

Overview of 1999

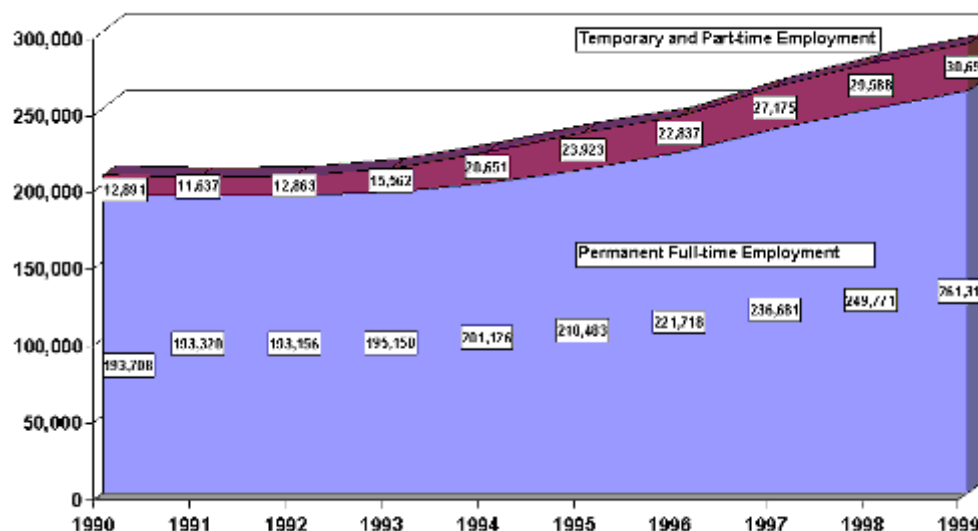
Employment Continues to Rise

GNP is estimated to have increased by 7.25 per cent¹ in real terms in 1999, making it the sixth successive year of very strong economic growth. Growth was well-balanced, with significant contributions from both domestic demand and net exports. Despite strong growth, inflation has remained moderate, averaging 1.6 per cent between 1995 and 1999, although it rose to 2.8 per cent in 1999 compared with the EU average of 1.3 per cent². Irish exports in 1999 are forecast to exceed IR£50 billion (€ 63.5 billion) for the first time.

Preliminary results from the Forfás Annual Employment Survey show that total employment in agency supported companies³ rose by 12,600 jobs in 1999 - 11,500 permanent and 1,100 temporary / part-time. This brings the total employed in these companies, including permanent and temporary / part-time jobs, to 292,000. Chart 1 shows that the share of total employment accounted for by temporary / part-time jobs has increased during the 1990s (from 6.2 per cent of all jobs in 1990 to 10.5 per cent in 1999).

Job gains in permanent full-time employment amounted to over 30,500 in 1999, of which just over 26,300 were first time jobs⁴, the highest level achieved over the past ten years. Irish-owned companies accounted for just over 12,600 of the total job gains, the highest level recorded over the past ten years. Internationally traded and financial services showed the biggest percentage gains, increasing by 22 per cent to a total of 46,300 jobs in 1999, following an increase of 30 per cent in 1998.

Chart 1
Trends in Permanent and Temporary Employment 1990-1999 Manufacturing & Internationally Traded / Financial Services



Source: Forfás Annual Employment Survey

1 ESRI Quarterly Economic Commentary, December 1999

2 Annual EU Harmonised Index of Consumer Prices to October 1999, CSO, November 1999

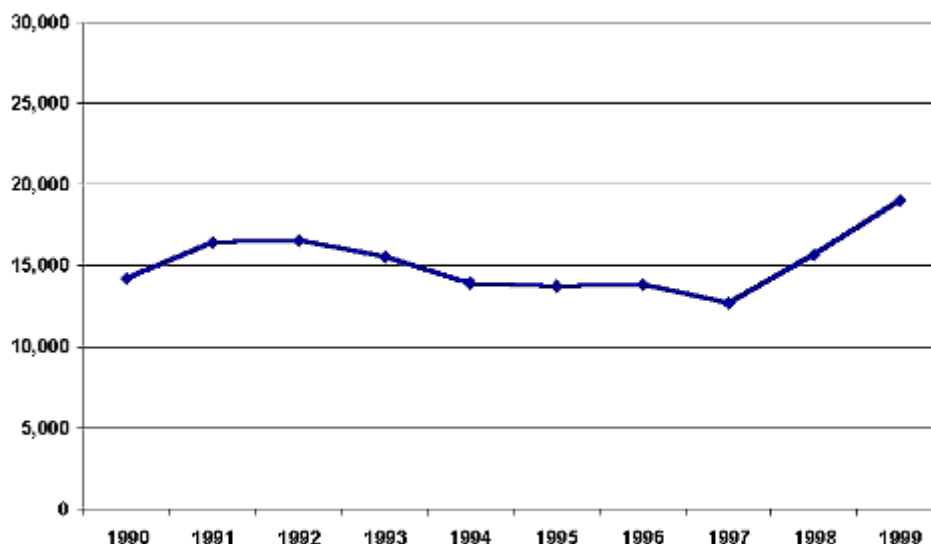
3 Data exclude companies under the remit of Shannon Development and Údarás na Gaeltachta

4 First time jobs are defined as jobs created in a grant-aided company over and above the peak employment level of that company in the previous five years.

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Alongside this strong growth in employment, there has also been an increase in the number of job losses (Chart 2). Job losses increased by 21 per cent in 1999 to 19,000, the highest level recorded over the past ten years. These losses reflect the gradual re-orientation of industry towards higher value-added sectors and are an indication of the restructuring that continues to take place in the indigenous and foreign-owned industrial base to meet more intense competition in the domestic and on export markets.

Chart 2
Trends in Job Losses in Permanent Full-Time Employment
Manufacturing & Internationally Traded Services 1990-1999



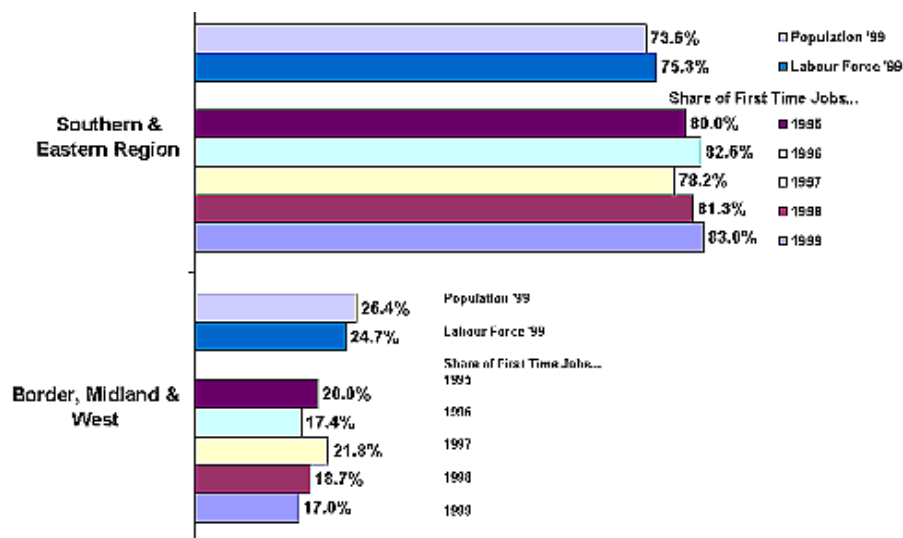
Source: Forfás Annual Employment Survey

Chart 3 shows the distribution of employment in agency supported companies between the Southern and Eastern Region (Objective 1 in Transition) and the Border, Midland and West region. Mirroring the distribution of the population, the labour force and larger urban centres generally, most of the 'first time jobs' created in agency-supported companies during the late 1990s have been located in the Southern and Eastern region⁵.

It is an aim of industrial policy to achieve a greater regional dispersal in new jobs created. Accordingly, the regional distribution of agency supported new jobs will be monitored closely in the future.

⁵ The regional divide used is the classification used by the European Union for regional aid purposes. The counties in the Southern and Eastern region are Dublin, Kildare, Meath, Wicklow, Carlow, Kilkenny, Waterford, Wexford, Cork, Kerry, Clare, Limerick and Tipperary. The Border, Midland and West region accounts for the other 13 counties.

Chart 3:
Share of First Time Jobs in Agency Supported Companies*
by Region 1995-1999 relative to Share of Population and Labour Force



* Excludes employment in Shannon Development and Údarás na Gaeltachta
 Source: Forfás Annual Employment Survey

Agency Supported Firms Continue to Increase their Spending in the Economy - up by IR£2 billion (€2.5 billion)

Firms in manufacturing and internationally traded services have continued to increase their spending in the Irish economy to further boost indirect employment growth. The latest Forfás Irish Economy Expenditure (IEE) Survey shows that manufacturing and internationally traded services companies spent over IR£23.5 billion (€30 billion) in the economy in 1998, up IR£2.0 billion (€2.5 billion) (9.1 per cent) on 1997 in real terms.

This spending is contributing significantly to the high levels of growth in the economy. Both Irish-owned (IR£11.7 / €14.9 billion) and foreign-owned (IR£11.9 / €15.1 billion) firms in the manufacturing and internationally traded services sectors increased their spending on wages and salaries, Irish raw materials and Irish services in 1998.

The latest data from the Irish Economy Expenditure Survey suggest that Irish-owned manufacturing companies, employing greater than 19 people, exported 40.2 per cent of their sales in 1998, compared with 37.7 per cent in 1991, reflecting the increased internationalisation of Irish-owned industry.

