OVERVIEW OF 2001

This section reviews 2001 and the main results of Forfás surveys under the following headings:

- *Economy / Employment*
- *Agency Supported Firms Spending in the Economy*
- *Corporation Tax Payments*
- *Investment in Enterprise Development*
- *Cost Per Job Sustained*
- *Community Innovation Survey*
- *Business Expenditure on Research & Development Survey*

General Economic Environment

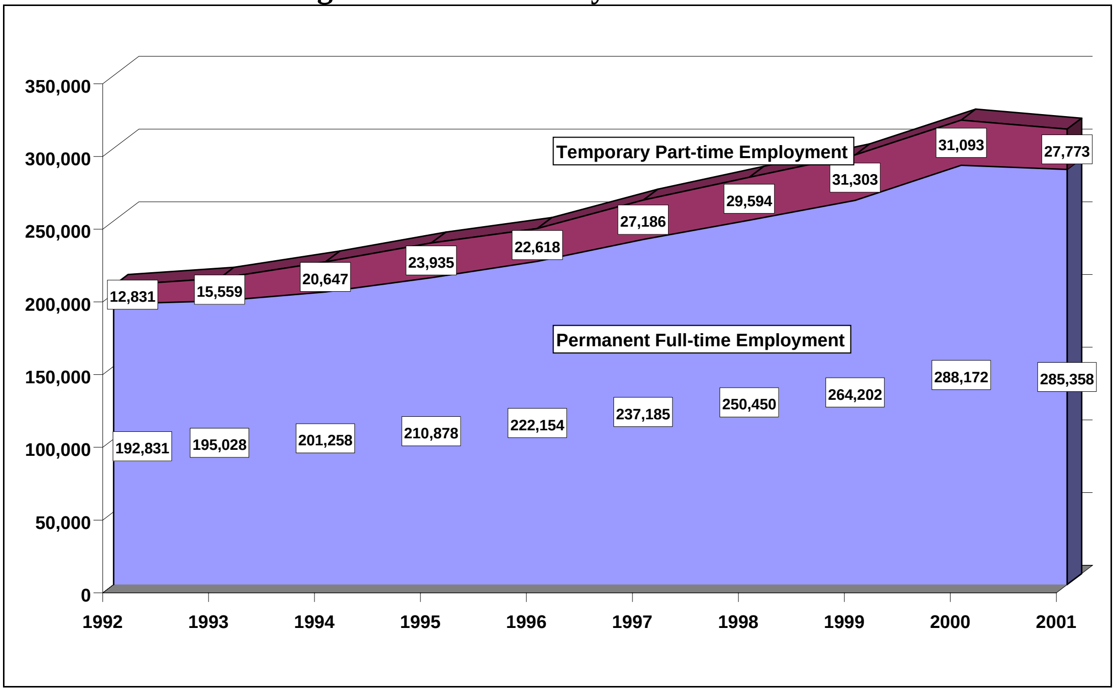
The overall economic situation in 2001 was one characterised by strong growth in the first part of the year giving way to a sharp deceleration as the year progressed. Overall, real GDP growth for the year is estimated at 6.75 %[1], down from the 11.5 % high of 2000. Real GNP growth for the year is estimated at 5.25 %, a significant decrease on the 10.4 % realised in 2000. This is still significantly ahead of the growth projections for our main trading partners, and the EU-15 average of 1.7% growth in GDP in 2001.

The slowdown in activity in 2001 is also reflected in other macroeconomic indicators. Overall employment growth is estimated at 2.8 % for 2001, down from 4.7 % in 2000. However, unemployment only rose marginally, to 4% of the labour force in 2001, and is expected to average no more than 4.75% in 2002. Exports of goods and services are estimated to have grown by 8.2 % in real terms in 2001, down from the 17.8 % witnessed in 2000. Import growth is also estimated to have moderated, increasing by 7.2 % in 2001 compared with 16.6 % in the previous year. This easing in economic activity impacted positively on the rate of inflation. Using the harmonised European measure (HICP)[2], inflation is estimated at 4.0 % in 2001, compared to the 5.3 % recorded in 2000, and is expected to moderate further in 2002.

The slow-down in economic activity also impacted on employment in manufacturing and internationally traded and financial services. Preliminary results from the Forfás Annual Employment Survey 2001 show that total employment in these sectors in agency-supported companies[3] declined (-1.9%) in 2001. However, numbers employed stood at 313,000 at the end of 2001, which is 6% above the average for the past 5 years, and the second highest level of employment on record.

[1] Source: Ireland – Stability Programme December 2001 Update – Department of Finance
[2] HICP: EU Harmonised Index of Consumer Prices
[3] Data excludes companies under the remit of Shannon Development and Údarás na Gaeltachta.

Chart 1
Trends in Permanent and Temporary Employment 1992 - 2001
Manufacturing and Internationally Traded / Financial Services

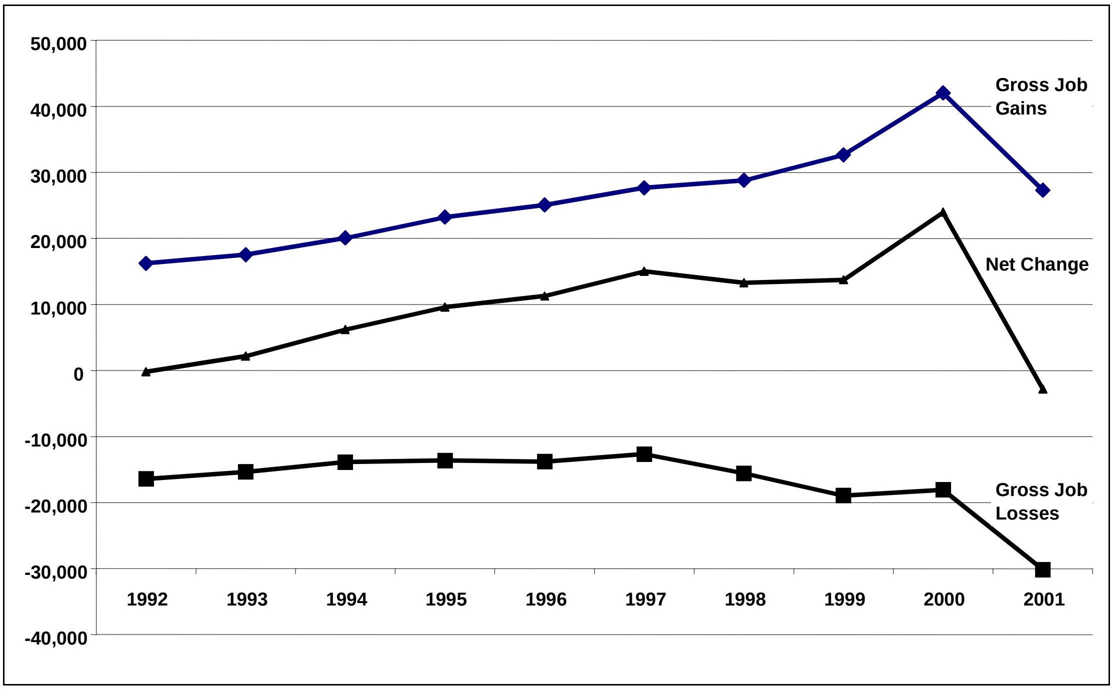


Source: Forfás Annual Employment Survey

New full-time jobs created in agency-supported firms amounted to over 27,300 in 2001, a good performance given the economic difficulties encountered during the year. New jobs were recorded in all sub-sectors of manufacturing. New job creation was split evenly between Irish-owned and foreign-owned firms. Internationally-traded/financial services continued to be one of the main areas of growth with over 9,000 gross job gains in 2001, and a net increase in full-time jobs of more than 4,500, when losses in the sector are taken into account.

The trend in permanent full-time jobs within the agency-supported base of firms over the past 10 years is summarised in Chart 2.

Chart 2
Gross Gains and Losses in Permanent Full-Time Employment
Manufacturing and Internationally Traded / Financial Services 1992 - 2001



Source: Forfás Annual Employment Survey

The down-turn in the economy was reflected in a rise in the number of jobs lost in 2001. Many sectors experienced an increase in job losses in 2001, particularly firms involved in labour intensive and lower value added activities. This reinforces the point that firms in Ireland must move up the value chain and re-position themselves in market sectors with more potential for profitable growth. The strategies of the enterprise development agencies are now firmly fixed on building, and providing the infrastructure for, high value-added and knowledge-intensive industries. The dip in net employment growth in 2001 only serves to emphasise the importance of continuing with such strategies.

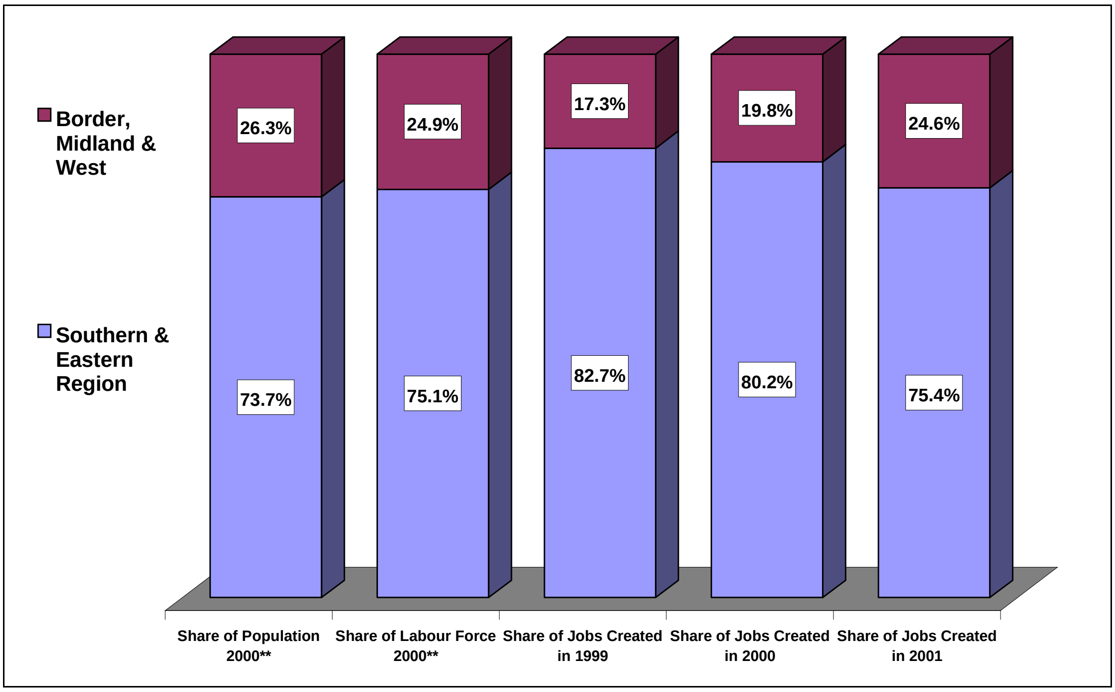
Industrial policy is also focused on bringing about an improved regional distribution of employment. The Border, Midlands and West (BMW)[4] region has tended in the past to perform less satisfactorily than the rest of the country in terms of increasing and sustaining its employment in manufacturing and internationally-traded services.

Chart 3 provides encouraging signs that the policies being adopted by the enterprise development agencies to promote the development of the BMW region are having an impact. The chart shows that the BMW region accounts for 26.3 % of the population (aged 15+) and 24.9 % of the labour force. In 1999, the region accounted for 17.3 % of gross job gains in agency-supported companies. The latest figure for 2001 shows a

[4] 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.

significant increase with 24.6 % of gross job gains accruing to the BMW region. Forfás will continue to monitor this trend to determine the impact of policies aimed at improving the regional distribution of employment.

Chart 3
Share of Gross Job Gains in Agency Supported Companies* by Region Relative to Share of Population and Labour Force



**Source: Forfás Annual Employment Survey (Excludes Shannon Development and Údarás na Gaeltachta)*
*** CSO data*

Expenditure of Agency Supported Firms

Manufacturing and internationally-traded services companies under the remit of IDA Ireland, Enterprise Ireland, Shannon Development and Údarás na Gaeltachta make a direct contribution to the Irish economy in terms of their expenditure on **payroll costs**, **Irish-produced raw materials** and **bought-in services**. Forfás and the enterprise development agencies track this expenditure in the *Annual Business Survey of Economic Impact*. The survey conducted in 2001 shows that agency supported firms spent more than €31.6bn on these items of expenditure in 2001, an increase of 16.8% over 1999, in line with the increase in output of these firms as outlined in Table 1.

