources to be committed to the strengthening of our technological infrastructure. This is critical if we are to be able to exploit the market opportunities which will arise in the single internal market of the 1990s.

* **Technology Transfer:**

It is clear that not all companies will have the capability of carrying out research and development nor in fact is this essential. What is essential

is that companies have access to the necessary technology which will facilitate product development and innovation. Such technology transfer within the Community framework is currently being promoted through the SPRINT Programme (Strategic Programme for Innovation and Technology Transfer). One of the pillars of this Programme has been the establishment of a transnational network between advisory bodies. There is a need to expand the number of network members in Ireland and to have commercial companies more directly involved. The emphasis to-date has been more on the advisory companies rather than on their clients, industry.

* **Centres of Technological Excellence:**

The Confederation fully supports the efforts which are being made to develop centres of excellence in our third level institutions in the areas of high technology such as biotechnology and advance manufacturing technology. These centres in co-operation with local enterprises can provide a source not only of technological expertise but also of product innovation. Implementation of the STRIDE Programme should provide valuable financial resources for their further development.

* **University/Industry Co-operation:**

The importance of university/industry co-operation has been recognised in recent years and with the financial support provided by the National Board for Science and Technology valuable linkages have been established. Industry itself has been very much involved and private sector funds were raised to establish the University Industry Centre on the UCD campus. Such co-operation on a transnational basis is supported by the various pre-competitive research and development programmes within the overall Framework Programme for Science and Technology. It is further strengthened by the operations of the COMETT Programme which has enabled both universities and enterprise to get involved in essential transnational technology training programmes.

* **Innovation Centres:**

One of the keys to successful enterprise development is the management of the innovation process. That is, the successful development of industrial and consumer products for targeted markets. EEC support has been given to the establishment of innovation centres in Dublin,

Galway, Limerick, and Cork which together with local enterprise are attempting to grow new companies. In the framework of the development of the STRIDE Programme there is a real need for a greater financial commitment by the Community to such centres if they are to successfully carry out their tasks. The successful work of the Innovation Centre here in Limerick is well known but it is clear that such a centre can take up to 10 years in order to reach break-even. The question must be asked as to whether or not a peripheral region can afford the luxury of waiting 10 years. There is a need for the Commission to recognise that the operation of an innovation centre in a peripheral region is very different from the operation of such centres in more industrialised areas of the Community and that the criteria to be applied may need to be adjusted to take account of this fact. In practice more financial support is needed from Europe.

* **Public Procurement:**

In its statement on a common science and technology policy in the Community, Article 130F of the Treaty emphasises the importance of the opening up of public procurement. This market, which is estimated at IR£300 billion per annum, is currently closed to many national companies. It is estimated that only 20% of such contracts are truly open to outside competition. A major effort must now be made to ensure the successful opening up of these markets particularly those which are currently excluded from the existing EEC Directives on works and supplies contracts, namely the areas of telecommunications, energy, water, and transport. Such a market could provide a very valuable base for the development of small high technology companies in the peripheral regions, such as Ireland. As the market begins to open it is important that information be readily available on the various tenders for works and supplies contracts. There is already an on-line database, Tenders Electronic Daily (TED), in Luxembourg which provides each morning information on the 60 or 70 tenders which are published each day, not only within the Community markets themselves, but also within the GATT. The Confederation is currently operating a pilot project using TED in which companies are provided on a daily basis with information on these tenders.

* **Enterprise Co-Operation:**

Perhaps the most effective way to develop business opportunities and to explore the possibilities of technology transfer is through direct personal contact between enterprises in Europe. This is facilitated to some extent by the personal contacts established within the framework of the research and development programmes. However, this is limited to those firms which have the strategic capability of carrying out pre-competitive research and development. More important is the development of contact between smaller firms who, while not having a major research and development capability, have the necessary technological expertise to acquire technology from abroad. Perhaps one of the most exciting initiatives undertaken by the EEC's Taskforce for Small and Medium-Sized Enterprises is now underway, namely Europartenariat 1988. The objective of this Programme is to bring 200 European enterprises to Ireland in June of this year to engage in dialogue with 100 Irish companies who have expressed their interest in exploring the possibilities for joint venture, sub-contracting, technology transfer, etc. Such a practical approach to European co-operation is probably one of the most valuable ways in which the Community can stimulate enterprise development in the regions.

6. SECOND FRAMEWORK PROGRAMME ON RESEARCH & TECHNOLOGICAL DEVELOPMENT (1987 to 1991)

Within the context of the political momentum provided by the ratification of the Single European Act, the EEC Research Ministers at their meeting on 28th September 1987 adopted a second framework programme on research and technological development to cover the five year period to 1991.