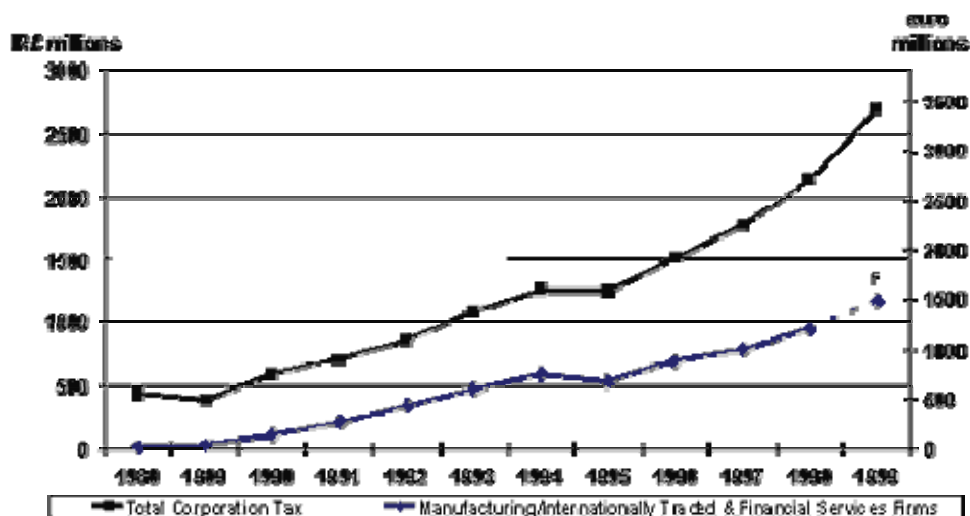
Substantial Rise in Corporation Tax Payments

In addition to their expenditure in the economy, manufacturing, internationally traded and financial services companies provide a very significant direct return to the exchequer by way of corporation tax payments.

- The total corporation tax take is estimated at IR£2,687 million (€3,412 million) in 1999⁶. This represents a rise of 512 per cent in real terms in the period 1988 to 1999 (18 per cent per annum).
- Corporation tax paid at the 10 per cent rate by manufacturing and internationally traded and financial services companies, according to a survey by Forfás, amounted to IR£947 million (€1,202 million) in 1998 in real terms, or almost 45 per cent of total corporation tax receipts. It is estimated to rise to IR£1,167 million (€1,482) in 1999.

6 Source: Budget 2000 Statistics and Tables

Chart 4
Corporation Tax Payments
 (Constant Prices)



IR£ million for 1988

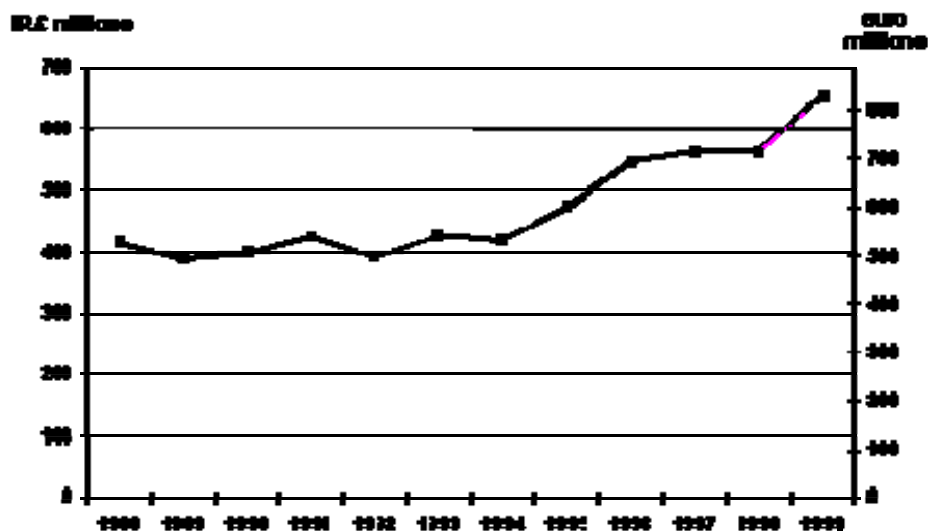
Source: Forfás Corporation Survey

Increased Investment on Enterprise Development

Forfás undertakes an annual analysis of State investment to promote the development of the enterprise sector and create employment in Ireland. The latest analysis indicates that:

- The gross cost of support in real terms to the enterprise sector in the form of direct expenditure (all costs of operating the development agencies, financial supports etc) was approximately IR£563.7 million (€715.8 million) in 1998, and is estimated at IR£652.8 million (€828.9 million) for 1999. This represents a rise of 58 per cent in real terms over the period 1988-1999;
- Over the same period, 1988 to 1999, growth in Government expenditure of 54 per cent in real terms was recorded. The growth in GNP in real terms over this period was 95 per cent;
- There has been a swing from fixed-asset related supports to other forms of support such as R&D, equity investment, employment grants and supports aimed at upgrading the business capability of firms. In 1988 fixed asset supports accounted for 46.5 per cent of total direct expenditure. By 1998 the percentage had fallen to 35.3 per cent.

Chart 5
State Expenditure on Enterprise Development (Constant Prices)

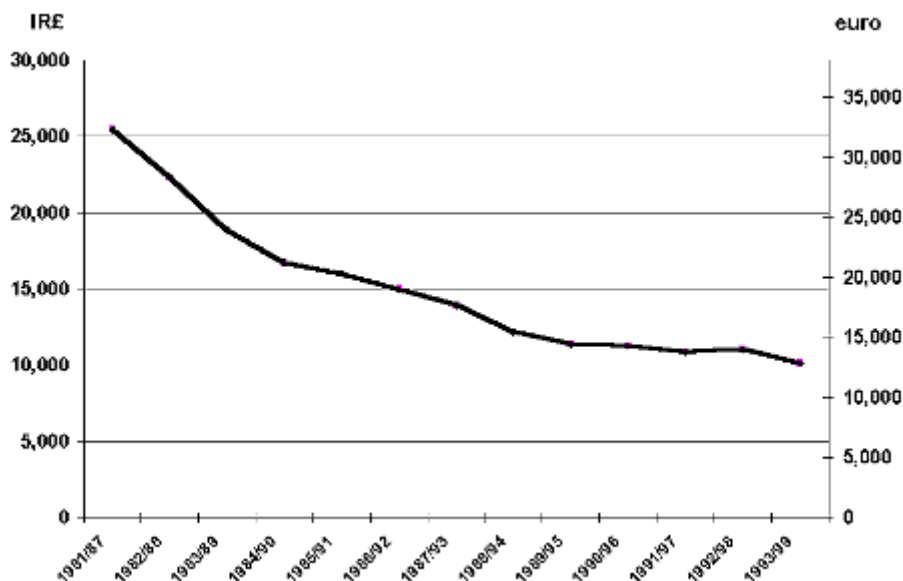


Source: Forfás: Financial Support by Government for the Development of Enterprise in Ireland

Cost Per Job Sustained

Cost Per Job Sustained The average cost of each job sustained over a seven year period in agency supported companies⁷ amounted to approximately IR£10,100 (€12,824) in 1999, the lowest level recorded to date. The trend is shown in Chart 6 below. This reflects the improved value for money approach pursued, the overall improvement in the economic environment for enterprise development and the rapid growth in internationally traded services projects, where the investment costs are generally lower than in manufacturing projects.

Chart 6
Trends in Cost Per Job Sustained (Constant Prices)



Source: Forfás Annual Employment Survey

⁷ Data exclude companies under the remit of Shannon Development and Udaras na Gaeltachta

Business Sector Research and Development

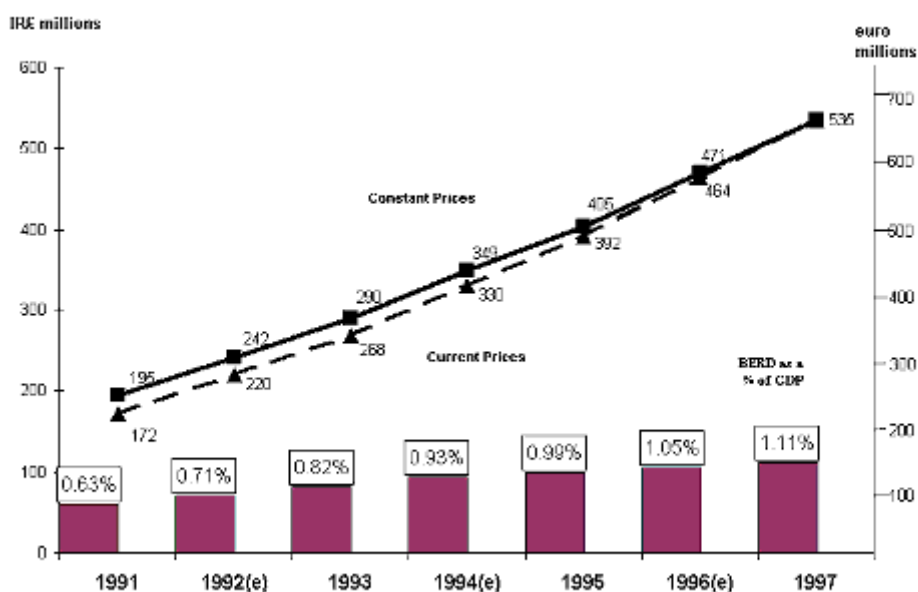
Forfás completed and published during 1999 the findings from the latest survey of business sector research and development (R&D).

In aggregate terms, R&D activity in industry continued to grow between 1995 and 1997. Total business expenditure on R&D in 1997 was IR£535 million (€679 million) or 1.1 per cent of GDP. This places Ireland in 11th place out of 26 OECD countries and brings the country on a par with the European average. Aside from some of the larger EU Member States (Germany, UK and France), Ireland still lags behind Sweden, Finland and Denmark on this measure.

Behind the aggregate figure, it was found that indigenous firms accounted for IR£192 million (€244 million) (36 per cent of BERD) and foreign-owned firms accounted for IR£343 (€436 million) (64 per cent of BERD). The R&D intensity (R&D spend to gross output) of indigenous manufacturing was 1.1 per cent in 1997 (from 0.5 per cent in 1991) while in foreign-owned manufacturing, it was 1.2 per cent (from 1.0 per cent in 1991).

The R&D intensities of indigenous and foreign-owned manufacturing are a cause for concern because these represent half of the OECD average (2.4 per cent) and approximately one-third of that found in the top performing country (Sweden 3.5 per cent). The survey indicates that only 340 indigenous firms and 260 foreign-owned firms spent more than IR£100,000 (€126,974) on R&D in 1997.