Table 1 Direct Expenditure of Agency Supported Firms in the Irish Economy

		Irish-owned Firms		Foreign-owned Firms		All Firms		
		1999	2000	1999	2000	1999	2000	Change
Sales	€m	19,507	22,000	48,909	59,684	68,416	81,685	19.4%
Payroll Costs	€m	3,439	4,031	4,916	5,568	8,355	9,598	14.9%
Irish sourced Materials	€m	6,839	7,787	6,033	7,504	12,872	15,291	18.8%
Irish sourced Services	€m	2,189	2,493	3,663	4,245	5,852	6,738	15.1%
Direct Expenditure in the Economy	€m	12,467	14,311	14,613	17,316	27,080	31,627	16.8%
Direct Expenditure as % Sales	%	63.9	65.0	29.9	29.0	39.6	38.7	-0.9%

Source: Annual Business Survey of Economic Impact, Forfás

Payroll costs account for €9.6bn (30.4%) of this expenditure, Irish-produced raw materials account for €15.3bn (48.4%) and bought-in services account for the remaining €6.7bn (21.2%). In total, Irish-owned companies accounted for €14.3bn of direct expenditure in the economy, equating to 65% of the value of its sales. Foreign-owned companies accounted for the remaining €17.3bn, and this equates to 29% of the value of its sales. The survey shows that foreign-owned manufacturing industry[5] sourced 28% of its raw material requirements in Ireland in 2000, up from 18% at the beginning of the 1990s. This is an encouraging indicator of the “embeddedness” of foreign-owned multinationals in the economy.

Corporation Tax Payments

In addition to their expenditure in the economy, manufacturing and 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 €4,289 million in 2001[6]. This represents a rise of 618 % in real terms in the period 1988 to 2001 (16.4 % per annum).

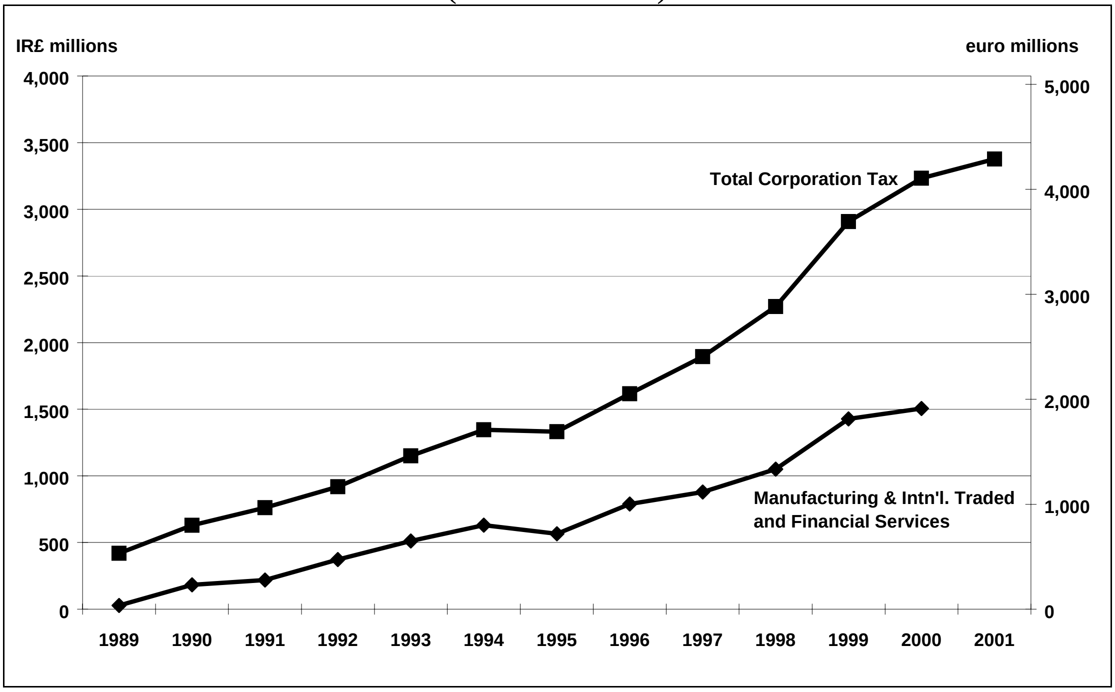
- Corporation tax paid at the 10% rate by manufacturing and internationally-traded and financial services companies, according to a survey by Forfás, amounted to €1,815 million in 2000, equivalent to 47 % of total corporation tax receipts.

- The overall burden of taxation in Ireland has been progressively reduced and amounted to 29.4 % of GDP in 2001[7]. This has boosted economic activity and employment. Low corporation tax rates have also benefited firms directly and

[5] Excludes Food, Drink & Tobacco
[6] Source: Budget 2002 – Department of Finance
[7] Source: Budget 2002 – Department of Finance

have led to the situation where the low corporation tax rate has been followed by a higher corporation tax yield – see Chart 4 below.

Chart 4
Corporation Tax Payments
(Constant Prices)



** Source: Forfás Corporation Tax Survey*

Increased Investment in Enterprise Development

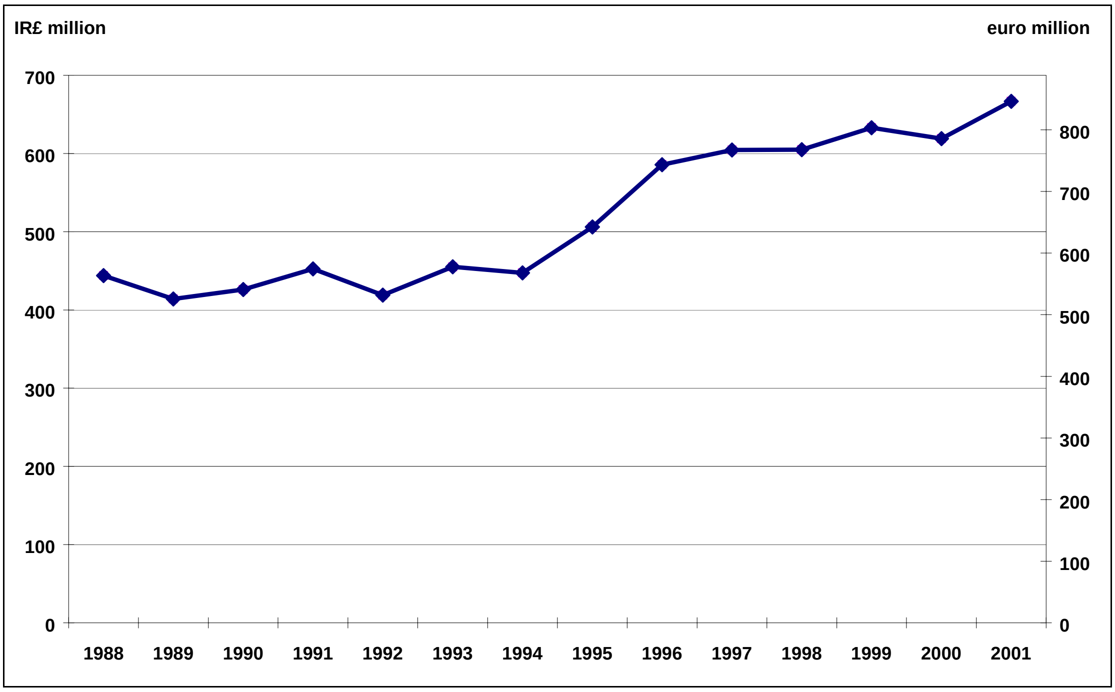
Forfás undertakes an annual analysis of Agency investment programmes to promote the development of the enterprise sector and create employment in Ireland. The latest estimates indicates that:

- 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 €786 million in 2000, and is estimated at €846.4 million for 2001. This represents a rise of 50 % in real terms over the period 1988-2001;

- Over the same period, 1988 to 2001, growth in gross Government expenditure (current plus capital) of 94 % in real terms was recorded. The growth in GNP in real terms over this period was 167 %;

- There has been a trend away from fixed-asset related supports to other forms of assistance 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 % of total direct expenditure. By 2000 the percentage had fallen to approximately .35 %.

Chart 5
State Expenditure on Enterprise Development
(Constant Prices)

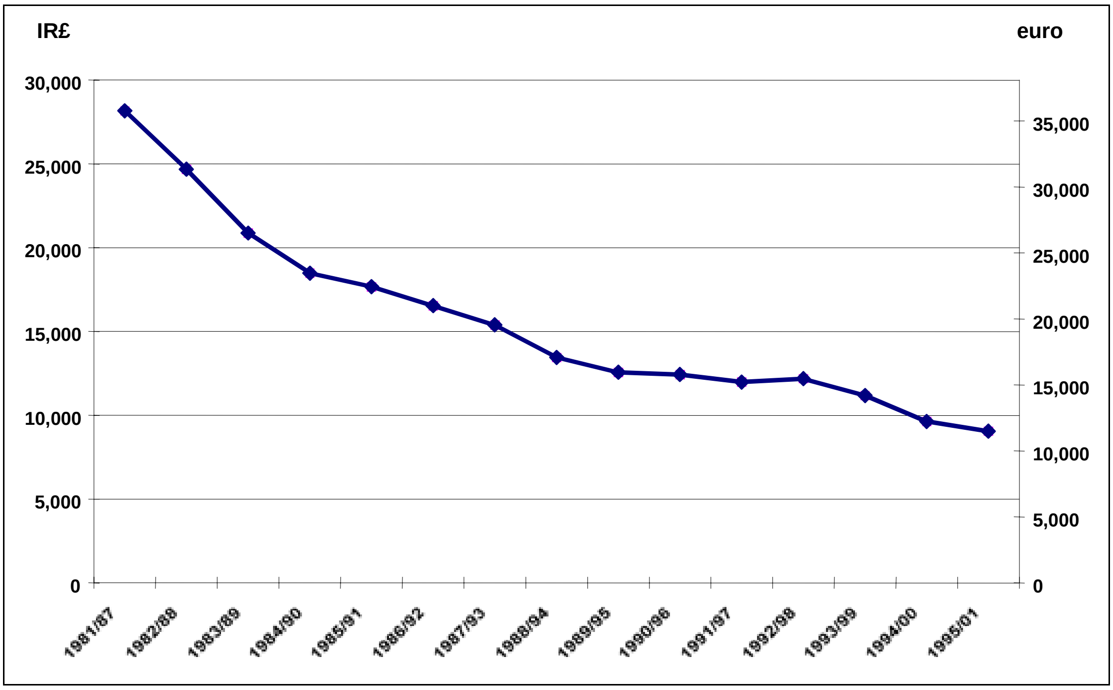


Cost Per Job Sustained

The average cost per job sustained[8] in agency supported companies over the seven year period ending in 2001 amounted to approximately €11,492 which is less than half of the figure that applied in the 1980s (when measured in constant prices). The downward trend in this measure is due to a number of factors including the improved value for money approach to projects pursued by the agencies, a significant increase in the return to Enterprise Ireland from its equity shareholdings, the continued growth of internationally traded services projects where investment costs are generally lower than manufacturing projects, and the favourable economic environment for enterprise development.

[8] Data excludes companies under the remit of Shannon Development and Údarás na Gaeltachta. The cost per job is calculated by taking into account all direct Enterprise Ireland and IDA Ireland expenditure to all firms in the period of calculation. Only jobs created during, and sustained to the end of, each seven year period are credited in the calculations.