The budget approved for the second framework programme is IR£4.15 billion. It will continue the work initiated in the key programmes such as ESPRIT, RACE, and BRITE, but in addition will strengthen the commitment of resources to the areas of biotechnology, marine research, and fisheries. There is no doubt that Irish companies will, as in the first framework programme, contribute actively to the realisation of the programme objectives and thereby ensure that the European Community can maintain its competitive position in the face of the growing competition from the US and Japan.

However, as I indicated above, such participation in pre- competitive research is not of itself sufficient to ensure the economic and technological

development of a peripheral region. Such programmes must be complemented by Community initiatives in the areas of technological infrastructure, technology transfer, the development of centres of excellence in the high tech areas of biotechnology, new materials, and advance manufacturing technology, university/industry co-operation, innovation centre networks, opening up of public procurement, and perhaps most importantly of all, facilitating direct company-company contacts.

END

**EEC RESEARCH, DEVELOPMENT & DEMONSTRATION GRANTS
APPROVED TO IRELAND IN PERIOD 1984 TO 1986**

Programme	No. of Contracts	Value IR£m
ESPRIT	38	11.00
RACE	3	0.07
BRITE	9	1.0
BIOTECHNOLOGY	14	1.9
ENERGY DEMONSTRATION	63	10.35
OTHER	<u>56</u>	<u>4.44</u>
	183	28.76

ESPRIT PROGRAMME

**OBJECTIVE: PARITY OVER 10 YEARS WITH US & JAPAN
IN FIELD OF INFORMATION TECHNOLOGIES**

FUNDING: IR£540m OVER 5 YEARS (1984 to 1988)

ESPRIT PROGRAMME

LEVEL OF IRISH PARTICIPATION (1984 to 1986)

**IRISH FIRMS & INSTITUTIONS HAVE PARTICIPATED IN 38 PROJECT
CONTRACTS WITH COMMUNITY FUNDING IN EXCESS OF IR£11.0m.**

RACE PROGRAMME (DEFINITION PHASE)

**OBJECTIVE: TO ESTABLISH AN INTEGRATED BROAD-BAND
COMMUNICATIONS (IBC) SYSTEM IN EUROPE IN THE 1990's**

FUNDING: IR£9.8m. OVER 18 MONTH PERIOD

RACE PROGRAMME (DEFINITION PHASE)

LEVEL OF IRISH PARTICIPATION

THREE IRISH ORGANISATIONS PARTICIPATED IN RACE DEFINITION PHASE
WITH COMMUNITY FUNDING OF APPROXIMATELY IR£70,000

BRITE PROGRAMME

OBJECTIVE: PROMOTE COMPETITIVENESS OF TRADITIONAL INDUSTRIES
BY GRANT AIDING PRE-COMPETITIVE RESEARCH ON DESIGNATED THEMES
E.G. JOINING TECHNIQUES, LASER TECHNOLOGY, NEW TEST METHODS

FUNDING: IR£96m. OVER THE PERIOD 1986 to 1988

BRITE PROGRAMME

LEVEL OF IRISH PARTICIPATION (1984 to 1986)

9 IRISH PROJECTS WERE GRANT AIDED TO AN AMOUNT OF APPROXIMATELY
IR£1 MILLION

SINGLE EUROPEAN ACT

* COMMITMENT TO STRENGTHEN THE SCIENTIFIC & TECHNOLOGICAL BASE
OF EUROPEAN INDUSTRY

* MENTION OF:

SME'S
COOPERATION
INTERNAL MARKET
PUBLIC CONTRACTS
COMMON STANDARDS

GROSS DOMESTIC EXPENDITURE ON R & D AS A PERCENTAGE OF GDP

1985

Country	% GDP
UK	2.3
Italy	1.5
Belgium	1.5
Holland	2.1
Austria	1.3
Norway	1.6
Denmark	1.3
Ireland	0.8

TECHNOLOGY TRANSFER

*** SPRINT PROGRAMME (STRATEGIC PROGRAMME FOR INNOVATION & TECHNOLOGY TRANSFER)**

*** FINANCIAL SUPPORT FROM STRIDE**

UNIVERSITY/INDUSTRY COOPERATION

- EEC PRE-COMPETITIVE R&D PROGRAMME

- COMETT PROGRAMME

INNOVATION CENTRES

- * FINANCIAL SUPPORT FROM THE EEC/DGXVI - REGIONAL POLICY

- * NETWORKING OF INNOVATION CENTRES IN THE EEC

- BC NET

- EUROPEAN BUSINESS & INNOVATION CENTRE NETWORK

PUBLIC PROCUREMENT

- * NEED TO OPEN UP MARKET

- * NEED FOR INFORMATION/TENDERS ELECTRONICS DAILY DATABASE (TED)

ENTERPRISE COOPERATION

- * BUSINESS CONTACTS THROUGH COMMUNITY R&D PROGRAMMES

- * EUROPARTENARIAT 1988