**Chart 7:
Business Expenditure on Research & Development, 1991-1997**



Source: Survey of Business Expenditure on Research & Development, Forfás

There are some signs of a slowing down in the growth rate of business sector R&D activity. The growth rate in R&D expenditure in real terms between 1995 and 1997 was 15 per cent per annum – lower than that witnessed in the period 1991 to 1995 (20 per cent per annum). Such a slowing down in the growth rate is not unexpected following the exceptionally high growth rates in R&D investment by firms in the first half of the 1990s.

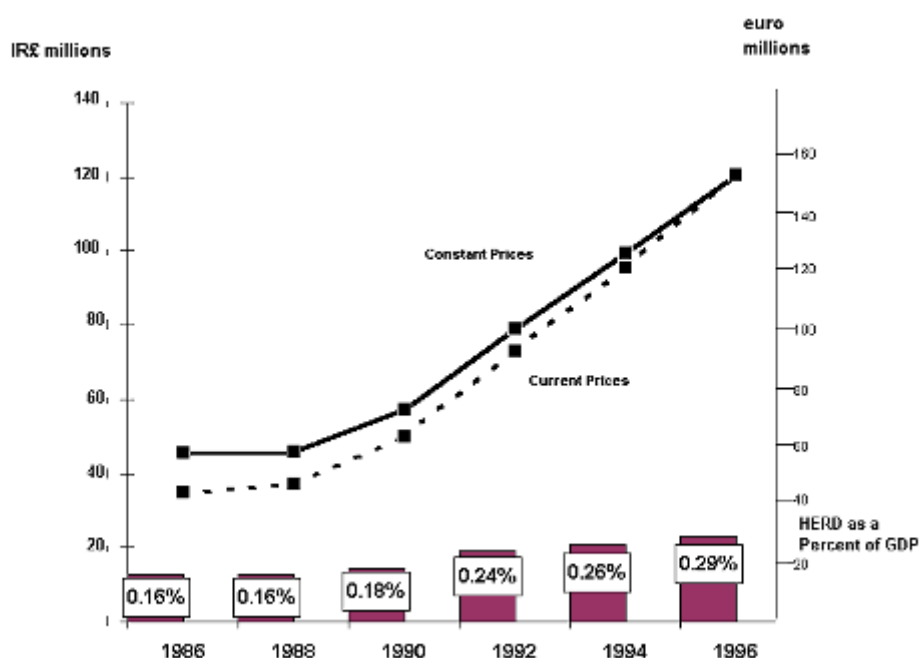
Survey of Research in the Higher Education Sector

The Forfás Survey of Research in the Higher Education Sector shows that expenditure on research amounted to IR£120.6 million (€153.1 million) in 1996, up 53 per cent in real terms since 1992. The sector is defined as the universities and the institutes of technology, including the Programmes in Advanced Technologies (in the universities) and the Technology Centres in the Institutes of Technology.

Among the major findings of the survey are the following:

- Expenditure on research in the higher education sector (HERD) amounted to 0.29 per cent of GDP in 1996 (0.33 per cent of GNP), compared to the EU average of 0.38 per cent of GDP;
- Total number of HE researchers (full-time equivalent) was 2,065 in 1996, or 1.4 per thousand of the labour force, compared to an EU average figure of 1.75. This compares with a total of 1,888 researchers, or 1.37 per thousand of labour force in 1992;
- The major source of funding for HE research is the research component of the block grant to the colleges for their current and capital expenditure. It accounted for 45 per cent of the total funding. This component of funding is calculated from the time academics report that they spend on research (25 per cent on average of their working week);
- Other major sources of funding are direct government grants (21 per cent), EU programmes (15 per cent), Irish business (6 per cent) and foreign sources (6 per cent).

Chart 8
Higher Education Expenditure on Research & Development,
1986 to 1996 Source: Forfás Survey of Research in the Higher Education Sector 1996



State Expenditure on Science and Technology

The Forfás annual publication State Expenditure on Science and Technology shows that Government allocations to scientific and technological activities amounted to IR£932 million (€1,183 million) in 1999, an increase of IR£46.5 million (€59.0 million) or 5.2 per cent over the 1998 level. All of the increase is accounted for by public funds (Exchequer + EU), which rose from IR£729 million (€926 million) outturn in 1998 to an allocation of IR£776 million (€985 million) in 1999; the balance of IR£156 million (€198 million) arises from income earned from the activities of the departments and agencies.

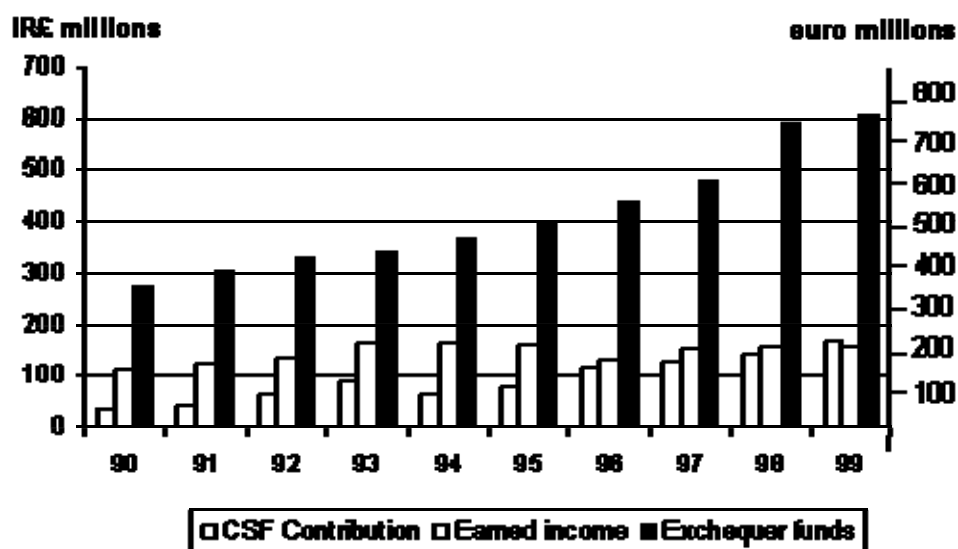
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The EU contribution to public sector S&T in Ireland grew again in 1999, from IR£141.8 million (€180.0 million) outturn in 1998 to IR£168 million (€213 million) anticipated in 1999. This increase is mainly due to the extra funding allocated for grants to industry for R&D projects supported by Enterprise Ireland under its Research, Technology and Innovation Programme.

In relation to research and development activities, Government Departments and their agencies allocated (i.e. made provision for spending) IR£169 million (€215 million) to the funding of R&D in 1999, up from IR£151 million (€192 million) in 1998. A significant proportion of this increase represents additional support for R&D in enterprises allocated through the Department of Enterprise, Trade and Employment. The allocation for performance of R&D within the State sector in 1999 is IR£61.8 million (€78.5 million), up from IR£58.2 million (€73.9 million) last year.

Chart 9 illustrates the trends in funding in the recent past.

Chart 9
Distribution of Government Supported S&T by Sources of Funds (1999 prices)



Source: Forfás State Expenditure on Science & Technology, 1999

MAJOR ISSUES FOR 2000

Ireland has seen another year of strong growth in 1999 but continued growth is placing considerable strain on the economy.

The year 2000 will see the continuation of many trends in the world economy to which Irish economic policy has to respond. Competitiveness challenges continue to accumulate as globalisation trends deepen and Ireland will continue to face growing competition for foreign investment and for its trade. Specific threats (and opportunities) will arise from the progressive economic integration in Europe, both through EMU and the strengthening economic links between the core EU countries and Eastern Europe in anticipation of EU enlargement. Without a new focus on the large Single Market, of which we are a small part, there is a danger that Ireland could revert, over time, to being perceived as a peripheral location for investment and for other forms of economic activity.

Ireland also faces resource constraints in different forms that mean that the model of development followed up to now cannot be used for the future. Skill shortages and more general labour shortages are imposing constraints on growth. The costs of meeting our obligations under the Kyoto Protocol will have significant implications for the economy as a whole and industry in particular.

There has been a strong acceleration in e-business and the technologies that support it. It is now the focus of strategic investment at a global level by companies large and small, as well as being targeted by many governments as the means by which their enterprises can succeed in the rapidly transforming global economy. Government action worldwide is focusing particularly on telecommunications infrastructure and service provision, as well as skills for effective service development.

Addressing these issues will be a major focus of Forfás' work in 2000.

Competitiveness

Competitiveness is a relative concept and success is determined by how well our economic system works to support the development of the traded goods and services sectors, compared to other countries. Competitiveness policy is implemented through policy changes across a wide range of the functional areas of Government, through investments and through institutional development. Ireland's competitiveness goals are determined by the competitiveness profile of the business sector in Ireland and by what other countries do to improve the environment for business, investment and development. Accordingly, the key determinants of competitiveness need to be frequently monitored and the public policy implications clearly drawn and pursued.

The National Competitiveness Council has established a set of priorities for its work that are essential for competitiveness. At the present time, these include the issues of social cohesion, labour-force availability and skills, costs, infrastructure, telecommunications and e-business, regulatory reform, and science and technology. There is a broad consensus internationally on the importance of these issues, and competitor countries keep policies in these fields under close review. The National Competitiveness Council, for which Forfás provides the Secretariat has analysed and made substantive policy-related recommendations on these issues and have entered into discussions with the relevant Government departments on their follow up. In Ireland, a wide range of initiatives over recent years under these headings have been undertaken. Most recently, the National Development Plan with its emphasis on infrastructure, skills and R&D, has given clear recognition to the importance of these policy issues and its effective implementation will contribute significantly to improved competitiveness. These individual policy areas are inter-related and actions, therefore, have to be timely, consistent and coherent.

Regulation and Competition

Increasingly countries have recognised the importance of regulatory reform as a way towards improved competitiveness. By taking measures to ensure improved provision of goods and services through the relaxing or removal of barriers to entry and measures to restrict competition, they have made important contributions to lowering costs and increasing the range and quality of goods and services on the market. This has most noticeably taken place in industries that were traditionally the preserve of governments, such as telecommunications, energy and transport. Liberalisation of the market has, in many cases been accompanied by privatisation, and new regulatory bodies have been set up to protect the interests of consumers by maintaining quality and technical standards, as well as ensuring adequate competition when a natural monopoly exists.