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

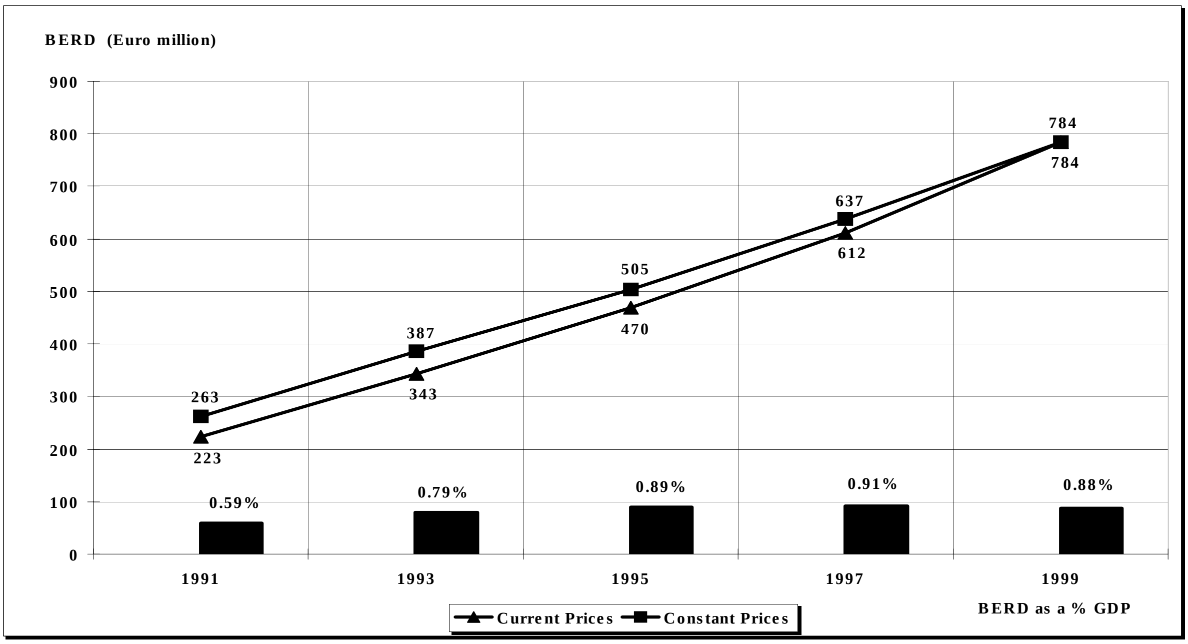


Source: Forfás

Research & Development in the Business Sector

The Forfás *Survey of Research and Development in the Business Sector* in 1999 was completed during 2001. The results show that business expenditure on research and development (BERD) continued to grow in aggregate terms between 1997 and 1999. Total BERD accounted for €784 million in 1999 which is equal to 0.88% of GDP, compared to €612 million in 1997 (0.9% of GDP) as indicated in Chart 7.

Chart 7: Business Expenditure on Research & Development 1991-1999



The annual rate of growth for the period 1991-1999 was 14.6%. However, for the period 1997-1999 growth slowed to 11% per annum. BERD as a percentage of GDP also increased over the period 1991 to 1995 but has remained around 0.9% from 1995–1999. In 1999 the BERD as a percentage GDP figures for the EU and the OECD were at 1.2% and 1.5%, respectively.

Among the major findings of the survey are the following:

- The number of firms spending significant amounts of money (€1.3m or £1m) on R&D increased from 75 in 1997 to 98 in 1999. The number of foreign-owned firms increased from 50 to 55, while 43 indigenous firms spent more than this amount compared to 25 in 1997.

- Foreign-owned firms accounted for two-thirds of BERD in 1999, which is in line with previous years.

- On a sectoral basis the key indicator of the level of research is the ratio of R&D to total output. For manufacturing industry as a whole this ratio is low at 0.8%, compared to the EU average of 2.4%. Iindigenous sections, such as electrical and electrical equipment and instruments, have R&D intensities which are above the OECD average levels.

- R&D activity in the context of numbers of business sector researchers sees Ireland at 3.1 researchers per 1000 labour force, which is above the EU average of 2.5 and is ranked 10th out of 25 OECD countries. There are current and potential skills shortages for researchers in knowledge-based industries. This is despite the relatively high number of science and engineering graduates.

- Government financing of R&D generally lies at around 5-6% over the period 1991–1999. This compares to an OECD average of almost 10% in 1999. The need to build on the strengths of Ireland’s basic research has been recognised and significant funding is provided to the Higher Education Sector over the period 2000–2006. This is set to improve Ireland’s desirability as a location to perform industrial R&D.

MAJOR ISSUES FOR 2002

Some of the issues which will be important for economic development and therefore for Forfás in 2002 are considered in this section under the following headings:

- *World Economic Slowdown*
- *Competitiveness*
- *Skills*
- *Trade – WTO Agreement*
- *e-Business and Telecommunications*
- *Infrastructure*
- *Research & Development*
- *Biotechnology*

World Economic Slowdown

In 2001, the global economy experienced its most severe deceleration since the 1974 oil price shock. In 2000 global growth averaged 4.7%, the fastest rate of growth since 1998. But in 2001 world growth is likely to have slowed to just 2.2%, the slowest performance since 1992. Sparked by the crash in the Information and Communications Technology (ICT) industry, the downturn began in the USA, but quickly spread to Asia and Europe. The already slowing U.S. and global economies were further undermined by the terrorist attacks against the USA on September 11 2001, mostly reflecting the impact of the attacks on consumer and business confidence. According to the most forecasts, global growth will average just 2.9% in 2002 and OECD growth just 1.5%. Output is expected to remain weak in the first half of 2002, but a recovery is likely to gradually take hold in the USA and most other industrialised countries in the second half.

There is a risk, however, that the rising U.S. unemployment and falling consumer and investor confidence will lead to the USA undergoing a far deeper and longer recession that currently expected. The global implications of an even deeper U.S. downturn would be significant. First, the direct trade impact would be even greater than now expected, with U.S. imports falling sharply through much of 2002 and into 2003. Secondly, the impact on the financial market would be far greater. Equity prices in the USA would fall further, and capital-market liquidity would dry up even for borrowers. Other equity markets around the world would fall sharply as a result, depressing balance sheets in Europe and Japan, and forcing a retrenchment by the private sector. Indeed, it is hard to avoid the conclusion that the risks to global economic growth are now higher than at any time for a decade.

Ireland appears relatively better placed, despite a strong dependence on the overseas ICT sector, to withstand the impact of a global downturn. This reflects the current low rate of unemployment, the strength of government finances relative to most other EU countries, the strong enterprise base, and our relative immunity to financial market instability as a result of our participation in EMU (European Monetary Union). Nonetheless, the deep trade and investment links between Ireland and the rest of the world, and particularly the USA, has quickly channelled the forces of global recession in our direction. Economic growth has slowed rapidly in the final quarter of 2001, and the prospects for 2002 are uncertain. On the basis of the U.S. and European economies recovering in the second half of next year, and on the basis of only a modest appreciation of the euro against the dollar, we expect real GDP growth in 2002 of 4-5%, following growth of around 6.0% in 2001. The risks to this forecast are, however, mostly on the downside. A sharp appreciation of the euro, or a deeper global recession than currently expected, could spell a more severe slowdown in Irish economic growth than currently anticipated.

While little can be done in the short-term to counter the difficulties that will likely be faced in the coming 6-12 months, the downturn should add increased impetus to ongoing efforts to address major deficiencies in the Irish business environment, particularly regarding infrastructure provision (telecoms, roads, electricity, air access and waste management), education and the support structures for research and innovation. It is also important to distinguish between cyclical economic trends, and the continuing dramatic restructuring of the global economy as a result of technological advancements in information and communication technologies (ICT), biotechnology and nanotechnology. Despite recent setbacks over the last year, particularly in the ICT sector, it remains our conviction that scientific advances in these sectors have paved the way for a new economic revolution, promising a sustained period of higher than historic increases in global productivity and economic growth into the medium-term. With the proper policy mix in the areas of education and skills, research and development and physical infrastructure, Ireland has the potential to become a global leader in many of these areas.

Competitiveness

The global slowdown of 2001, exacerbated by the events of September 11, has clearly demonstrated the increasing integration of the world economy and the sensitivity of its response to change. However, in spite of the faltering pace of world economic growth in 2001, many commentators still expect a recovery in 2002. Ireland's competitiveness challenge is to ensure that it is well placed to take advantage of an upturn in the world economy when it occurs.

Trade, investment and other measures of economic integration will be increasingly important in the years ahead. In Europe, the EU enlargement process is now fully under way, and accordingly the countries of Central and Eastern Europe compete actively for trade and inward investment. The world economy will continue to be an ever more competitive market place, with growing numbers of lower-income countries seeking success in international markets and also with larger and more sophisticated economies among the developed countries anxious also to maintain their positions. Critical challenges included telecommunications, infrastructure, regulatory reform and that introduction of the euro.

Increasingly, with the growing integration of the world economy and the increasing service content of international trade, telecommunications costs are an essential input to most industries. A second critical area is that of infrastructure and public transport. Here again Ireland's weaknesses have played a malign role, driving up business costs, reducing business responsiveness, hindering labour market flexibility, encouraging house price inflation and degrading the environment through excessive private car use.

Another key competitiveness issue for 2002 is regulatory reform, and the need to follow-up on the recommendations of the OECD report in this field. Key objectives include the need for further liberalisation in a number of sectors, the introduction of regulatory impact analysis, and the preparation of a national policy statement on the role and operation of the regulatory process. The challenge for 2002 will be to ensure that competition in all sectors grows and leads to better and cheaper services for consumers. More generally, the Government processes themselves, the means by which laws and regulations are drawn up will also need to be reviewed, to ensure that the system is responsive enough to the needs of consumers and to the demands of the international arena.

The introduction of euro notes and coins on 1 January 2002 marks the final stage of EMU. With the withdrawal of national notes and coins thereafter, the functional and formal aspects of the changeover will have been completed. Irish firms will need to examine their strategies for export diversification, improved sourcing of raw materials and services, and to seek partnership opportunities across the eurozone to best take advantage of the opportunities that the euro provides.

Skills

The skills and flexibility of the Irish workforce are becoming increasingly important in ensuring sustained economic growth in a competitive global economy. Available evidence indicates the presence of a tight labour market situation in the medium term. In this context, the issue of future skills needs in the labour market generally, and the requirements of those skills, will be of prime importance. Demographics and declining numbers entering and leaving school are also an important consideration.

An ongoing analysis of the labour market is of prime importance to allow for more comprehensive policy recommendations to be drawn up. Within the labour market some sectors are of particular importance. Biotechnology is of strategic importance and the sector is likely to undergo fundamental change in Ireland in the medium term. The specific skills required to accommodate this change will have to be identified. The ICT sector and the construction sector are also under going change, in the context of the recent economic slowdown, and therefore require ongoing monitoring.

Trade – WTO Agreement

While most Irish goods trade is still conducted within the Single European Market (SEM), and governed by EU rules, a growing share of trade is conducted outside the SEM, and is therefore governed by multilateral agreements under the auspices of the World Trade Organisation (WTO). As a small open economy, Ireland is dependent on the free movement of goods, services and investment across national boundaries. Accordingly, a highly positive development for Ireland was the decision by the 142 members of the WTO in November 2001 to launch a new round of negotiations aimed at reducing barriers to trade and investment between countries. These negotiations will begin in earnest in January 2002 on a range of areas including industrial tariffs, subsidies, anti-dumping, regional trade agreements, environment and dispute settlement issues. Negotiations in agriculture and services trade began in early 2000, while negotiations on investment and trade facilitation are expected to begin in 2003/04.

These negotiations will potentially affect companies in Ireland that currently sell, or plan to begin selling, goods or services into non-European Union (non-EU) markets through exports or overseas investment. They will also potentially affect companies in Ireland that are dependent on imported inputs from non-EU markets, or that are vulnerable to import competition from outside the EU in the event of the elimination or reduction of EU import barriers. In September 2001, Forfás and the Department of Enterprise, Trade and Employment, in conjunction with the development agencies, jointly launched a WTO Industry Consultation Process designed to alert industry in Ireland to the implications of a new round of trade liberalisation negotiations, and to provide an opportunity for industry to make their views known on the main issues. The consultation process can be accessed at *www.openmarkets.ie*. The feedback from companies during this consultation process will enable Irish trade negotiators to draw up a detailed list of Ireland's priorities in the WTO negotiations.

e-Business & Telecommunications

e-Business continues to be one of the major issues facing businesses today. How quickly they adapt, how well they adapt, and how flexible they respond to changes in technology, in business relationships and in customer behaviour will determine their success, and indeed their ability to survive. The adoption of e-Business is even more important for Irish businesses as we enter a global economic downturn. Research has shown that firms who use e-Business effectively are able to generate revenue increases of 10% to 20%, and cut costs by 20% to 45%[9]. Despite the slowdown, worldwide e-business revenues are growing at between 30-40%, which continues to present major opportunities for indigenous firms and to attract further foreign direct investment.

The downturn in the world economy and the technology markets has significantly dampened the hype surrounding e-Business. It is critical that this does not lead to complacency within Government or the business sector in Ireland. Many governments are using this period to advance beyond or to catch up with leading countries, in terms of producing an environment conducive to the growth of e-Business. It is critical that Irish businesses respond dynamically to the changed environment by developing their e-business capabilities, and that in 2002 the Government acts to:

- promote investment in information technology and advanced communications services;
- promote a greater understanding of the potential of e-Business to become integrated into key business functions and to boost revenues and reduce costs;
- create a critical mass of business critical applications – for example, Government e-Procurement.