In Ireland much progress has been made in establishing institutions in response to this trend, especially by setting up the Competition Authority and sectoral regulators for telecommunications, electricity and aviation. The need, however, remains for a broader policy framework that sets out common principles and ensures effective co-ordination of activity in this field. The need for such a framework is accentuated by the diminishing role of other policy instruments (monetary, fiscal, trade and industrial) due to international obligations.

Undertaking further detailed work in this area will be a major priority for Forfás in 2000. The organisation proposes to make a substantive contribution to the proposed White Paper on Governance and Accountability Arrangements in the Regulatory Process. In addition, Forfás will participate with other Government departments in an OECD *study*⁸, which will include Ireland in 2000.

Technology Foresight Fund

The Government made a significant response in its *National Development Plan (NDP) 2000-2006* to a Technology Foresight report prepared by Forfás with the Irish Council for Science, Technology & Innovation. A Technology Foresight Fund totalling IR£560 million (€711 million) over seven years is to be established to support research projects in strategic technologies.

The Technology Foresight report argued that well-focused and significant investment in upgrading the technological infrastructure of the economy will enable Ireland to develop world-class research capability in strategic technologies. This will underpin the future competitiveness of indigenous industry, facilitate the undertaking of R&D in this country by multinational companies and attract more high-tech companies to Ireland.

Effective implementation of the Technology Foresight initiative in 2000 will be a major challenge for the Government, and Forfás will continue to support the Department of Enterprise, Trade & Employment in meeting this challenge. Successful implementation ensures that, in the future, Ireland will be better positioned to participate in the emerging 'knowledge society'.

Research, Technology Development and Innovation (RTDI) in the National Development Plan (NDP) 2000-2006

The Government, in the National Development Plan (NDP), accepts that there is a strong link between investment in the research and innovation base of the economy and sustained economic growth. Accordingly, the overall allocation of IR£1.95 billion (€2.5 billion) to RTDI over the period 2000 to 2006 in the Plan is a welcome reflection of this high priority.

The challenge in 2000 for the Government and the relevant agencies, which will implement the operational programmes which constitute the NDP, will be to enhance innovation and competitiveness by investing effectively in the RTDI base of the country. It is considered that the measures to be introduced in 2000 should address the following areas:

⁸ OECD Horizontal Regulatory Reform Programme

- strengthening the research capability in the third-level and state research institutes;
- strengthening the supports available to research students and researchers in third-level and state institutes;
- increasing the quantity and quality of RTDI linkages between institutions and companies;
- helping firms to develop innovative products, services and processes;
- increasing the number and scale of RTDI active companies in Ireland;
- encouraging firms to access and exploit R&D and technology from international sources;
- embedding the culture of R&D in SMEs through up-skilling the RTDI capability of employees.

Future of Enterprise Development

Ireland has achieved exceptional economic progress over the last decade, based on solid foundations of macro-economic stability, social partnership and a comparatively young, well-educated and highly-skilled labour force. However, the consequences of the growth achieved to date and the increasingly uncertain implications of increased globalisation of trade, investment and technology flows present significant challenges to Ireland sustaining high rates of growth into the future. Two of the most serious threats to the competitiveness of the traded goods and services sectors in Ireland in the immediate future lie in the impact which labour shortages in the non-traded services sector have on wage and price inflation, coupled with increasing pressure on infrastructure capacity and supply.

The need for enterprise policy, the development agencies and enterprises themselves to respond quickly and deftly to the new realities has been strongly advocated in a Forfás long-term strategy report '*Enterprise 2010*' which is being published in early 2000. This report was prepared as input to the NESC report '*Opportunities, Challenges and Capacities for Choice*', which forms the broad policy analysis basis for the discussions on the next Partnership Agreement.

Growing employment alone is not an option to achieve growth in living standards as Ireland approaches near full employment. Rather, productivity growth in traded goods and services will be critical to raising living standards. The Enterprise 2010 report projects that GNP growth of five per cent per annum is achievable to 2010. This is dependent on a two per cent per annum growth in employment and three per cent productivity growth.

To achieve such an out-turn, a rapid shift towards high-growth, high-tech, high-productivity activities is required. Productivity growth must come from both shifts in employment toward higher value activities and through increasing the productivity of existing employees in all sectors of the economy.

The innovation capacity within the enterprise base must be significantly increased if it is to remain competitive in the face of increased globalisation. Ireland also needs to increase the flexibility of our workforce so that it can adapt quickly in a rapidly-changing technological environment.

Enterprise 2010 identifies the need for a rapid and sustained improvement in the environment for business development to support productivity growth and maintain competitiveness. Institutions, policies and physical infrastructure must provide a logical and extensive support framework for enterprise in order that a high-productivity, high-value-added economy develops. The investment needed in economic infrastructure to meet existing and future needs as set out in the *National Development Plan, 2000-2006* is essential to future economic and social progress. Because the level of public investment involved is at unprecedentedly high and sustained levels it poses a major challenge for the institutional resources of Government departments and State agencies.

Regional Development and Infrastructure

Historically, maximising Ireland's national economic growth took precedence over concerns about its regional distribution. As a result, while policy acknowledged the need for spatially balanced development, in practice manufacturing and services employment exhibited somewhat national and increasing levels of locational concentration. Certain regional disparities in social and economic opportunities and increasing congestion costs in a number of urban centres have resulted.

Balanced geographical development ensures that economic prosperity is more widely-distributed and addresses some of the spatially related social and political dimensions of economic development. National and regional efficiency is also served by taking steps to prevent congested development in a single or small number of regions. Consequently, the development agencies are responding to encourage a more efficient spatial distribution of the enterprise sector for the benefit of enterprise itself and the wider community.

In 2000, Forfás will continue its work in supporting the regional development strategies of the development agencies. As part of this process, Forfás will undertake an 'audit' of the resource base of the regions with respect to enterprise development which will identify the labour, capital, physical infrastructure and other assets of the regions to develop profiles of their current status and future developmental potential. It is envisaged that this work will contribute to the development of a national spatial strategy. It will build on the work which Forfás undertook in 1999 to identify regional needs in economic infrastructure, especially national roads and regional telecommunications and which have been included for funding in the *National Development Plan (NDP) 2000-2006*.

Future Skills Needs

Investment in education and training has been one of the key contributors to the high levels of economic growth, in recent years. Increasing the quality of the labour force is vital to the success of the economy. In order to sustain the high productivity and competitiveness of the economy, there is a need to ensure that the labour-force has the high-level skills and knowledge needed for this purpose. The training agencies, the education sector, business firms themselves and individual workers carry the responsibility to bring this about.

Furthermore, given the demographics in Ireland, i.e. the decrease in the natural growth of the labour force and the declining population of potential entrants to third level education, there will be a need to supplement the supply of labour. As the economy moves towards a level of full employment, additional sources of labour supply will be required to address the issues of skills shortage in many sectors. These sources will include up-skilling or training within companies, increased female participation in the labour-force and increased immigration. There is also a serious imbalance in the supply and demand for people with advanced qualifications in scientific research. The demand for research personnel, both in high technology industries and in third level research centres, is anticipated to increase significantly in future years. Action to address the emerging gap between supply and demand in this vital area is required. *The Forfás Expert Group on Future Skills Needs* will address these issues in 2000.

EMU

The year 2000 will be an important one for EMU and for the changeover to the euro. There are some expectations of a strengthening of the EMU area economy, and this may be further advanced by increased foreign investment into the EMU area, attracted by the completion of the Single Market and the decision to further increase the membership of the EU in future years.

The recent weakness of the euro in international markets has to be seen in the context of the relatively closed nature of the overall economy, such that the external value of the euro is of correspondingly less concern. For Irish enterprises it may also encourage a greater focusing on the EMU market.

The benefits of a single currency, in terms of reduced transaction costs and the absence of

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exchange rate uncertainty, have yet to be realised by many Irish firms, and there is still insufficient appreciation of the opportunities offered by the large and stable markets in the other ten EMU countries and the diversified opportunities that exist for new exports, imports, and partnership

As well as the strategic aspects, the functional aspects of EMU will be of great importance for Irish enterprises in 2000. The new notes and coins will be introduced on 1 January 2002, and Irish currency notes and coins will be quickly withdrawn. Thus only two years remain for the completion of the changeover to the euro within all businesses. Every firm must be fully ready to transact in euro by 1 January 2002. While much progress has been made, there is evidence that many companies have done little to prepare, and that a sense of complacency still exists within these companies about preparations. Postponing preparations until the last moment will inevitably lead to a shortage of critical support services for firms at that time with consequential negative cost and business impact.

E-Business and Telecommunications

Increasing the adoption and use of information and communications technologies and e-business by the enterprise sector will be a significant driver of enterprise development over the next two to three years and a key determinant of future national competitiveness.

The Forfás report prepared for the Tánaiste and Minister for Enterprise, Trade & Employment during 1999 entitled, '*e-Commerce – The Policy Requirements*' sets out the policy requirements and actions at a sector-specific level and for the business environment in Ireland to establish a leadership position in e-business. The pace of technological change and the advances being made by competitor countries are such that Ireland needs to achieve significant progress on the implementation of the recommendations set out for Government departments, the development agencies and for enterprises and business representative organisations in 2000.

Putting in place the required legal and regulatory environment is a prerequisite for the adoption of e-business by enterprises. Certainty is required in respect of electronic signatures and contracts. Agreement on on-line dispute settlement and arbitration procedures could place Ireland at a significant competitive advantage. Developing the skills base required for competing in e-business will require the development of e-business modules in all third level courses and the provision of appropriate in-company e-business training. Measurement of e-business activity in the country and its economic impact is vital and work is underway between Forfás and the CSO on progressing this issue.

Indigenous and overseas enterprise firms in Ireland need to analyse the relative stage of e-commerce development within their sector and identify the opportunities, threats and strategies required to enable them to compete in a business environment that is increasingly electronically mediated.

The rapid deployment of broadband telecommunications infrastructures in the regions and the improvement of Ireland's international telecommunications connectivity are essential to the competitiveness of firms engaging in e-business from Ireland. All enterprises in the country should be able to access competitive broadband services by 2001 at the latest. Providing clarity of objectives and adequate powers and resources for the Office of the Director of Telecommunications Regulation (ODTR) will be essential if enterprises are to reap the full benefits of an effective liberalised telecommunications market. The respective roles and responsibilities of the ODTR and the Competition Authority should be clarified quickly.

Trade

Preparation for the new Round of Multilateral Trade Negotiations – *the Millennium Round* – was the primary Trade Policy issue during 1999 and is also likely to dominate 2000 as efforts are made to complete the work started in Seattle. The stalling of the trade talks in Seattle last December emphasises the need for more preparatory work to be completed and raises the spectre of adverse effects on Irish trade should the talks fail to lead to meaningful negotiations.

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A return to policies of 'Bilateral Agreements' and slowing of tariff reductions and market opening could impact negatively on Irish export growth over the coming years, just as major export efforts are being made in vital markets, particularly outside the EU. For Ireland's economy to continue its expansion, it is important that all efforts are made by Irish policy makers to ensure that the work to further open markets is continued and to achieve this that the Seattle Ministerial is reconvened as soon as possible to reach agreement on how the new Round of negotiations is to be organised.

FORFAS ACTIVITIES IN 1999

The main activities of Forfás in 1999 can be categorised under three headings:

- Policy
- Coordination
- Monitoring and Review

POLICY

In 1999, Forfás formulated policy recommendations on a wide range of issues influencing the development of enterprise, trade, science, technology and innovation in Ireland. On some of these issues, Forfás worked in conjunction with a number of bodies established by Government including the *National Competitiveness Council*, the *Irish Council for Science, Technology & Innovation* and the Expert Group on Future Skills Needs and for each of which Forfás provides the Secretariat. An outline of some of the work is given below under the following headings.

- Competitiveness
- Science, Technology and Innovation
- The Enterprise 2010 Strategy Steering Group
- Skills
- e-Business
- Trade
- Infrastructure Priorities for Enterprise Development in the Regions
- Regulation and Competition
- EU Sixth Framework Programme for Research and Technology Development
- Research and Knowledge Transfer for Innovation

Competitiveness

The main focus centred on the activities of the *National Competitiveness Council* (NCC), for which Forfás provides the research support and secretariat.

The Council's *Annual Competitiveness Report '99* (ACR), published in May, provided a comprehensive evaluation of the state of, and progress in, Ireland's international competitiveness. The report benchmarks, on the basis of over 120 statistical indicators, Ireland's performance across all the main dimensions of competitiveness in the economy including human resources, R&D and innovation, trade and foreign investment, business finance and economic infrastructure.

The NCC's *Report on Costs*, published in June, highlighted the critical importance of the cost structure facing the traded goods and services sector in Ireland in underpinning the international competitiveness of the economy. The report identified the main cost factors for Irish enterprise and compared them with cost levels in key competitor countries, in particular the UK - Ireland's major trading partner.

An *Inter-Departmental Group on Competitiveness* established by Government to prepare a response to the ACR. Forfás, together with the Department of Enterprise, Trade & Employment, provided the secretariat to the Group. Their report, completed in July, concluded that the recommendations of the Council were widely accepted and for the vast majority of recommendations, action in line with the recommendations was under way or planned.

A Council report on *Social Partnership* was published in September. This highlighted the role played by social partnership in developing competitive advantage for the Irish economy since 1987 and its significant contribution to economic and social progress over that period. The report highlighted the need for a new set of shared goals to bolster the partnership process and also examined the main competitiveness issues that a new partnership agreement should address.

Over the second half of the year, the Council also prepared *follow-up* reports to its statements on skills and telecommunications and e-commerce which were published in 1998. These follow-up reports assessed progress in relation to the issues identified and highlighted emerging priority actions. The Council's up-to-date assessment of the requirements for Ireland to achieve a leadership position in telecommunications and e-commerce has been furnished to relevant Departments and agencies.

Science, Technology & Innovation

In this area, Forfás is advised by the Irish Council for *Science, Technology & Innovation* (ICSTI). The major issues addressed in 1999 are outlined below.

Technology Foresight Ireland

The findings of the first ever Technology Foresight initiative undertaken in Ireland were published in a suite of nine reports by the *Irish Council for Science, Technology and Innovation* in April 1999. The previous March (1998), the Council had been asked by the Minister for Science, Technology and Commerce to undertake the initiative.

Technology Foresight is a process for bringing together scientists, engineers, industrialists, Government officials and others to identify areas of strategic research and the emerging technologies likely to yield the greatest economic and social benefit.

The Technology Foresight reports also identified a number of public policy actions considered essential to ensure that developments in these areas could best be used to support social and economic development in Ireland.

In the Technology Foresight process the participants work towards developing a consensus on research priorities and creating a shared vision of the future they would like to achieve. It is concerned with the role of technology in constructing a desirable but achievable long-term future for the country and identifying the critical strategic decisions which must be taken now to make the achievement of this vision more probable.

Underlying the main recommendations to come from the Technology Foresight initiative was the objective to link investment in research, science and technology with Ireland's development as a knowledge society. One of the important recommendations to Government was to establish a Technology Foresight Fund of IR£500 million (€634.9 million) to develop research excellence, particularly in the niche areas of biotechnology and information and communications technologies.

The conclusions of the Technology Foresight initiative have been widely accepted, including in the report on investment priorities for the period 2000 to 2006 commissioned from the ESRI by the Department of Finance, the NESC Report on national social and economic strategy (December 1999) and the *National Development Plan (NDP) 2000-2006*. Since the publication of the reports, Forfás has worked closely with the Department of Enterprise, Trade & Employment in developing possible approaches to the implementation of the recommendations.

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Investing in Research, Technology and Innovation, 2000 to 2006

In March ICSTI published a Statement on future investment priorities for the Government in the National Development Plan for the period 2000 to 2006. It argued that research, technology and innovation (RTI) have been strongly linked with economic growth and have been major contributors to Ireland's industrial growth and employment over the recent past. RTI contributes directly to Ireland's economic development through the development of indigenous firms, the creation of new technology-based firms and the attraction, retention and development of foreign high technology enterprises. ICSTI called for a new programme of substantial investment in the RTI base of the country as a means of enhancing innovation and competitiveness. The ICSTI Statement was widely endorsed, including in the ESRI and NESC reports referred to above.

The Government, in the National Development Plan published later in the year, accepts the argument that there is a strong link between investment in the research and innovation base of the economy and sustained economic growth. The Plan has recommended an allocation of IR£1.95 billion (€2.5 billion) to a comprehensive programme of investment in research, technology development and innovation over the period 2000 to 2006.

Benchmarking School Science, Technology and Mathematics Education

Effective primary and second level science, technology and mathematics education was identified as a priority area because of the pervasive role of technology in modern life, the increasing importance of science, technology and innovation in the knowledge-based society and its impact on competitiveness. The countries selected for the benchmarking study were Ireland, Scotland, Finland, Malaysia and New Zealand.

In this report, the Council identified three key issues which, if they are addressed, will help to ensure that science, technology and mathematics education in Ireland will effectively contribute to equipping students for a meaningful and productive role in the knowledge-based society. These issues are:

- How to develop and implement science, technology and mathematics education policy on a time-scale that meets the rapidly changing needs of an emerging knowledge-based society, while continuing to meet individual students' long-term needs and ensuring a high level of ownership among the social partners.
- How to recruit, train and retain high-quality science, technology and mathematics teachers, particularly in the physical sciences and mathematics.
- How best to teach and assess science, technology and mathematics. In all the countries studied, science, technology and mathematics education is moving from 'chalk and talk' to experiential methods with an emphasis on developing problem-solving skills and learning by doing.

Science in Second Level Schools

Ireland may not be in a position to take full part in the emerging knowledge-based society, partly because of the falling proportions of students in physical sciences, skills shortages in sectors of Irish industry and many issues related to student assessment and to the provision of facilities in schools.

In its statement, the Council makes specific and actionable recommendations on science education to Government, to the education and business sectors and others. It highlights the need to make changes in the way courses are developed and reviewed, in the nature of assessment of pupils and in the provision for practical science in schools. The Council also addresses the issues of teacher recruitment and education and calls for measures to make science in schools attractive and relevant to both teachers, as a career, and to pupils, as an educational experience which can open up many opportunities to young people today.

Enterprise Development

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During 1999, Forfás undertook a review of national strategy for the development of the enterprise sector and prepared a report entitled '*Enterprise 2010*', in light of changing economic and social circumstances, as input to the National Economic and Social Council's work on the preparations of a new social partnership agreement.

The report, *Enterprise 2010*, which is being published in early 2000, identifies the enterprise sector as the main contributor to the exceptional growth in employment and output and in overall living standards over the last five years. It also recognises that the enterprise sector in general, and the internationally traded sector specifically, has generated much of the resources that has allowed Ireland to make significant progress on the achievement of national social and economic objectives. It identifies the importance of a stable macro-economic environment, social partnership and an educated labour force to the achievement of this performance and the importance of a competitive Irish-owned traded goods and services sector, inward investment and EU membership to this success.

Enterprise 2010 recognises that the enterprise sector must remain the main engine of economic growth over the next decade. It, therefore, has set the growth targets to be achieved by the enterprise sector to support wider social and economic development objectives. *Enterprise 2010* also identifies the need for a rapid and sustained improvement in the environment for business development (infrastructure, education and training, competition policy and so on) to support productivity growth and maintain competitiveness, and key recommendations are provided.

Skills

In November 1997, the work of the Business Education and Training Partnership began, supported with Forfás research and secretariat. The three components are

- An Expert Group on Future Skills Needs - to provide analysis and recommendations;
- A high level Management Implementation Group - to facilitate fast-track decisions on key recommendations;
- A Business Education and Training Partnership Forum - involving the Tánaiste and Minister for Enterprise, Trade & Employment and the Minister for Education & Science.

Following publication of the First Report by the *Expert Group on Future Skills Needs*, the Government, in April 1999, approved the allocation of an additional IR£75 million (€95.2 million) to the Department of Education & Science for the provision of 5,400 places. The additional graduates will virtually eliminate the gap between the supply and demand of technologists (by 2003) identified by the *Expert Group on Future Skills Needs*. Additional resources of IR£3.2 million (€4.1 million) was provided for by the Department of Enterprise, Trade & Employment in its 1999 budget, for an additional 750 places on FÁS high skill courses for the electronics and software sectors.