Deterioration in the world economy and the technology markets also having significant implications on investment in broadband infrastructure and services in Ireland. A number of key operators have ceased trading. Critical issues require to be

[9] Accenture formerly known as Andersen Consulting, *eEurope -Your Choice*, 1998

resolved in relation to the costs, quality and availability of advanced telecommunications services for businesses. Key issues for 2002 include:

- the establishment of a strong and effective, pro-competitive/pro-consumer regulatory regime through the enactment of the Communications Bill;
- the effective, and co-ordinated, deployment of regional broadband infrastructures and services through the extension of open-access, diverse, resilient and advanced broadband and dark fibre backbone infrastructures further throughout Ireland and the development of competitive local access infrastructures for the provision of broadband services.
- that the planning guidelines for road opening are consistent and fair, that infrastructure sharing is encouraged, and where technically feasible, provision should be made for the bundling of ducting for telecommunications with other infrastructures.

Infrastructure

A major theme of enterprise and broader economic policy in recent years has been the need for additional investment in physical infrastructure. Dramatic growth in the economy in the last decade has placed increasing demands upon the country's infrastructure and resulted in growing capacity constraints. These capacity problems have been especially evident in transportation, housing and energy. To address the issue, the National Development Plan (NDP) 2000-2006 included a specific operational programme for Economic and Social Infrastructure and allocated €22,361 million for investment over the life of the plan. On-going monitoring of implementation of the NDP and investment in infrastructure will be required to ensure that necessary progress is being achieved and to advise the Government and the development agencies on resolving any difficulties as they arise. Two infrastructures of particular significance for enterprise development are roads and energy and they will merit special attention next year.

<u>Roads</u>

In April 1999, Forfás recommended substantial State investment in the national road network. This recommendation was based upon extensive consultations with the development agencies, business associations, regional organisations and the enterprise sector. These consultations highlighted the importance of access infrastructure for enterprise development both nationally and in the regions. Subsequently, the Government allocated €5.96 billion for investment in national roads as part of the National Development Plan. Given the volume of funds made available for road development, the National Roads Authority (NRA) has made significant progress in designing, planning and commencing construction on a large number of road projects and especially those linking Dublin with key centres in the regions.

The successful completion of the national road building programme remains a fundamental requirement for both enterprise and regional development. Approximately 90% of freight and passenger traffic is transported by road in Ireland and roads are a vital asset for promoting the social and economic interactions that lie at the heart of national economic development. As a result, monitoring investment in road infrastructure will be an important issue in 2002 with a view to preparing a progress report on the national road building programme.

Energy

The electricity and gas markets in Ireland are in a period of profound change. New legislation has introduced a process of market liberalisation and incumbent firms are undertaking considerable re-organisation in anticipation of increased competition and heightened regulatory oversight. Recent work by Forfás on electricity has drawn attention to supply-demand issues in generation, together with an assessment of deficiencies and investment requirements in transmission and distribution infrastructures. Issues to be addressed include concerns about a lack of new entrants into the power generation market and whether the current market opening and trading framework is investor friendly. The case for an Ireland-Wales electricity interconnector to increase electricity supply and competition in the domestic market will also be a key issue for 2002.

Research & Development

Third Level Research

In its statement (February 2001) *Commercialisation of Publicly Funded Research*, the Irish Council for Science, Technology and Innovation (ICSTI) made recommendations on developing a more supportive framework for commercialisation of research in colleges and research institutions e.g. through greater resourcing of the industry/college liaison function, increased management commitment, fiscal measures and rewards and training for researchers.

With the notable recent changes to the funding of research in Ireland, most significantly the establishment of Science Foundation Ireland (SFI) and the increase of funding under the Programme for Research in Third Level Institutions (PRTLI), the opportunities for commercialisation of publicly funded research are increasing. There is a pressing need to address any limiting factors in a timely and effective manner.

Enterprise Research & Development

Research and development (R&D) has a critical role to play in developing the competitiveness and innovation capacity of the enterprise sector. The relatively low level of industry R&D continues to be a barrier to the creation of a strong culture of innovation in Ireland. The Productive Sector Operational Programme refers to the '*the insufficient investment in RTDI as a constraint to the sustainable growth of indigenous industry which must move from low value added, low productivity sectors towards sectors characterised by high levels of innovation, quality, productivity and value added.*' As Ireland's industrial structure has a significant high technology multinational manufacturing component, an important policy objective is to develop an environment where it is more attractive for both foreign multinationals and Irish-owned firms alike, to carry out higher-level functions such as R&D in Ireland and thereby embed these companies in the economic fabric of the country.

The main indicator of industrial R&D is BERD. Highlights from the most recent BERD survey (1999), carried out by Forfás, are covered on page 8 of this Review and Outlook Statement. Business R&D is concentrated in sectors that have been the key drivers of Ireland's economic growth. The conclusion can be drawn from the 1999 BERD analysis that there is an urgent need to increase the amount of R&D undertaken by firms in Ireland, and also to increase the numbers of firms undertaking R&D activities. In the context of the current significant slow-down in the US economy and the knock-on effects already evident in the Irish economy, this policy objective has assumed a new urgency.

There are a range of possible policy instruments that can have a positive effect on the share of GDP that is invested in R&D. Direct measures include the direct funding of R&D; investment in human capital; tax credits for R&D, tax friendly Intellectual Property (IP) regime and indirect measures include competition and regulation policies.

Under the NDP, the direct funding of R&D in the enterprise sector is provided for by two particular schemes – the Research Technology & Innovation (RTI) Grants scheme (focused on product and process development) and the R&D Capability Grants scheme aimed at significantly enhancing a firm's R&D capability. Previous Forfás evaluations of business R&D support schemes put a question mark over how tenable the current approach, which favours the direct funding of business R&D over fiscal mechanisms, can be in the medium term. It is timely to consider whether traditional instruments for promoting technological innovation in companies need to be supplemented by other measures in the context of the increasing internationalisation of R&D.

Biotechnology

Biotechnology is an area which has great potential for growth and for delivering major social and economic benefits. Developments in these areas are already having and will increasingly have an important impact on many sectors including healthcare, medical science, pharmaceuticals, food, agriculture, industrial processes and waste treatment. The Technology Foresight exercise completed by ICSTI identified biotechnology as an area of strategic importance for future economic growth and for positioning Ireland as a knowledge based economy.

Following the recommendation of the Foresight exercise, Science Foundation Ireland (SFI) has been established. Science Foundation Ireland, *the National Foundation for Excellence in Scientific Research* aims to establish Ireland as a centre of research excellence in strategic areas relevant to economic development, particularly Biotechnology and Information and Communications Technologies. IDA Ireland and Enterprise Ireland have also focused their attention on biotechnology with the development of specific strategies which aim to ensure that the sector realises and maximises its full potential. This is a two pronged approach, EI on indigenous industry and high potential start ups whereas IDA Ireland will focus on foreign direct investment especially where this investment is value added -i.e. R&D only facilities.

On the European stage also, biotechnology is of strategic importance. The European Commission has recently undertaken a wide consultation exercise which will input into the development of a European strategy for biotechnology and life sciences. With the spotlight firmly focused on biotechnology, the time is opportune to undertake a sectoral review. In doing this we propose to examine the policy work which has been conducted in this area both nationally, on the European stage and in a global context. With the goal of enterprise development in mind the focus will be on the policy recommendations which can have the greatest impact and effect in driving the biotechnology sector forward.

FORFÁS ACTIVITIES IN 2001

The work performed by Forfás in 2001 can be classified under three headings

- Policy
- Co-ordination
- Monitoring & Review

During the course of the year Forfás prepared policy recommendations on a diverse range of issues influencing the development of enterprise, trade, science, technology and innovation in Ireland. Some of these recommendations were formulated in partnership with other bodies established by the Government and included *the Expert Group on Future Skills Needs,* the *Irish Council for Science, Technology & Innovation* and the *National Competitiveness Council* for each of which Forfás provided research support and secretariat. An outline of the work is provided below.

POLICY

Forfás, as part of its 2001 Work Programme prepared policy recommendations on a variety of issues including the following:

- *Competitiveness*
- *Skills*
- *Trade*
- *Infrastructure*
- *Telecommunications & e-Business*
- *Taxation & Finance*
- *Climate Change*
- *Indigenous Industry Strategy*
- *Science Foundation Ireland*
- *Science & Research Policy*
- *International Science Policy*
- *EU Affairs*
- *Creativity and Innovation*
- Regulatory Reform

Competitiveness

The National Competitiveness Council (NCC) considered a wide number of issues that impact on competitiveness including labour supply, social partnership, electricity/gas, the Kyoto Protocol, implementation of the NDP, regulatory reform, preparations for the euro, sustainable development, telecommunications, e-government, social partnership, science in education and cost issues including PRSI, the role of competition in the economy and the labour market participation of the over-55s, the last in joint work with the Expert Group on Future Skills Needs

The Council's major policy statement "The Competitiveness Challenge 2001" was published on 12 December 2001. It covered the full range of competitiveness issues and proposed a number of recommendations for urgent action to improve competitiveness in the light of the changed economic environment. The "Annual Competitiveness Report 2001" was prepared incorporating new indices that summarise Ireland's ranking with respect to key determinants of competitiveness, and published on 12 December 2001.

Work was undertaken to monitor progress on the implementation of the National Development Plan, particularly with regard to progress in the road infrastructure and public transport projects. Work was initiated in international benchmarking focusing on international best practice in the provision of infrastructure and public transport systems, as well as outlining priorities for benchmarking in the project implementation field. The Council participated in the preparation of a report on North-South competitiveness for a meeting of the North South Ministerial Council. A detailed review of all NCC recommendations was undertaken to identify priorities and appropriate monitoring mechanisms.

Skills

During 2001, the Expert Group on Future Skills Needs, and its various sub-groups addressed a number of individual sectors and issues ranging from e-business to the construction sector. The Group published its *Third Report of the Expert Group of Future Skills Needs* on 30th June 2001. The report is wider in scope then its predecessor and analysed the labour market in terms of the availability of labour generally and in the lower skill occupations. While recognising that other sectors are experiencing skills shortages, the Group carried out specific studies on IT skills, the construction sector, research skills, over 55s age group, labour market, and logistics.

The conditions affecting demand and supply of IT skills over the period 2001-2005 were reviewed in light of the events of September 11th 2001 and the industry slowdown. The key recommendations were that a strategic investment of €165m be made in the third-level provision of IT skills to ensure that Ireland retains its competitive edge and promotes a knowledge based economy.

The Construction Study addressed the shortage in manpower at all levels, including management, professional and craft skills within the sector. The report also examined the issue of career development and life-long learning with a view to encouraging people to enter and stay in the industry.

A study of participation rates of the over 55s in the labour market was carried out by the Expert Group in cooperation with the NCC. The study focuses on obstacles to participation and proposes policy recommendations for their removal. The main findings were presented to the conference on Employment and Retirement among the "Over 55s", 26 September 2001, organised jointly by the Expert Group on Future Skills Needs and the National Council on Ageing and Older People. The Conference was opened by Minister Tom Kitt. Proceedings of the conference have been published and presented to the appropriate ministers.

The Labour Force Study proposed the establishment of a dedicated labour/skills research unit with a mandate for 3/5 years to undertake research. This proposal gave rise in November to a new mandate for the Expert Group on Future Skill Needs and the establishment of a Labour Research Unit in FAS. FAS has also completed a study of Logistics.

The Research Skills Study pointed out that the demand for researchers in Ireland will be significantly influenced by new support measures including those of Science Foundation Ireland (SFI), the Higher Education Authority (HEA) and the expansion of the research activities of industry. Under the National Development Plan, significant research funding is to be made available on an increasing basis up to 2006.

A critical policy issue concerns the number of doctorates awarded in science and engineering. While this increased between 1996 and 1999, the Irish level per head of population remains well below leading nations such as Switzerland and Finland.

In view of a projected skills gap between the demand for researchers with a PhD degree and the probable supply from within Ireland over the coming years, the Expert Group believes that it will become increasingly necessary to attract suitably qualified people from abroad. It therefore commissioned a benchmarking study of mechanisms and strategies which other countries use to attract researchers from abroad. This has been published by Forfás and the HEA.

Trade

A web-based industry consultation project on the World Trade Organisation (WTO) was launched by Minister for Trade Tom Kitt on 3 September 2001. The results helped to inform the Irish Delegation at the WTO Talks in Doha in November 2001. The draft Ministerial Declaration agreed in Doha is broadly balanced, with the "New Round" negotiating agenda including all the main areas of interest from an Irish enterprise policy perspective, particularly, with investment, trade facilitation and government procurement in the negotiating agenda.

The second Forfás International Trade and Investment Report was completed in December 2001, examining and monitoring Irish trends in a global context and raising international trade and investment issues for policy discussion.