Further work was undertaken, on the supply and demand for technologists in the IT sector. In addition, the work programme was extended to analyse the labour supply and demand in the construction industry, life sciences, research skills, and the labour market in general.

The Expert Group recommended for the life sciences sector, that 1,150 places be made available in the Universities on a phased basis. At sub-degree level, it was proposed that the accelerated Manufacturing Technicians Programme should be extended to cater for an additional 250 science technician students.

The second *Business Education and Training Partnership Forum* which was held in December 1999, was jointly chaired by Forfás and the HEA. It was addressed by the Minister for Education & Science and the Minister for Science, Technology & Commerce. The findings of the Expert Group were presented and discussed. These will be modified to reflect the views expressed at the Forum and will be published in early 2000.

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As part of on-going work on employee training, Forfás worked during 1999 on a joint study with the Open University Business School (OUBS) and PricewaterhouseCoopers (PwC) of management development in Ireland's enterprise sector. The study found that overall, the vast majority of companies in this sector were conducting mostly informal and ad-hoc training of their managers, with little evidence of a systematic process of management development. A review of management development policy will form part of the work programme of the *Expert Group on Future Skills Needs in 2000*.

Experience world-wide suggests that alternative forms of remuneration such as profit-sharing, gain-sharing and employee share option schemes have a key role to play in helping, smaller firms in particular, to attract and retain staff. Enterprise Ireland, in conjunction with Forfás, therefore commenced during 1999 a study to establish the types of remuneration and other incentives that might assist growth-oriented companies to attract and retain the services of skilled and experienced individuals. This study will be completed in 2000.

E-Business

As mentioned above, Forfás has stressed that one of the most significant drivers of enterprise development over the next three to five years will be e-business and the information and communications technologies (ICTs) that support it. Ireland's success in exploiting the opportunities involved will be a critical determinant of future growth in competitiveness, income, employment and productivity.

During 1999, Forfás examined, at the request of the Tánaiste and Minister for Enterprise, Trade & Employment, the key enterprise policy implications of the development of e-business for key sectors of the Irish economy and for the environment for business in the country. Forfás published its policy action plan in a report entitled, *'e-Commerce: The Policy Requirements'* in July 1999.

The report sets out over 130 recommendations for action by Government, the development agencies and by firms and business organisations in order to develop a conducive, secure and competitive business environment for e-commerce, to develop Ireland as a leader in emerging e-commerce sectors and to ensure that businesses in all sectors are aware and enabled to harness the full potential of e-business.

Work is continuing with the Department of Enterprise, Trade & Employment and the social partners on achieving speedy implementation of the report's recommendations.

The taxation of e-business sales to private consumers in Europe from Ireland is a competitiveness issue of potential significance. The VAT rate of the country of supply applies to the digital sales of services, such as software, music and education and training products to private consumers. Non-EU suppliers are not liable to VAT on these sales to private consumers. Ireland's relatively high VAT rate of 21 per cent could give rise to a competitive disadvantage in promoting e-business activities in Ireland in the business-to-consumer sector of e-commerce activities. In 1999, Forfás recommended that the Government seek to influence the upcoming EU Directive in 2000 to apply the VAT rates of the country in which the services are consumed.

Trade

Information was developed on the changes in 'Import' Market Share over the period 1987 to 1997 into the major regions for Irish exports. Key results showed the following:

- A significant increase in Ireland's market share to the EU (1.18 per cent to 1.77 per cent) of nearly 50 per cent;
- Increase in import market share to continental EU rather than UK (70 per cent compared to 20 per cent); and
- Evidence of companies based in Ireland diversifying their geographic market spread.

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The follow-up work to this study includes a more detailed examination of historical import patterns into the UK and US and also a review of various sectoral patterns with a view to identifying competitive strengths and weaknesses in particular markets.

Infrastructure Priorities in the Regions

In recognition of the importance of infrastructure for both enterprise and regional development, Forfás conducted an evaluation of the infrastructure needs of the enterprise sector in the regions. The priority areas for infrastructure investment in the years ahead were identified following a series of consultations with the development agencies and enterprise representative bodies in the regions. Improved accessibility - both physical and electronic - was identified as an essential condition for development of enterprise in the regions. Access infrastructures such as roads and telecommunications, which directly impact on the exchange of goods, services and information were viewed as priority investments. In the light of this work, Forfás recommended an increased allocation of resources toward investment in the national road network and information and communications infrastructure. Specifically Forfás recommended:

- Acceleration of the National Road Investment Programme so that primary roads identified as crucial to development of the regions are completed by 2006;
- Construction of motorway standard road links between major urban centres;
- The accelerated programme to complete town by-pass projects to eliminate bottlenecks and to reduce transit times;
- Annual expenditure of IR£590 million (€749.1 million) for the period 2000 to 2006 on road-building, exclusive of Public Private Partnerships;
- Expedited roll-out of regional broadband telecommunications;
- Increased pre-planning of road and other infrastructure projects to reduce completion times.

The proposals set out in the recently published *National Development Plan (NDP) 2000-2006*, adequately address the priority investment areas identified by Forfás. The Plan makes provision for recommendations by committing IR£4.7 billion (€5.97 billion) for investment in national roads and IR£120 million (€152.4 billion) for advanced telecommunications. In addition, certain provisions of the new Planning and Development Bill 1999 when enacted will help reduce the time delays with respect to delivering infrastructure by approximately eighteen months.

The NDP also acknowledges the important role that Public Private Partnerships (PPPs) can play in certain sectors. On budget day, the Minister for Finance re-emphasised the Government's commitment to using PPPs in addressing infrastructural needs where value for money and improved delivery of infrastructure projects could be demonstrated. Forfás is represented on the PPP Informal Advisory Group, established by the Department of Finance to provide a forum, to allow communication amongst different parties with an interest in the PPP process. The Group, in 1999, identified a number of tax, finance, tendering and legal issues that could impede the progress of PPPs and recommended solutions and actions needed to resolve these issues. The reports on these issues prepared by the Group were submitted to the Interdepartmental Committee on PPPs at the end of 1999.

Regulation and Competition

Forfás has also undertaken work in 1999, in conjunction with the National Competitiveness Council (NCC) on the potential impact of regulatory reform on the competitiveness of the Irish economy. This work began with an overall assessment of the existing status of regulation in Ireland, concentrating on a specification of the present legal and institutional framework, and also highlighting a number of general principles to be followed in regulatory activity and competition policy. A number of sectors, which impact significantly on the competitiveness of

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the traded goods and services sectors, were identified with the aim of assessing whether the regulatory environment was contributing adequately to competition.

An appraisal of the relationship between sectoral regulators and competition authorities based on a comparative institutional study was undertaken, as well as two sectoral studies, dealing with the transport sector generally and business services. The sectoral studies aim to develop policy conclusions focused on activities within the sectors where regulatory reform is likely to improve competition, performance and competitiveness. Based on the principles elaborated, as well as the institutional study undertaken, submissions were prepared from the NCC and from Forfás to the Minister for Public Enterprise in response to her request for submissions on the governance and accountability of regulators.

Research and Knowledge Transfer for Innovation

Governments world-wide adopt various mechanisms to optimise the commercial exploitation of the outputs from publicly funded research. In 1999, Forfás work in this area focused on developing recommendations to strengthen the transfer of research results from the higher education sector and the public research institutes to industry.

The main initiatives recommended include:

- development of a database of research results from publicly funded research and provide its easy access to companies;
- provision by Enterprise Ireland of a technology brokerage activity between companies and the higher education and public sector institutions;
- development of research and marketing alliances between the higher education and the public research institutions;
- provision by each research institution of appropriate and regular training for researchers and managers to enhance their interface with industry.

COORDINATION

Coordination of the industrial development agencies, which is a core function of Forfás, is achieved in a number of ways. These include the work of the Board of Forfás, of which the Chief Executives of the industrial development agencies and the Secretary General of the Department of Enterprise, Trade & Employment are members, and an Inter-Agency Planning Managers' Group, chaired by Forfás, to facilitate an integrated approach by the development agencies to the development needs of the enterprise sector. Forfás also operates a number of cross-agency working groups on specific areas and works closely with individual agencies to help achieve operational consistency. This section of the statement gives an overview of some of the areas of coordination in which Forfás is involved.

Enterprise Areas Scheme

The Enterprise Areas scheme was introduced in the Finance Act, 1995 to provide incentives to certain companies locating in disadvantaged areas in Dublin, Cork and Galway in order to promote economic development in those areas. The scheme was extended in the Finance Act, 1997 to two further locations in Dublin (Cherry Orchard and Finglas), to Rosslare Harbour and to areas adjacent to Cork and Knock Airports. Forfás, in consultation with Enterprise Ireland or IDA Ireland, recommends projects to the Minister for Enterprise, Trade & Employment, who issues a certificate entitling the projects concerned to benefit from the relevant tax and other incentives. Reliefs are available both to investors and to qualifying companies locating in the Enterprise Areas.

To qualify for incentives, companies must be engaged in manufacturing or computer services and in the case of Cork / Knock Airport, freight forwarding/logistical services are also eligible.

Thirty-eight companies have been allocated certificates to date which entitles them to benefit

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from the Enterprise Area incentives. These companies have the potential to create approximately 6,000 jobs in the Enterprise Areas. Of these jobs, approximately 3,500 permanent and almost 500 temporary jobs were in place by November 1999. The reliefs claimed by these companies in the Enterprise Areas amounted to IR£1.2 million (€1.5 million) in 1998.

The Enterprise Area Scheme was closed at the end of the 1999. Expenditure incurred after 31 December 1999 on the construction/refurbishment of building in the Enterprise Areas will cease to attract incentives. New leases signed after that date will no longer qualify for incentives.