In order to evaluate the impact of the downturn on the ICT (electronics) sector in Ireland, and to identify the main threats to the ICT industry here, between May and July Forfás and IDA staff interviewed major IDA-supported ICT companies in Ireland and in the USA. Forfás prepared an action plan to improve the environment for ICT multinationals in Ireland, based on the problem issues identified during the interviews, as well as on the future visions outlined by the Irish operations.

A Forfás Statement on Outward Direct Investment was published in early October 2001. The purpose of the Statement is to develop greater awareness of, and debate over, the implications of growing levels of Outward Direct Investment (ODI) for the Irish economy.

In partnership with the Chambers of Commerce of Ireland and following consultation with the Department of Enterprise, Trade and Employment, Forfás commissioned a study to identify the barriers faced by Irish firms to sourcing goods directly from Euro-zone countries. Arising from this study, Forfás will work with Enterprise

Ireland, the Department of Enterprise, Trade and Employment and the industry representative bodies to monitor implementation of a SourceEuro strategy.

Infrastructure

The National Spatial Strategy (NSS)

During the year, Forfás established a working group across the development agencies which completed a detailed examination of the enterprise policy dimensions of the National Spatial Strategy (NSS) and co-ordinated the development of a formal submission on the strategy to the Minister for the Environment and Local Government. This submission provided an enterprise development perspective on the NSS and outlined the policy imperatives, which the agencies wish to see incorporated into the strategy. These included the following:

- **Provide a Framework for Action**: The NSS should provide a framework for action with clear objectives, goals, priorities, targets and outcomes and be positioned at the apex of all national, regional and local planning processes to shape spatial outcomes in ways that are consistent with the overall goal of the strategy;
- **Address Specific Needs of Enterprise Sector**: Specific sectors have specific needs in terms of infrastructures, access, education and skills and these need to be recognised and planned for in the NSS. The NSS also needs to identify the social and economic investments required to promote economic development in the regions if the objective of counter-balancing the impact of the growth of the Greater Dublin Area and eastern seaboard is to be achieved. This will require a significant reallocation of resources and population between areas sufficient to produce a step change in the framework conditions and performance of the lagging areas;
- **Determine Development Priorities for Different Parts of the Country**: The NSS should identify the different responses required in different areas in building on the comparative strengths of each area and allow each to play different and unique roles. This should include the strategic development of certain centres/nodes to become catalysts for economic development within regions and their surrounding hinterlands through effective and efficient infrastructure and resource development to achieve the agglomeration economies required for certain high level functions and support internationally traded activities;
- **Promote Regional Innovation**: The NSS should identify and seek to harness the potential of third level institutions and universities to develop a dynamic for knowledge creation, innovation, clustering and agglomeration in key regional centres.

The Forfás Regional Database of Infrastructure

In order to facilitate a more efficient spatial distribution of the enterprise sector, the Tánaiste requested Forfás to construct a database of the physical and social infrastructure in the regions. This is intended to help identify the developmental capacity / potential of various locations and regions and pinpoint areas in need of improvement. The project is based on the premise that such infrastructure provides the framework conditions for economic growth, localised development and social progress.

The Forfás Regional Database was developed with funding from the Government's Information Society Fund. The Database is an Internet-based databank of tables and maps of physical and social infrastructures, relating to enterprise development and promotion, containing details of the agency-supported enterprise base in 123 locations around Ireland, (towns with a population in excess of 1,500, according to the CSO, 1996 Census).

The database includes various categories of infrastructure that are considered essential and significant for the development of the enterprise sector. These infrastructures can be selected for each of the towns and described by reference to a list of indicators that identify their quantity, quality and sophistication The physical and social infrastructure data is supplemented by further details outlining the number of manufacturing/internationally-traded services plants, supported by the industrial development agencies and their employment details, as they apply to each town and sector.

The database is accompanied by a Geographical Information System (GIS) facility which displays maps of certain physical infrastructure, for example, electricity, telecommunications, gas, seaports, airports etc.   In addition, the database acts as an internet "portal" that can link the user to the web sites of relevant sources of data, infrastructure providers, agencies and departments see *www.infrastructure.ie.*

Key Waste Management Issues in Ireland

The current waste management infrastructure in Ireland is proving to be inadequate to effectively treat the increasing waste volumes. The competitiveness of the Irish industrial sector may be severely impacted if the current situation is not addressed.

In order to expedite the development of a sustainable integrated approach to waste management, Forfás established a Waste Management Task Force with representatives of the Environmental Protection Agency (EPA), the Department of Environment & Local Government (DoELG), the Industrial Development Agency (IDA), Enterprise Ireland (EI), the Department of Enterprise, Trade & Employment (DETE), the Irish Business and Employers Confederation (IBEC) and business interests. The Forfás report, published in December details recommendations under three main headings:

- **Build Consensus and Improving Co-ordination on Waste Management:**
  - Establish a two-way communication programme and a technical expert group to create a national vision for an integrated waste management strategy;
  - A National Waste Management Agency (NWMA) should be established to provide the co-ordination and a central focus required to fulfil the wide range of functions needed to implement national, regional and county waste management plans. Regional Waste Management Boards would also support the NWMA.

- **Accelerate the Planning Process in the development of Waste Infrastructure:**
  - Strategic Environmental Assessment should be used in developing the new waste infrastructure specified in the national, regional and county plans, and all plans be incorporated into the framework of the National Spatial Strategy;
  - Pre-designated "Waste Management Centres" should be established, based on a concept contained in the Planning and Development Act 2000;
  - A formal framework should be put in place for the designation of incentives for communities who host waste management facilities.

- **Deliver integrated Programmes and Infrastructure:**
  - Demonstration programmes and best practice guidelines should be put in place to promote waste prevention and minimisation programmes;
  - Recycling projects should be encouraged and measures put in place to ensure effective segregation of waste streams at source;
  - The establishment of a national thermal treatment facility for non-hazardous/ hazardous waste should be facilitated.

<u>Energy</u>

In early 2001 Forfás completed a review of the electricity sector in Ireland entitled '*Electricity Supply in the Irish Economy: Key Competitiveness Issues and Policy Requirements'* which was submitted to the Cabinet Sub-Committee on Infrastructure and Public Private Partnerships.

The review presented an overview of the key competitiveness issues concerning Ireland's electricity system following concerns about its ability to accommodate high rates of economic growth and to adequately respond to the needs of high energy-intensive e-business foreign investment projects, in particular Internet Data Centres.

The analysis concluded that there were serious difficulties in electricity generation, transmission[10] and distribution systems. It noted that these difficulties with the country's electricity system have potentially serious implications for current and future enterprise development at national, regional and sectoral levels. Critically, it identified an increasingly small projected surplus (margin) of reserve generating capacity relative to demand, which is reducing the security and reliability of power supply.

During 2001, at the request of the Tanaiste, Forfás completed a review of proposals by Bord Gáis to Department of Public Enterprise (DPE) for a second gas interconnector between Ireland and Scotland including a review of the gas supply and demand situation to 2003. A review of future tariff regime was undertaken in April for DETE and a review of Gas (Interim) (Regulation) Bill 2001 and related policy requirements was also completed in Autumn.

A review of progress on implementing recommendations in the Forfás submission to the Cabinet sub-committee noted that while good progress was being made on addressing the supply-demand balance for Winter 2001/02 and on agreeing

[10] The transmission network is the backbone of the national electricity system and links the generating stations with the distribution network, which provides power to business and residential customers.

investment plans there are a number of key issues which now require a focus given the long lead times required for their delivery:

- ***Electricity Generation Capacity****:* Over the medium term, the margin between electricity supply and demand will remain below acceptable generating security standards. It is estimated that Ireland will require the equivalent of a new 400 MW electricity plant every two years to 2010 if is to achieve a margin equivalent to the Generating Security Standard.

- ***Transmission Network Development:*** Many of the towns prioritised by the development agencies and the emerging National Spatial Strategy (NSS), for the development of flagship business parks and as gateway towns will not have capacity to support extra demand over the medium term. An initial assessment of sixteen key regional cities/towns indicates that only six could accommodate a load growth of 10MW over the period to 2008.

Given the long lead times of up to four years for the planning and construction of new generating plants and up to seven years for planning and deployment of transmission network infrastructures, it was recommended that:

- the Department of Public Enterprise request Eirgrid to initiate the development of a long term plan for the transmission network in the context of the regional industrial development priorities of the agencies and the emerging priorities of the National Spatial Strategy;
- the Department of Public Enterprise and the Commission for Electricity Regulation (CER) undertake an assessment of the attractiveness of the Irish market for investment in electricity generating plants and introduce changes to regulatory environment and other areas as required;
- the financing options for putting infrastructure investment in place ahead of demand to promote economic and social development be examined and forward provision be made as required for priority areas from Exchequer funding;
- Eirgrid undertake a review of the system of transmission credits, and amend as appropriate, to promote smaller scale distributed generation close to areas of demand.

Telecommunications & e-Business

The past year has seen considerable changes in the environment for e-Business in Ireland and internationally. With the major stock market correction in April 2000, and subsequent global economic downturn in 2001, e-Business hype has fallen dramatically.

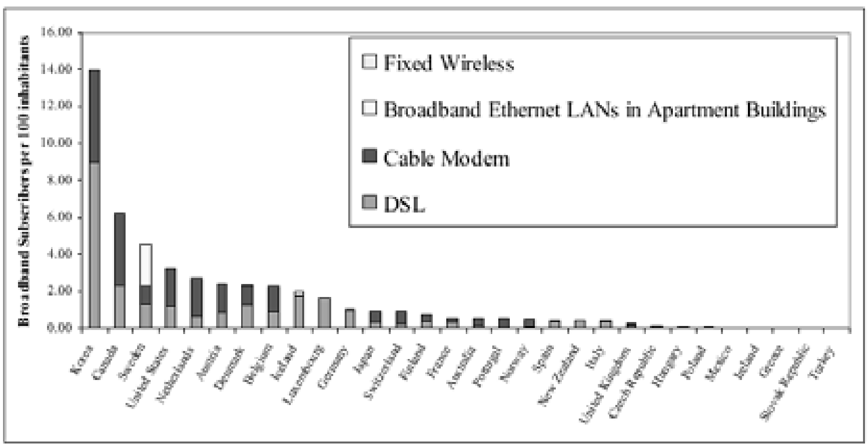
In 2001, Forfás continued to monitor e-business developments. Some Irish SMEs have become complacent and more focused on short-term needs, as they believe that the adoption of e-Business is over-hyped, less urgent now that the perceived competitive threat has waned, and will be cheaper and easier in the future as the required support services improve. However, research highlights that as the hype has subsided, many organisations are quietly developing long-term e-Business strategies, that are moving beyond just developing a web site, to integrating ICTs and e-Business into all aspects of their business processes. Companies and countries that do not respond dynamically to the challenges that e-Business brings, may find themselves at a competitive disadvantage relative to e-enabled companies and countries, when the world economy improves. Forfás also undertook reviews of the Internet Data Centres sector, of e-Marketplaces and e-Procurement, and of the growth of the digital content and m-Commerce sectors

The optimism before the current slowdown fuelled the rapid rise in investment in telecommunications in Ireland and overseas. There are now over forty operators providing services in the Irish market, with six tier one providers, and a number of internet data centres located here. Forfás has continued to benchmark the price, quality, availability, and adoption of telecommunications services for businesses relative to that in competitor countries.

The current lack of confidence in telecoms stocks is slowing the rollout of telecoms infrastructure across the world. Ireland is no exception to this rule. In 2001, Forfás competed a review of the development agencies regional broadband needs going forward, and prioritised key requirements of the development agencies in order to promote industrial development. These priorities were incorporated in the Department of Public Enterprise's call for proposal to ensure that NDP funding for telecommunications would specifically address their needs by improving the network physically, and by promoting further competition. A total of 31 proposals were submitted to the Department of Public Enterprise by the closing date of October 19th, and are currently being assessed.

Forfás also reviewed developments in the telecommunications market since the publication of the Forfás report 'Broadband Investment in Ireland'[11], and the liberalisation of the market. While significant progress has been achieved, Ireland compares poorly to other countries on a number of metrics monitoring the price, quality, and availability of telecommunications services. For example, Ireland is ranked in the last quartile in the OECD for the availability of flat-rate always-on Internet access (see chart 8).