European Framework Programmes for Research and Development

The EU's *Fifth Framework Programme*, which covers all the research, technology development and demonstration activities to be funded by the European Union until 2002 was launched in 1999. The total budget for FP5 is €14.96 billion (IR£11.78 billion). The research will concentrate on four main areas: Quality of Life; Energy, Environment and Sustainable Development; User-Friendly Information Society; and Competitive and Sustainable Growth.

In Framework Programme projects, financial support is usually at a rate of 50 per cent of full costs, and projects are submitted in response to Calls for Proposals normally by consortia with participants from a minimum of two countries.

Forfás is the national coordinator in relation to EU research and technology policy developments which includes the monitoring of Irish involvement in the Framework Programme on behalf of the Department of Enterprise, Trade & Employment. On the basis on Irish participation in the previous Framework Programme (FP4), where Irish researchers secured over IR£150 million (€190.5 million) in funding which involved over 330 companies - the Minister for Science, Technology & Innovation expects Irish participation in FP5 to reach IR£200 million (€254 million).

An important feature of involvement in the Framework Programme is the linkages which are developed by Irish industry, third level colleges and research institutes with organisations in other Member States and beyond. For industry, the Programme assists with the harnessing of new technologies, the deepening of R&D capability, and the development of the skills and capability of technical personnel. For academic researchers it provides support for collaborative work with industry and with researchers in other institutions.

The Cooperative Research Action for Technology (CRAFT) initiative within FP5 is particularly relevant for those Irish manufacturing companies whose horizons are international and who need to be aware of developments in their technologies but do not have the resources to invest in large, in-house R&D projects.

As the negotiation of a Framework Programme, which involves the European Commission, the European Parliament and the fifteen Member State Governments through the EU Council, can take over two years, the national preparation necessary for the Sixth Framework Programme - 2002-2006 (FP6) must start now. Forfás has, therefore, been working during 1999 with the Department of Enterprise, Trade & Employment on the principles that should guide the preparation of a national position for FP6.

The key objective for the Department of Enterprise, Trade & Employment and Forfás in developing a national position in advance of each Framework Programme, and in subsequent negotiations with the EU Commission and other Member States, is to optimise the opportunities within the Framework Programme for Irish researchers to participate.

Awareness Campaigns

Forfás coordinates awareness campaigns on the EMU, on Science, Technology and Innovation and on Skills.

The EMU Business Awareness Campaign

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The EMU Business Awareness Campaign, which forms an integral part of the Government's National Information Programme on the euro, continued throughout 1999. The primary objective is to disseminate information on issues relating to EMU and the changeover to the euro to Irish business. The Campaign continued to work with a widely representative Consultative Committee, as well as specialist working groups that examine specific issues such as the training needs of firms in preparing for the euro, the impact of the euro on the retail sector and the impact of the euro on the tourism industry.

In line with the Campaign's primary objective of information provision, the range of publications that the Campaign makes available to business was updated and extended during the year. This included:

- Revisions to the Information Pack to reflect the fact that EMU began on 1 January 1999;
- Preparation of eight new documents for inclusion in the Pack;
- Revisions to the Campaign's shorter guide for companies in the SME sector; and
- A new guide on the euro and cross-border trade produced in co-operation with the Northern Ireland Euro Preparations Unit.

Information continued to be distributed to the business community through the existing channels that have been established by the Campaign. The Campaign also continued to maintain its database of individual enquirers now totalling approximately 6,200 businesses. During the year (to mid-December) the Campaign had circulated 7,500 copies of the Information Pack (overall total 60,000); 42,500 SME brochures (142,500 in total); 5,900 copies of the IT guide (45,000 in total); 9,500 copies of the retail guidelines (94,000 in total) and 28,000 copies of the document on cross-border trade. In addition, three issues of the Campaign's newsletter Eurochange were produced. 30,000 copies of issue no. 10 (June), 30,500 copies of issue no. 11 (September) and 29,000 of issue no. 12 (December) were circulated to members of the Consultative Committee, the individual register and the media.

The Campaign continued to monitor the progress of Irish firms in preparing for the changeover by means of statistical surveys to assess levels of awareness and preparedness, conducted at regular intervals throughout the year. Two surveys were conducted during the year; in July and December.

A significant development in the Campaign in 1999 was the launch of the Loughrea Euro Town Project in March. The project is intended as a demonstration exercise, whereby the business community throughout Ireland will learn from the experiences of businesses in Loughrea in preparing for the changeover to the euro.

The Campaign initiated two new studies during 1999. A Business Strategies Study was undertaken to explore the strategic options available to Irish companies, particularly SMEs, in order to take advantage of the opportunities EMU has created in completing the Single Market. In addition, a study of the software industry in Ireland was conducted which sought to determine the level and extent of euro-compliant software solutions that are currently available to Irish businesses.

Science, Technology and Innovation Awareness Programme

The Science, Technology and Innovation Awareness Programme now in its fourth year continued, through its theme 'Science for a Successful Ireland', with its key messages that science, technology and innovation develop leading edge industry and skilled jobs, develop exciting career opportunities and develop creativity in our children.

The principal activities during the year were:

- Science Week Ireland
- National Innovation Awards

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- National Journalism Awards
- Primary Science Day
- Survey of public on Scientific Developments.

In 1999 there was a marked increase in coverage of science, technology and innovation matters in the media, particularly in the print media. To recognise this and to encourage even higher quality coverage in the future, the National Science and Technology Journalism Awards were introduced.

Primary Science Day was held on Friday, 12 November 1999. To mark the introduction of science as a subject in the revised primary school curriculum, 500 schools were supplied with teaching materials on the theme of temperature and asked to devote half the day to the teaching of science.

The National Innovation Awards were co-sponsored by PricewaterhouseCoopers and the Irish Times and the Science and Technology Journalism Awards by IBM.

Science Week Ireland took place from 7 to 14 November 1999 and attracted the involvement of very large numbers of young people and their families. In addition to the activities in Dublin, large-scale regional events included the Galway Science Festival and the Limerick Science Fair. Cork and Waterford also were centres of activities.

Forfás manages the Science, Technology and Innovation Programme on behalf of the Office of Science & Technology at the Department of Enterprise, Trade & Employment.

The National Skills Awareness Campaign

The National Skills Awareness Campaign continued its programme of activities during 1999 with a number of new initiatives as part of its ongoing task of encouraging school leavers to consider careers in specific sectors.

The campaign, which is managed by Forfás, operates under the aegis of the *Expert Group on Future Skills Needs*. It focuses on the software, electronics and teleservices industry sectors and during 1999 it extended its work to include the shared services sector which involves the centralisation of back-office activities, such as accounting by multinational companies with operations throughout Europe..

The 1999 campaign activities included:

- a 'traffic stoppers' campaign, which involved distributing approximately 18,500 leaflets, highlighting career opportunities in the four industry sectors, at traffic junctions in Dublin, Cork, Galway and Limerick;
- recording radio interviews for syndication to key local radio stations throughout the country over a four week period;
- exhibiting at all of the premier career exhibitions and conferences throughout the year;
- a week of radio interviews with a panel of speakers from local industries on Limerick 95FM;
- briefings to career guidance teachers in venues all over the country;
- production of a 'Speakers Directory 1999/2000', which gives contact details of speakers from local industry for use by career guidance teachers in career talks, open days, school visits etc.;
- on-going publication of numerous articles in national newspapers, supplements and magazines, throughout the year.

Through its activities during 1999, the campaign continued to generate high and increasing

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interest in, and awareness of, the career opportunities available, among our target audience.

'Ask Ireland'

As part of its work, the Foreign Earnings Committee⁹ decided (in late 1998) to establish an Internet website as a 'Virtual Ireland House' to complement the work already done in promoting the Ireland-House concept (national agencies in overseas locations sharing accommodation and creating 'one-stop shops' abroad) which the committee had been actively encouraging during recent years.

The 'Ask-Ireland' website was launched by Mr Tom Kitt, TD, Minister for Labour, Trade & Consumer Affairs on 2 March 1999. The site provides, in as far as possible through the Internet, an information service which emulates that provided by a physical Ireland-House. The site was developed by the Foreign Earnings Committee members working together and providing the appropriate links to their websites and information services.

The website design and initial operating phase has now been completed. The site has received national recognition including 'Best Government Website Award' at the Irish Business Internet Awards. Future plans for the website include increased promotion internationally and broadening the number of active participants in the project.

MONITORING & REVIEW

Forfás carries out a series of reviews including evaluations of publicly-funded development agency activities and technology programmes, on its own behalf and on behalf of the Department of Enterprise, Trade & Employment and of the Industry Evaluation Unit, which is a part of the EU Structural Funds monitoring process.

The following were reviewed in 1999:

- Evaluation of Irish Participation in the EU's Fourth Framework Programme
- Review of National STI Support Programmes
- Agencies Linkages Activities
- Factors affecting company Closures and Job Losses in 1998
- Biotechnology Sector Prospects
- Life Sciences Skills Needs
- Agency Performance Indicators
- Market Share Performance in key export markets
- Availability of Euro Compliance Software
- Strategies of Irish Firms in EMU

⁹ The Foreign Earnings Committee is a group representing Government Departments and State Agencies who have overseas promotion of Irish goods or services within their remit. It seeks to maximise the effectiveness of Ireland's promotional efforts overseas. Membership in March 1999 was IDA Ireland, Bord Bia, Bord Iascaigh Mhara, Bord Failte, Enterprise Ireland, Department of Agriculture & Food, Department of Enterprise, Trade & Employment, Department of Foreign Affairs, Department of Marine & Natural Resources, Department of Tourism, Sport & Recreation and Shannon Development. It operates under the aegis of the Department of Enterprise, Trade & Employment.

Outline details on two of the reviews are set out below:

Evaluation of Irish Participation in the EU's Fourth Framework Programme

The EU's Framework Programmes provide funding, on a competitive selection basis, to international consortia undertaking R&D in technology areas identified as priorities by the EU. This evaluation examined the operation and impacts in Ireland of the fourth of these Programmes, which ran from 1994 to 1998. Ireland's involvement in the Programme was judged to be highly successful - the IR£150 million (€190.46 million) of EU funding awarded to Irish participants was double that achieved in the previous Framework Programme and the number of companies that participated was four times higher. Recommendations from the evaluation are aimed at further enhancing the benefits to Ireland of Framework Programme participation in the future.