Chart 8: Rollout of Broadband in the OECD



A number of long standing critical issues require action, including:

[11] http://www.forfas.ie/publications/bband.htm

- the Communications Regulation Bill approved by Government for drafting remains to be published;
- unbundling of the local loop, in effect in other countries for 2 to 3 years, has yet to be implemented in the Irish market;
- the development of a coordination mechanism to leverage current and future State investment in telecommunication in the regions;
- poor quality and delivery of services by operators for leased line and ISDN connections and large cost differentials between regions for leased line;

Taxation and Finance

Progress continues to be made in a number of areas that are key to developing the enterprise sector and improving our competitiveness.

- **Reduction of the Overall Tax Burden on Enterprise**
  Forfás has espoused the policy of lowering the burden of taxation on the enterprise sector in order to create a pro-business culture and boost economic activity. Significant progress has been made in this area through tax reductions contained in the past five Budgets, including Budget 2002. Taxation[12] in Ireland, at 32.2% of GDP, was significantly below the OECD average of 37% in 1998[13], and had fallen further to 29.4% in 2001[14]. This has provided a more competitive base for the private sector in Ireland.

- **Reduced Tax Wedge**
  Reductions in the burden of personal taxation and PRSI have assisted the competitive position of employers in Ireland, compared with their counterparts in the UK. This is measured by the extent of the “tax wedge”, which is the difference between the cost to an employer of employing someone and that person’s net pay. The tax wedge has been reduced significantly in Ireland compared with the UK. For a single person earning €19,000 per annum, the tax wedge now amounts to 22% in Ireland compared with 27.9% in the UK. In 1994/95, the tax wedge for a single person on the average industrial wage was 19% higher in Ireland.

- **VAT on Basic Research and E-Business**
  As a result of a considerable amount of work done by Forfás and Science Foundation Ireland (SFI), the Finance Act 2001 (supplemented by a Statement of Practice) contained measures to ensure that basic research activities undertaken by SFI are exempt from VAT. Forfás is also monitoring developments at EU level on the application of VAT on e-business transactions.

- **Increase in the Supply of Seed and Venture Capital**

[12] Includes social security contributions
[13]OECD Revenue Statistics 2000.1998 is the most recent year for which comparable statistics are available
[14] Budget 2002 Department of Finance

Enterprise Ireland, supported by Forfás, has announced its intention of establishing a new Seed and Venture Capital Scheme to cover the period 2001-2006 in partnership with the private sector. Under the scheme, funds will be allocated to qualifying venture capital firms for investment in smaller emerging firms with good growth potential, in all regions and all sectors. The initiative will provide a welcome additional source of finance for development in the current climate.

Climate Change and the Enterprise Sector

Climate change and resulting warming by anthropogenic greenhouse gas (GHG) emissions is acknowledged as the most threatening global environmental problem. After recent negotiations in Marrakesh, it is anticipated that the Kyoto Protocol will be ratified by the necessary 55 nations that are responsible for 55% of GHG emissions.

Irish emission of GHG in 1990 were equivalent to 53.75 million tonnes of carbon dioxide (CO_2) and under the Kyoto Protocol and burden sharing arrangements among EU member states, Ireland's commitment is to limit net growth to 13% above 1990 levels during the commitment period of 2008-2012.

Following publication of the Department of the Environment and Local Government National Climate Change Strategy, Forfás and the Department of Enterprise Trade and Employment initiated studies in relation to the industrial sector to assess how taxation, negotiated agreements, emissions trading (ET) and investment in international GHG reduction projects (joint implementation (JI)/clean developments mechanisms (CDM)) could be implemented in Ireland while maintaining the competitiveness of the enterprise sector. Some of the main recommendations are set out below:

- **Taxation and Negotiated Agreements:**

  - Priority should be given to non-taxation measures to achieve the largest contribution of industry's targets;
  - Detailed negotiated agreements between Government and individual companies or sectors should be introduced as a priority;
  - Tax measures should be postponed until there is sufficient time for firms to plan responses.

- **Emissions Trading and Investment Credits:**

  - Ireland should participate in the EU Emissions Trading Scheme projected to start in 2005;
  - SME's should be encouraged to invest in overseas projects, which will reduce world-wide emissions, through a Fund.

Indigenous Industry Strategy

Irish-owned industry performed relatively well in 2001, despite the sharp slowdown in the economy during the year. Preliminary figures from the Forfás Annual Employment Survey 2001 show that Irish-owned firms achieved a modest net increase in employment in manufacturing and internationally traded services activities in 2001. This may reflect the fact that few indigenous Irish firms, with the exceptions of companies in the giftware and technology sectors, have yet been directly impacted by the sharp slowdown in U.S. import demand over the first nine months of the year. This position, however, may change. Weakening demand conditions are now spreading from the USA to all of Ireland's largest export markets – a development that seems certain to be reflected in slowing export growth by indigenous Irish companies in 2002. Other major risk factors presented by the global economic slowdown over the coming 6-12 months include: a downturn in Irish economy expenditures by multinationals in Ireland; an appreciation of the euro against sterling and the dollar; a further deterioration in equity prices; a decline in domestic Irish business and consumer spending and increased price competition in global markets.

As part of its next three-year business plan, Enterprise Ireland is proposing measures to address the threats being faced by the indigenous sector in the current economic climate and to intensify its engagement with client companies in order to grow exports and enhance competitiveness and product innovation. Forfás worked with Enterprise Ireland on some aspects of the Plan. The actions being taken, or proposed, include:

- intensifying international marketing activities;
- the creation of a "Competitiveness Fund" to support client productivity initiatives;
- strengthening the flow of new start-ups with export potential;
- enhancing the flow of private equity to industry.

In the context of the rapidly slowing economy, other areas of agency and public policy relevant to indigenous industry that will also be considered in 2002 include: enhancing market access for Irish companies through outward direct investment; support structures for applied research and preparing for a euro appreciation.

Science Foundation Ireland

The year 2001 saw the completion of the launch of Science Foundation Ireland with the arrival of the new Director General, Dr. William C. Harris, who started in the third quarter of the year. The membership of the Board was announced and this, together with the announcement of the Director of the Information and Communications Technologies Division and the Director of the Biology and Biotechnology Division, completed the top management structure of the Foundation.

The Foundation announced the results of the First Call for Proposals for Principal Investigators in July. This call to the international research community was aimed at supporting a small number of outstanding researchers who are world leaders in their fields. Following a very positive response to the call from around the world and a very rigorous independent international peer review process, eleven Principal

Investigators are heading up teams carrying out leading edge international research in Ireland. Principal Investigators can benefit by up to €1.3m per annum over a three to five year period to fund their research teams of possibly up to 12 people.

The research programmes currently being carried out by the Principal Investigators and their teams are:

Biotechnology

- The biological mechanisms underlying programmed cell death and its role in diseases such as cancer and autoimmune disorders;
- Examining how the immune system protects against infectious agents and disease with a view to developing more effective medicines and vaccines;
- Integrating biology and information technology to study the fundamental evolutionary relationships between organisms.

Information and Communications Technologies

- Investigating the electronic properties of magnetic materials leading to an industrial shift from semiconductor devices to magnetic devices in meeting the storage demands of information technology in the 21st century;
- Research into methods for solving very complex problems that conventional computer programming techniques often cannot handle – these will have applications in bioinformatics, computer and telecommunications networks and e-commerce;
- Developing new, practically useful methods for the analysis and design of interacting computer controlled systems which will have future applications in the aerospace, automotive, bioscience and telecommunications industries;
- Investigating new techniques that can effectively optimise the scarce resources of broadband communications networks, operating systems and parallel processors;
- Research enabling the design of innovative photonic devices which use light instead of electrons to communicate leading to the development of systems with increased bandwidth which will enable the communication of much larger quantities of information;
- Developing the key tools and materials for working at the molecular level, atom by atom, to create structures with a fundamentally new molecular organisation. The potential applications from this work span many areas of science and technology including, for example, improved faster and more powerful electronic and photonic devices;
- Investigating the surfaces and interfaces of magnetic materials, leading to the development of magnetic devices which are smaller and faster than corresponding semi-conductor devices and will enable the design of more powerful computers.

In order to maintain the momentum of the First Call for Proposals, the Foundation in the second quarter, announced a new international call for Proposals for SFI Principal Investigators. The Foundation also announced a call for SFI Fellows, aimed at outstanding researchers in the early part of their career. Successful applicants as SFI Fellows can receive up to €1,625,000 over five years to support their work and that of their team.

National Science and Research Policy

The Irish Council for Science, Technology and Innovation (ICSTI) Secretariat is provided by Forfás. The Council advises the Government on the strategic direction of science, technology and innovation (STI) policy. Its advice encompasses all aspects of STI policy including: primary, second and third-level education; scientific research; technology and research, development and innovation in industry; prioritisation of State spending and public awareness of STI issues. See www.forfas.ie

In the period under review, the Council completed three priority areas and commenced work on three new areas:

- **Commercialisation of Publicly Funded Research**

  This Statement makes recommendations aimed at improving the means, circumstances and conditions for the transfer and commercialisation of publicly-funded research activities and outcomes in the higher education and public research institutions. The Council identified a need for Government Departments and agencies to support commercialisation, and for research institutions to give it management backing.

- **Modern Biotechnology**

  The objective of the work of the Biotechnology Task Force was to prepare advice for the Council on policies related to modern biotechnology issues relevant to Ireland. Biotechnology is an enabling technology with implications for many areas of business and medicine that are very important to the economic growth of the Irish economy and the wellbeing of Irish society. It is a critical technology for the future. This was highlighted in a number of the Technology Foresight Panel Reports.

- **Metrics and Impact of Science and Technology**

  The report surveys the principal indicators and techniques used internationally to measure STI policy activities and to assess their impacts. The report also provides an account of the current position in Ireland in respect of the provision of STI indicators and the application of evaluation techniques.

Those areas of the Council's activities on which work began are:

- Industrial Design and Development
- Lifelong Learning
- Sustainable Development

International Science Policy

Inter-governmental Research Organisations

Scientific endeavours are more often than not collaborative in nature. In some cases, the nature of the science and the scope of the collaboration involved are beyond the capacity of any one country to fund on its own. Consequently, some large-scale research facilities have been built involving numerous national Governments in their funding and who, through their annual subscriptions, continue to fund the ongoing running costs of such research organisations.

The Department of Enterprise, Trade and Employment asked Forfás in 2001 to assess the case for Irish membership of four such inter-governmental research organisations (IGROs). The four were CERN, European Organisation for Nuclear Research; EMBL, European Molecular Biology Laboratory; ESO, The European Southern Observatory and ESRF, European Synchrotron Research Facility.

Forfás engaged the Technology Policy and Assessment Centre (TPAC) of the Georgia Institute of Technology, Atlanta to work on this assessment that involved the development of criteria that could be applied generically in decisions to join or not to join IGROs.

In undertaking this exercise, TPAC and Forfás undertook wide-spread consultation with the scientific and business sectors and with the industrial development agencies throughout the assessment.

The Forfás Board recommend that Ireland should join EMBL and subject to negotiations about membership type (full or associate) Ireland should also consider joining ESRF and ESO.

The conclusion in relation to CERN was that, despite the many positive features of the organisation, Ireland should not join CERN at this point as the capability is not sufficiently developed to fully exploit the very expensive CERN membership.

Forfás will in the coming months engage with the Royal Irish Academy's CERN – Ireland Committee and other Government Departments who have an interest in CERN membership to develop a *plan of action* that would address many of the capability issues that currently limit the full realisation of CERN membership to Ireland.

European Research Area

In its Communication "*Towards a European Research Area*" of January 2000, the EU Commission outlined the objectives and scope of a new strategy. The vision was clearly expressed in that strategy of having a fully developed, functioning and interconnected research space, in which barriers would disappear, collaboration would flourish, and where a functional integration process would take place. In the last year, the European Research Area (ERA) has become the reference framework for research policy issues in Europe.

The European Research Area is about raising the quantity and quality of research throughout Europe based on common approaches and objectives. As part of the Lisbon Summit conclusions, Ireland, represented by Forfás, is involved in the benchmarking of national research policies specifically in relation to the following topics: human resources in RTD; public and private investment in RTD; scientific and technological productivity; the impact of RTD on economic competitiveness and employment; and the public understanding of science.

Work will continue throughout 2002 on this benchmarking project. Preliminary results are expected to be complete by mid-year, followed by workshops and discussions to develop useful actions. A final report will be prepared by the end of 2002 for submission to the Research Council.

In parallel with this benchmarking work the EU Commission is undertaking, with the help of the High Level Group of representatives from the Member States, a mapping of research excellence throughout the Union. A pilot study in three broad areas is currently under way and an international conference will be held during 2002 to discuss the results and the next steps.