Review of National STI Support Programmes

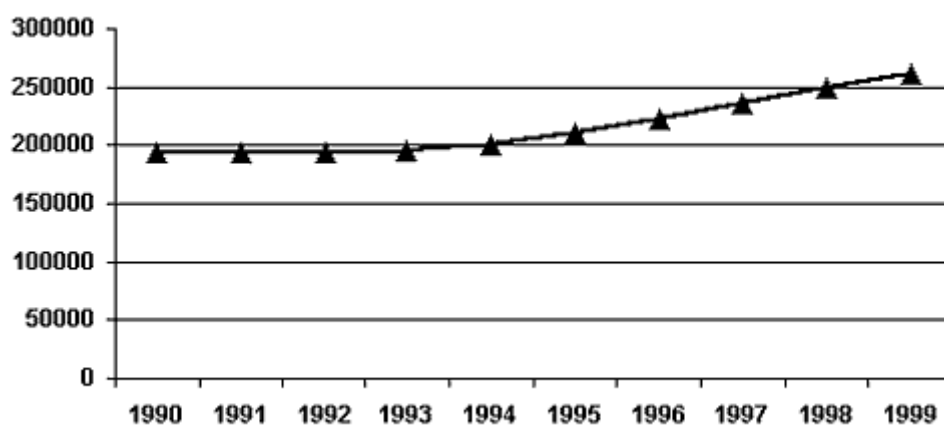
Over the past several years the Science and Technology Evaluation Unit in Forfás has organised and conducted assessments of over twenty national initiatives for supporting science, technology and innovation. Some of these were undertaken jointly with the EU-funded Industry Evaluation Unit, located in the Department of Enterprise, Trade & Employment. Early in 1999, the two groups collaborated on a review of the findings from all these assessments. The aim was to identify key lessons for the overall innovation support system and thereby provide, from an evaluation perspective, an input to the new *National Development Plan (2000-2006)*.

Appendices

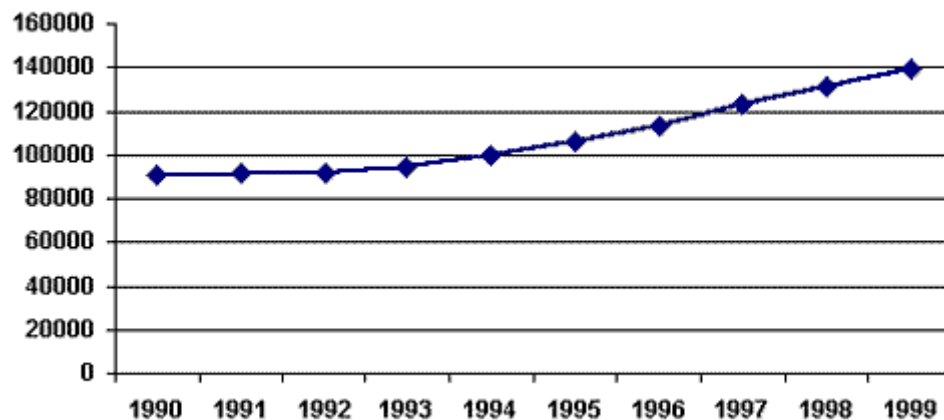
Appendix 1

Trends in Permanent Employment 1990-1999
Irish and Overseas Owned Companies
Manufacturing and Internationally Traded /Financial Services (1989-1998)

OVERALL

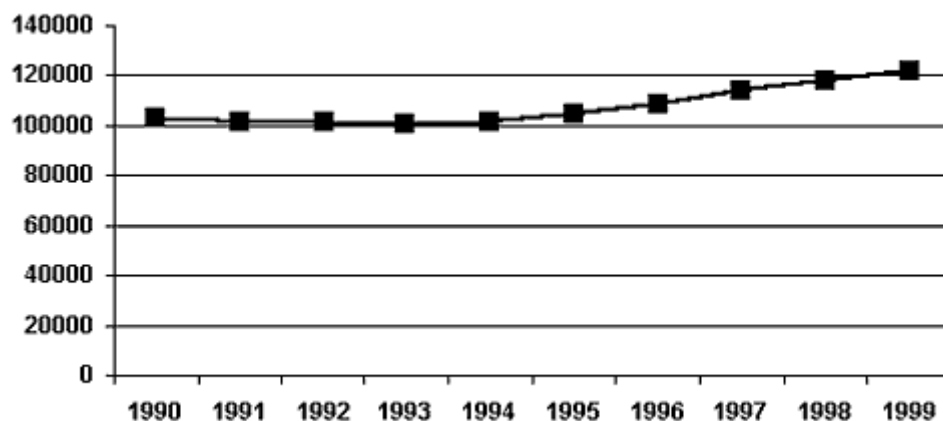


OVERSEAS OWNED



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IRISHOWNED



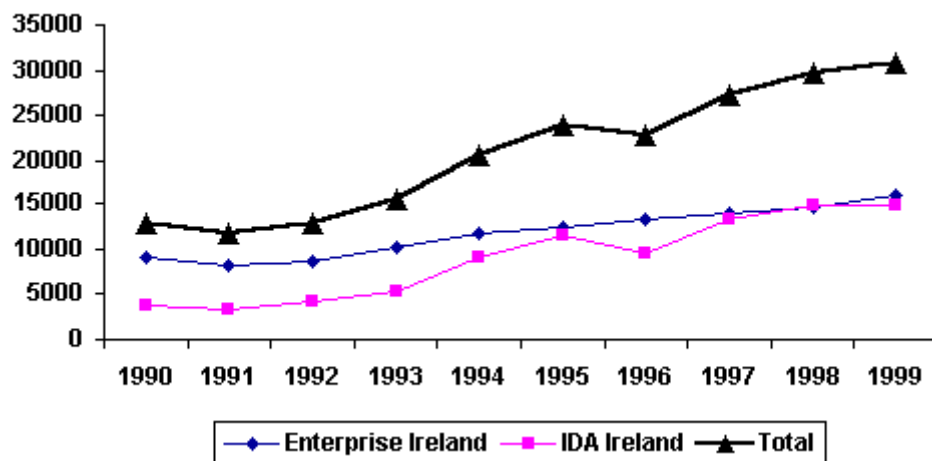
Source: Forfas Annual Employment Survey Data excludes companies under the remit of Shannon Development and Údarás na Gaeltachta.

Trends in Permanent Employment 1990-1999 Irish and Overseas Owned Companies Manufacturing and Internationally Traded / Financial Services

	Overseas Owned	Irish Owned	Total
1990	90,631	103,077	193,708
1991	91,835	101,485	193,320
1992	92,021	101,135	193,156
1993	94,544	100,606	195,150
1994	99,393	101,733	201,126
1995	106,257	104,226	210,483
1996	113,433	108,285	221,718
1997	122,984	113,697	236,681
1998	131,652	118,119	249,771
1999	139,649	121,666	261,315

Appendix 2

Trends in Part-Time, Temporary and Short-Term Contract Employment Enterprise Ireland* and IDA Ireland Supported Companies (1990-1999)



* Former Forbairt Client Companies

	Enterprise Ireland	IDA Ireland	Total
1990	9,018	3,873	12,891
1991	8,232	3,405	11,637
1992	8,605	4,258	12,863
1993	10,294	5,268	15,562
1994	11,630	9,021	20,651
1995	12,409	11,514	23,923
1996	13,246	9,591	22,837
1997	13,872	13,303	27,175
1998	14,690	14,898	29,588
1999	15,927	14,764	30,691

Source: Forfas Employment Survey

Appendix 3

Irish Economy Expenditures 1997-1998 Manufacturing and Internationally Traded Services Constant prices IR£ million

	1998			% Change Over 1997
	Irish-Owned Firms IR£ M	+ Foreign Owned IR£ M	= TOTAL IR£ M	%
Total Sales	15,221	34,394	49,615	10.7
Total Irish Economy Expenditures	11,679	11,935	23,614	9.1
Of which: Wages & Salaries	2,530	2,981	5,511	6.7
Irish Raw Materials	6,288	3,684	9,972	8.5
Irish Services	1,936	4,606	6,542	10.8
Profits (all Irish Industry profits and corporation tax paid by Overseas firms)	925	664	1,589	20.2
IEE % Sales	76.7	34.7	47.6	-1.4

Euro Conversion

	1998			% Change Over 1997
	Irish-Owned Firms €M	+ Foreign Owned €M	= TOTAL €M	%
Total Sales	19,327	43,671	62,998	10.7
Total Irish Economy Expenditures	14,829	15,154	29,984	9.1
Of which: Wages & Salaries	3,212	3,685	6,998	8.5
Irish Raw Materials	7,984	4,678	12,662	6.7
Irish Services	2,458	5,848	8,307	10.8
Profits (all Irish Industry profits and corporation tax paid by Overseas firms)	1,175	843	2,018	20.2
IEE % Sales	76.7	34.7	47.6	-1.4

Source: Forfás - Irish Economy Expenditures Survey

FORFÁS 1999 REVIEW AND 2000 OUTLOOK STATEMENT

Appendix 4

State Expenditure in Science and Technology - 1999 [Exchequer + CSF Funds]

Departments	Total Public Allocation		% Total
	IR£ '000	Euro '000	
Taoiseach	454	576	0.06
Finance	2,796	3,550	0.36
Environment and Local Government	10,039	12,747	1.29
Education and Science	491,490	624,064	63.34
Marine and Natural Resources	16,484	20,930	2.12
Arts, Heritage, Gaeltacht and the Islands	3,793	4,816	0.49
Agriculture and Food	62,747	79,672	8.09
Enterprise, Trade and Employment	122,142	155,088	15.74
Public Enterprise	10,153	12,892	1.31
Social, Community and Family Affairs	8,845	11,231	1.14
Health and Children	13,848	17,583	1.78
Government Offices	33,134	42,072	4.27
Grand Total	775,925*	985,222*	100.00

Source: Forfás - State Expenditure on Science and Technology, 1999

*These figures do not include 'earned income' (such as fees for technical services) which amounted to IR£156 million (€198 million) in 1999. The inclusion of earned income brings the total to IR£932 million (€1,183 million).