The implementation and funding of the European Union's research and technology development policy is done through multi-annual Framework Programmes. The Sixth Framework Programme 2002-2006 – which is currently under negotiation, will contribute to the integration of research efforts and activities on a European scale as well as contributing to the structuring of the various dimensions of the European Research Area. Forfás provides policy advice to the DETE in respect of EU RTD policy, specifically the EU Framework Programmes for Research, Technology Development and Innovation (FPs). Associated with this, the Division monitors Irish participation in FPs and co-ordinates the National Delegates and National Contact Points for each of the specific programmes within the FP.

EU Affairs

Forfás responded to a request from the National Forum on Europe to make a submission on Ireland's experience of and evolving relationship with the European Union. The submission emphasised that in the interest of social, economic and political development Ireland should develop closer economic integration with an enlarged EU. The submission covered enterprise policy, science and technology and trade and investment. It highlighted the significance of membership in boosting economic growth and catch-up with the EU, expanding the R&D base and transforming the regulatory environment with benefits to producers, workers and consumer. The long-term benefits of access to the single market and the importance of macroeconomic disciplines and policy co-ordination to Ireland were emphasised.

Enlargement of the EU, now in train, is expected to increase competition and trade and investment opportunities. In particular, it creates opportunities for Outward Direct Investment from Ireland.

Regulatory Reform

Having supported strongly the proposal for OECD to undertake a regulatory reform review of Ireland, Forfás worked closely with Government Departments to ensure its success. Support was given to the Department of the Taoiseach, especially through participation in the finalisation of the OECD Country Review on regulatory reform in Ireland. Forfás was represented on the steering group for the study and in the delegation for the final peer review of the work. A formal Forfás response to the report was also prepared on the launch of the OECD report on 24 April 2001. The report carried forward a number of policy proposals originally identified by Forfás and the NCC.

At the launch of the report, the Taoiseach announced an action plan that includes the development of a national policy statement on Regulatory Reform, as well as other priorities that had been identified by Forfás and the NCC. A High Level Group on Regulation was established to give urgent consideration to the full range of issues raised in the OECD Report and on which Forfás is represented. Among the first areas to be examined by the Group are the development of a national policy statement on regulatory reform: a sub-group, on which Forfás is also represented, is engaged with this question. The Group is also making preparations for the introduction of regulatory impact analysis, and reviewing progress in a number of sectoral areas including the professional services sector, liquor licensing and pharmacies.

Innovation and Creativity

The seventh National Innovation Conference, organised by Forfás was held on 4th October 2001 at the Fitzpatrick Castle Hotel Killiney and attracted 110 delegates. The aim of the conference was to investigate how to leverage creativity for competitive advantage at all points in the business chain and to make policy recommendations that will, when implemented, help creativity to add value in all sectors of society.

Mr. John Travers, Chief Executive of Forfás, officially opened and chaired the conference. Mr. Noel Treacy, T.D., Minister for Science, Technology and Commerce, delivered the opening address. The Keynote Address was delivered by Professor Nicholas Negroponte, Director, MIT Media Lab. Dr. Chris Horn, Chairman of the Board of Iona Technologies, and Dr. William Harris, Director General of Science Foundation Ireland, responded to Professor Negroponte’s speech.

Three workshops, organised around creativity themes, enabled the participants to develop recommendations, addressed both to the state sector and the enterprise sector, regarding the initiatives and policies necessary to support the competitiveness of the enterprise sector by leveraging creativity. The workshop chairmen presented the recommendations from the workshop at the final plenary session.

CO-ORDINATION

Forfás works closely with the development agencies on a variety of policy issues to ensure a coordinated approach to the development of policy. As part of its coordination role, Forfás was also involved in a variety of other areas of work during 2001 including the following:

- *Enterprise Areas Scheme*
- *Awareness Programmes*
  - *EMU Business Awareness Campaign*
  - *The Science, Technology & Innovation Awareness Campaign*
  - *The National Skills Awareness Campaign*
  - *Ask Ireland*
- *Regional Strategy Agendas*
- *Interdepartmental Group on Biotechnology*
- *Economic Model*

Enterprise Area Scheme

Forfás administers the Enterprise Area scheme which was introduced in the Finance Act 1995 to provide incentives to investors and qualifying 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 locations in Dublin (Cherry Orchard and Finglas) to Rosslare Harbour and to areas adjacent to the regional airports.

To qualify for incentives, companies must be engaged in manufacturing or computer services. In the case of the regional airports, freight forwarding/logistical services were also eligible.

Enterprise Area certificates are issued by the Minister for Enterprise Trade and Employment, after consulting with the Minister for Finance, on the recommendation of Forfás in consultation with Enterprise Ireland/IDA Ireland. To date, eighty-one Enterprise Areas certificates have been issued to qualifying projects. Some 49 projects were in Dublin, 30 in Cork and 2 elsewhere. In total, the projects employed over 5,500 people in the various Enterprise Areas.

Awareness Programmes

EMU Business Awareness Campaign

The EMU Business Awareness Campaign continued with its primary objective in 2001, to produce and disseminate information on issues relating to EMU and the changeover to the euro for Irish business.

- The "Six Months to Go" Leaflet for Retailers was produced during July and mailed directly to almost 40,000 retailers throughout the country
- The Campaign has continued on-going monitoring of business preparations through four national surveys carried out for the Campaign by the Economic and Social Research Institute.

- A major advertising campaign was initiated directed at all business and using television, radio, press and Internet media, which continued into December.
- A new handbook for SMEs, bringing together the latest information in a comprehensive manner suitable for small businesses undertaking the changeover was prepared. A total of 250,000 copies of this guide were printed and 238,009 copies of this guide have been distributed to businesses throughout the country to date.
- A total of 258,934 copies of the Campaign's guidelines for retailers were distributed throughout the country.
- In addition 2,591 Information Packs; 3,645 Summary Brochures; 5,639 Retail Brochures; 1,827 IT Guidelines; 1,644 Cross Border Documents; 1,910 Case Study Brochures and 2,222 Strategies Guides were distributed during 2001.
- A Training Kit for retailers was produced, containing a one-function euro calculator, a ready reckoner, conversion charts, posters, training notes and coins and a euro training manual. To date, 52,000 copies of the Kit have been distributed to retailers throughout the country.
- A retail training video was produced, and 5,000 copies were distributed to retailers.
- The Campaign has also produced a final flyer for retailers that covers the issues that retailers need to be aware of in the run-up to the changeover. This flyer is being distributed as part of a mailout to 45,000 retailers.
- The Campaign continued to maintain its consultative mechanisms with the business sector, especially through the Management Committee of the Campaign, the Consultative Committee, the Retail Group, as well as with the EU Commission in the Joint Information Programme Group. Liaison and co-ordination was also assured through representation on the Euro Changeover Board of Ireland and its subsidiary bodies, including the Information Working Group and the Cash Changeover Group.
- Speakers were made available for presentations to a total of 241 business meetings and conferences throughout the country, and stands were taken at a number of exhibitions.
- Support on behalf of the Department of Enterprise, Trade & Employment continued to be provided to the completion of the Loughrea Euro Town Project, with a special emphasis on ensuring its contribution to the national campaign. It concluded with a national conference was held on the 19th of February 2001 to highlight experiences from the project in the context of a re-launch of the national campaign to cover the final year of preparations. It received extensive publicity and was addressed by the Tánaiste, the Minister for Commerce, Science and Technology and the EU Commissioner for Economic and Monetary Affairs
- The lessons and experience gained in the Loughrea project, especially in small firm preparation requirements, retail issues and software issues, were carried over into the national campaign, and drawn upon in strategy development, presentations, and information material.
- The Campaign website www.emuaware.forfas.ie was maintained as one of the most comprehensive business information sources available.

Science, Technology & Innovation (STI) Awareness Campaign

A full programme of activities was carried out in 2001, the sixth year of the campaign. The audiences of focus were young people, business, the general public and the media. The objectives were to raise the level of perception of young people of science and technology subjects, to help stimulate innovation in business, to assist the public become more comfortable discussing issues with a strong technical component and to inform the media of the relevance of science, technology and innovation.

The highlight of the programme was Science Week which ran from November 11–18 consisting of 160 events countrywide including science fairs in Carlow, Limerick and Sligo.

An addition to the programme this year was Primary Science Day. The theme chosen was magnetism and a pack was provided to all primary schools including resource materials and a workbook for teachers in English or Irish, as appropriate.

Other events included:

- The National Innovation Awards;
- The National Science and Technology Journalism Awards;
- The Junior Scientist Feature in the RTE Guide;
- The RTE Family Science Quiz on the Pat Kenny Radio Show.

Ezine 'Atmosphere' was started during the year to accompany the programmes websites www.science.ie, which had a number of new features added.

The STI Awareness Programme is managed by Forfás on behalf of the Department of Enterprise, Trade and Employment. In 2001 an independent evaluation of the programme was carried out by on behalf of the Office of Science and Technology. The 2002 programme of activities will reflect the conclusions and recommendations of the evaluation report.

National Skills Awareness Campaign

The National Skills Awareness Campaign, which is managed by Forfás, operates under the aegis of the *Expert Group on Future Skills Needs.* The mission of the campaign is to promote the work undertaken by the expert group and to encourage school leavers to consider careers in specific sectors.

During 2001 the campaign focused on 24 occupations identified by the expert group as likely to experience skills shortages over the next few years. A concerted effort has been made to raise the awareness of these career opportunities by utilising three major methods of reaching the target audience i.e. Television, World Wide Web and direct face to face contact. Key activities undertaken included:

- **New Website**

  The development of a new website called www.skillsireland.ie outlining the work undertaken by the expert group, identified areas of expected skills shortages and government initiatives introduced in response to the skills situation.

- **TV Series**

  The production of an 8 week television series featuring the 24 occupations identified as likely to experience skills shortages. Programme transmission ended in late October however RTE have agreed to a repeat of the series at a peak viewing time sometime during March or April 2002.

- **Publications**

  The preparation of a series of leaflets featuring 16 key/priority occupation/skill areas for use at recruitment fairs and for distribution to students, career guidance counsellors and parents.

- **Career Exhibitions/Conferences**

  Exhibiting at the Irish Times Higher Options Conference and the FAS Opportunities. A number of meetings were also undertaken with regional branches of the Institute of Guidance Counsellors of Ireland.

During 2002, it is intended to take a more pro-active role regarding direct contact with the target audience. Special attention will be paid to the calendar of events organised by the Institute of Career Guidance Counsellors so as to identify opportunities to participate in events organised by them. These events provide the Skills Awareness Campaign with a unique opportunity to reach two thirds of our target audience.

Ask Ireland

The 'Ask Ireland' website is a government website that provides a single reference point for promoting Irish trade, investment and tourism on the World Wide Web. Launched in 1999 Ask Ireland concentrates on providing a one stop portal to all information of use to people interested in buying Irish goods or services, investing in, visiting or researching Ireland.

A key distinguishing feature is the way in which key overseas-oriented departments and agencies of the State have come together to provide an interactive gateway entry point to thousands of pages of information about Ireland. This is in keeping with the key element of the Government's information society initiative and goes a long way towards meeting the Government's decision to ensure transparency in the services provided by public institutions

Throughout 2001 the following initiatives were undertaken:

- site restructuring to ensure maximum complimentarity between existing Government and state agencies websites;

- ongoing purchasing of strategic key terms to improve search engine visibility;

- development of an extensive linking campaign to broaden the level of awareness of the site.

During 2002 The Ask Ireland Management Group, based in Forfás, will continue to seek new ways to improve the site and to increase its relevance to the participating agencies and their target audiences.

Regional Strategy Agendas

During the year, implementation of the National Development Plan (NDP) 2000-2006 and the design of a National Spatial Strategy (NSS) focussed renewed attention on regional policy issues in Ireland. In particular, concerns about a growing imbalance in the distribution of economic activity between the Eastern region including Dublin and the remainder of the country led to calls to Government for appropriate policy interventions.

Forfás helped to co-ordinate the approach of the Development Agencies in addressing this requirement by redesigning their regional strategies to try and achieve a larger volume of enterprise activity outside the Eastern region. An important component of the work to design new regional strategies involved the preparation of Regional Strategic Agendas (RSAs).

RSAs are strategic plans for the development of the regions in which the Development Agencies (IDA, EI) are operating. The RSAs include a profile and Strength, Weaknesses, Opportunities and Threats (SWOT) analysis of each region, together with a set of development objectives which the agencies will work towards. Key issues that the agencies need to address in order to realise their strategic goals such as provision of critical infrastructure such as roads, energy networks, waste management facilities, telecommunications and the strengthening of local educational facilities and the skills base are also identified.

The RSAs provide the agencies and their regional teams with a long-term plan for the development of their target regions. At present, the agencies are drawing up RSAs for each of the regions or functional areas identified in the NSS. These plans acknowledge that developing the regions will require a collective effort by all appropriate public bodies, regional organisations and local communities and that there are limits to what the industrial development agencies can achieve by themselves. In this regard, the RSAs highlight the contingencies involved in the regional development process and the need to build up social capital in each region.

Interdepartmental Group on Biotechnology

In March 1999, the Government approved the establishment of an Interdepartmental Group (IDG) on Modern Biotechnology to help ensure a co-ordinated approach on biotechnology across relevant Government departments and agencies. The IDG published their first report in October 2000. Forfás provides the secretariat support for the Group which is chaired by Mr. Ronald Long, Department of Enterprise, Trade and Employment, and comprises senior officials from the Departments of Health and Children; Agriculture, Food and Rural Development; Environment and Local Government and Education and Science. The agencies represented are Enterprise Ireland, EPA, Forfás, the Food Safety Authority of Ireland (FSAI) and the Food Safety Promotions Board (FSPB). Forfás provides the secretariat to the IDG which has been placed on a permanent footing.

In 2001, the IDG continued progress with the implementation of the recommendations of the first report. Forfás is responsible for a number of these recommendations and has made significant progress. The first of these is the development of a central Government biotechnology information website. This site, called *biotechinfo.ie* will go live in the first quarter of 2002 and aims to become a one stop shop for all biotechnology related information. Forfás has also commissioned a study of public consultation mechanisms, following consideration of the final report by Forfás and the IDG, it is hoped that the most appropriate mechanism will be piloted during 2002.

Economic Model

The Economic Appraisal System is used by the development agencies to assist them in deciding whether to provide support for industrial projects in Ireland, be they Irish/overseas owned, greenfield/expansions, high/low labour or capital intensive projects, etc. The agencies have used a system of cost-benefit analysis since the late 1970's. The role of the economic appraisal system for projects is to identify whether specific supports by the agencies are likely to yield benefits in excess of the associated costs in order to ensure that the State gets value for money. The model was revised in 2001 to reflect the marked changes in the economic and labour market environment in which the agencies operate and the changed objectives of national enterprise policy and of the enterprise promotion agencies.

MONITORING AND REVIEW

The following were reviewed by Forfás in 2001:

- *Research Capabilities Study*
- *Evaluation of STI Awareness Programme*
- *Community Enterprise Support Programme*

Research Capabilities Study

When approving the establishment of Science Foundation Ireland, the Government called for a baseline study of existing levels and quality of Ireland's research in biotechnology and information and communications technologies. The main purpose of this review is to provide parameters against which the progress of the Foundation can be evaluated over the coming years. The study, which commenced in mid-2001, has three main phases:

- Phase 1 – A postal survey of all Irish researchers active in the two fields. During this phase, completed in November 2001, around 700 individuals were identified as having some level of relevant research activity.
- Phase 2 – Bibliometric analyses of publications by these Irish researchers and associated citations. This task was completed in December 2001.
- Phase 3 – Visits by international peer panels to leading research groups and review by the panelists of the findings from the first two phases. These tasks will be undertaken in the first quarter of 2002.

Evaluation of STI Awareness Programme

The overall aim of the Programme is to promote awareness of science, technology and innovation at all levels of society in Ireland. It encompasses a variety of distinct activities, targeted at particular groups in the national community. The Programme, which is managed by Forfás, on behalf of the Office of Science and Technology, commenced in late 1996.

To ensure objectivity, the review was conducted by outside evaluators, overseen by an independent steering committee. Key findings and recommendations from the study included:

- the Programme has played an important role in promoting science and technology to young people and the general public, and these activities need to continue;
- the Programme's resources, both financial and human, have been spread too thinly across too many initiatives;
- assuming that substantial additional resources cannot be provided, the evaluation identified some current activities that should be discontinued, allowing grater focus on the remainder;
- there is scope for greater synergy at the level between the Programme and other initiatives that have been launched in recent years.

Community Enterprise Centre Programme

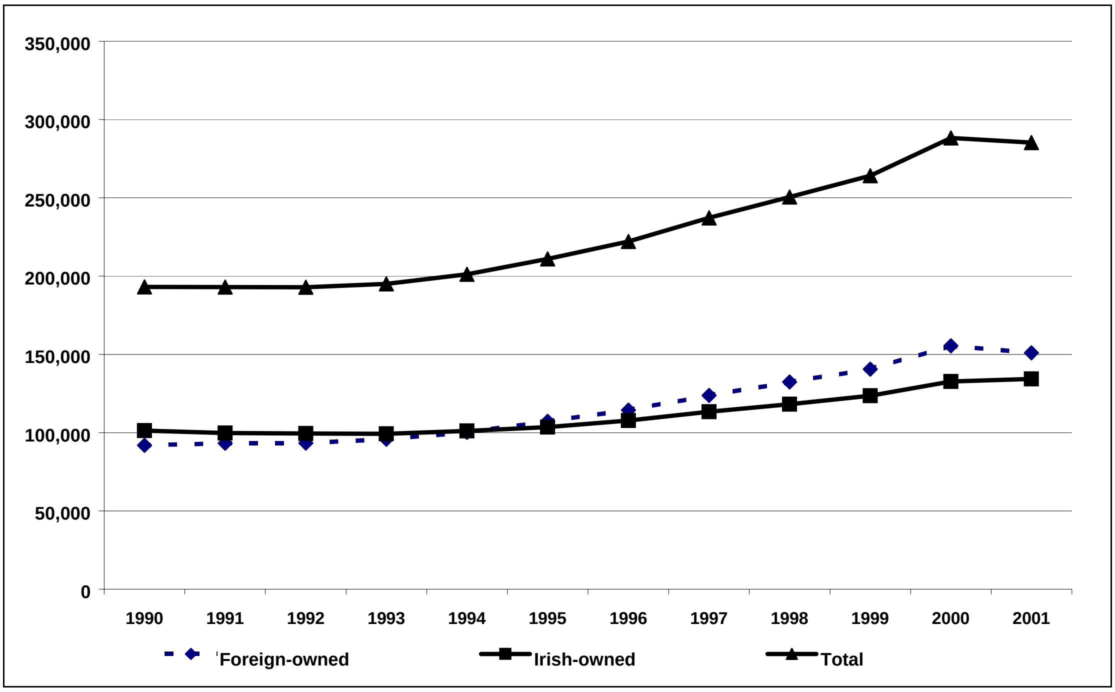
At the request of the Department of Enterprise, Trade and Employment, Forfás were commissioned to conduct a study to review and examine the benefits accruing to the economy and to the community from the 1989 Community Enterprise Centre Programme (CECP).

The following were the key recommendations of the overall review of the **Community Enterprise Centre Programme:**

- the Community Enterprise Centre Programme should be continued, in view of its achievements to date and, its apparent success in encouraging and supporting enterprise development in relatively disadvantaged or weak areas;
- there should be two distinct circumstances appropriate for the development of CECP community enterprise centres. They should be located in areas of high long-term unemployment and social disadvantage and wider under-development; and in areas, where the level of enterprise activity, and enterprise "critical mass" are below what is considered appropriate to the provision of community facilities;
- in demonstrating that these circumstances prevail, the communities seeking financial support ought to be required to explicitly demonstrate their need through detailed feasibility studies;
- centres and communities seeking support should also be required to demonstrate the link between the proposed centre within wider local development plans and any other relevant local integrated plan;
- at a national level, the Scheme should continue to be administered by Enterprise Ireland but should be treated as a distinct programme in its own right;
- it is recommended that a cross-agency Management Committee be established to manage the Programme.

There should be a once-off increase in the €127,000 cap on individual grant awards, to take account of the inflation in building and land costs since the Scheme began, and thereafter an inflatory allowance for grant ceilings. The current 22.5% cap on capital costs covered should be maintained.

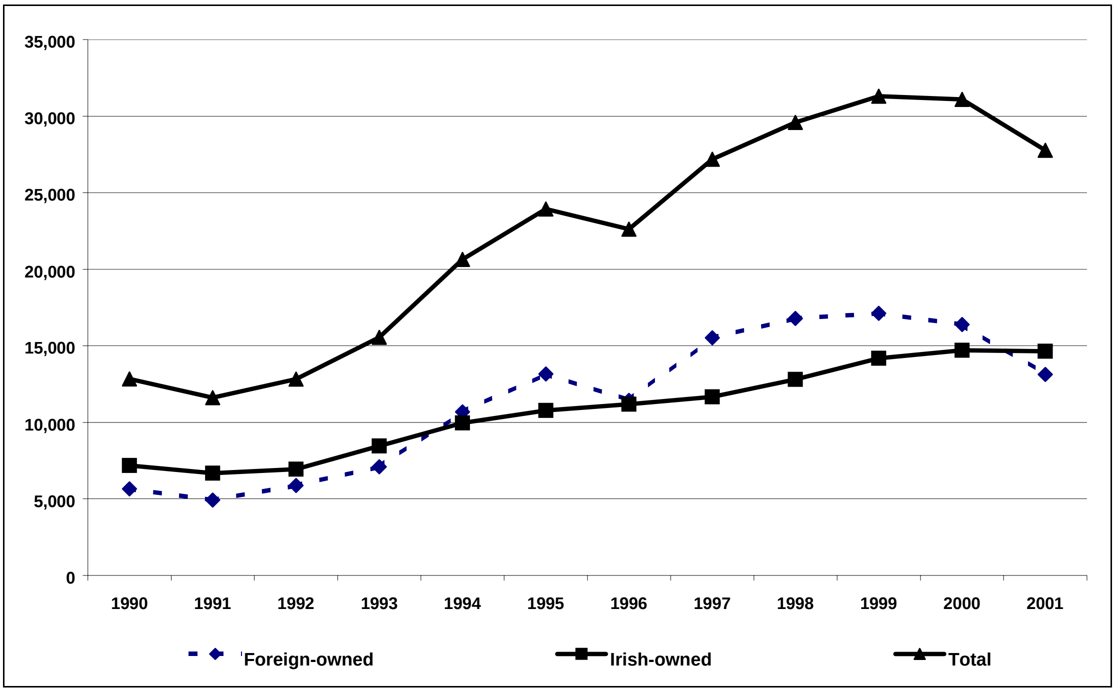
Appendix 1
Trends in Permanent Employment 1990-2001
Foreign-owned and Irish-owned Companies
Manufacturing and Internationally Traded / Financial Services



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

	Foreign-Owned	Irish-owned	Total
1990	91,845	101,320	193,165
1991	93,273	99,745	193,018
1992	93,322	99,509	192,831
1993	95,784	99,244	195,028
1994	100,181	101,077	201,258
1995	107,306	103,572	210,878
1996	114,391	107,763	222,154
1997	123,768	113,417	237,185
1998	132,316	118,134	250,450
1999	140,613	123,589	264,202
2000	155,454	132,718	288,172
2001	151,012	134,346	285,358

Appendix 2
Trends in Part-Time, Temp. and Short-Term Contract Employment 1990-2001
Foreign-owned and Irish-owned Companies
Manufacturing and Internationally Traded / Financial Services



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

	Foreign-Owned	Irish-owned	Total
1990	5,654	7,187	12,841
1991	4,927	6,691	11,618
1992	5,885	6,946	12,831
1993	7,104	8,455	15,559
1994	10,690	9,957	20,647
1995	13,153	10,782	23,935
1996	11,437	11,181	22,618
1997	15,520	11,666	27,186
1998	16,787	12,807	29,594
1999	17,121	14,182	31,303
2000	16,387	14,706	31,093
2001	13,130	14,643	27,773

Appendix 3

Forfas Publications in 2001

2000 Review and 2001 Outlook Statement	January 2001
The 4th Framework Programme in Ireland	April 2001
Commercialisation of Publicly Funded Research Irish Council for Science, Technology & Innovation (ICSTI)	April 2001
Expert Group on Future Skills Needs – Third Report	July 2001
Forfás Annual Report, 2000	August 2001
Annual Employment Survey, 2000	September 2001
Outward Direct Investment	October 2001
Benchmarking Mechanisms and Strategies to Attract Researchers to Ireland Expert Group on Future Skills Needs	October 2001
6th National Innovation Conference	November 2001
State Expenditure on Science & Technology, 2000	December 2001
Research & Development in the Public Sector, 2000	December 2001
Key Waste Management Issues in Ireland	December 2001
The Competitiveness Challenge	December 2001
The Annual Competitiveness Report, 2001	December 2001
The ICSTI Report on Biotechnology	December 2001