

## MANUFACTURING

### Northern Ireland

*The overall picture of Northern Ireland manufacturing in the recent recovery phase of the economic cycle has been one of the strong growth in those industries that predominately serve the regional and UK markets (textiles, clothing and leather, food, drink and tobacco, mineral products) and, with the exception of electrical and instrument engineering, weaker growth in the more export-oriented industries (chemicals and transport equipment).*

Until 1988, Northern Ireland's manufacturing output tended to expand in concert with Great Britain. Since 1988, growth in Northern Ireland has accelerated faster than the rest of the UK by around 3 percent each year. This reflects more buoyant local demand in Northern Ireland, increasing labor cost competitiveness and a higher levels of investment.

Since Northern Ireland's manufacturing sector sells two-thirds of its product within the UK (i.e., 33 percent within Great Britain and 33 percent within Northern Ireland), it has always been closely integrated into the national economy. Northern Ireland manufacturers grew rapidly towards the end of the 1980's boom in the UK. They weathered the subsequent national recession of the early 1990's better than their counterparts in Great Britain, and have since expanded faster in the recovery from recession. The relatively good performance of both high export sectors and sectors chiefly serving markets in Great Britain, though, suggests that fundamental competitive advantages for Northern Ireland manufacturers are emerging.

Compared with the Republic of Ireland, the record of Northern Ireland has been much less impressive. The Republic's advantage is concentrated in two sectors which are predominantly foreign owned and which have gained disproportionately from inward investment. One result has been a strong drift towards high technology products in the Republic in contrast with Northern Ireland, where labor intensive sectors have performed strongly.

Wages in manufacturing industry have always been lower in Northern Ireland than in Great Britain. At the start of the 1980s, the gap was relatively small after a period of wage convergence in the 1960s and 1970s. However, the wage gap widened during the 1980s until in 1991 the average wage bill per employee in Northern Ireland was only 80 percent of the average in Great Britain. A more meaningful comparison, that of manufacturing wages adjusted for differences in the sectoral composition of industry, showed Northern Ireland wages to be 12 percent below the Great Britain average, and 18 percent below the highest paying UK region (the South East of England)

## Border Counties

The manufacturing industry in Ireland falls into two broad categories; newer, largely foreign-owned and highly exported-oriented firms, and traditional, smaller Irish-owned firms. The former are concentrated in the modern international sectors of electronics, chemicals and pharmaceuticals, computer software, and medical products. The latter, meanwhile, are focused on the traditional sectors of metals and engineering, clothing and footwear, timber and furniture, and textiles.

## **High-Technology Industries**

### Northern Ireland

*The growth of the electronics industry in Northern Ireland is one of the major success stories of this UK region. Northern Ireland claims a central, strategic location within a broadly described electronics manufacturing corridor which appears to be forming from Ireland through the Province and into Scotland's "Silicon Glen." This position allows easy access to customers and suppliers there. The local Northern Ireland market for software approximates 80-100 million pounds sterling (\$124-155 million). Most customers for software are relatively small with standard business requirements. While government offices in Northern Ireland and the Republic of Ireland, both local and central, are the largest customers, products are also sold to large Northern Ireland firms.*

The electronics industry employs 6,000 people in Northern Ireland, and includes production facilities of some of the world's largest electronics manufacturers. Industry giants with Northern Ireland manufacturing plants or subsidiaries include:

Seagate Technology (USA)  
Valence Technology (USA)  
Northern Telecom (Canada)  
AVX-Kyocera (USA-Japan)  
Fujitsu (Japan)  
Daewoo (Republic of Korea)  
Carmen (Republic of Korea)  
Shinsung Industrial (Republic of Korea)  
GPT (Great Britain)  
Lucas Electronics (Great Britain)

Some of these companies have operated successfully from Northern Ireland for many years. Others like Seagate, Valence, Fujitsu, and Carmen are recent arrivals who have recognized the many excellent business advantages that Northern Ireland offers.

Customers are near by. The European Union has a large number of huge assembly and production facilities close by that are customers or potential customers for electronics products or components produced in Northern Ireland. Multinational corporations such as Apple, Intel, Dell, Ericsson, NEC, Motorola, IBM, DEC, Hewlett Packard, OKI, Compaq, Mitsubishi and Alps are located within a 320 km (200 mile) radius of Northern Ireland - within 1 hour's flying time, or allowing surface delivery the same day.

### Border Counties

*Ireland has developed a very strong industrial base in high technology with a large number of international and indigenous electronics and software firms. Exports from the electronics and software sectors are valued at \$12-13 billion per annum. The electronics sector consists of about 300 firms employing over 30,000 people in a wide range of sub-sectors including computer systems, computer sub-systems, computer peripherals and media, electronic components, telecommunications and data communications equipment, control and test systems, and consumer electronics. The software sector is comprised of over 350 firms employing almost 9,000 people in a broad range of activities including development and customization, localization and translation, production and distribution, and technical support.*

The high-tech sector in Ireland consists of about 650 firms employing almost 40,000 people. Gross output is about \$10 billion, 90 percent of which is exported. The high level of exports from the sector is attributable to the strong presence of multinational manufacturers such as Apple, Dell, Gateway 2000, Intel, Microsoft, and Motorola that are utilizing Ireland's investment advantages and incentives to access and develop a market presence within the lucrative European marketplace. The presence of these international firms and their utilization of world class manufacturing techniques has created a quality high technology sector in Ireland.

### **Electronics**

Electronics is the largest manufacturing industry in Ireland with about 300 firms employing over 30,000 people in a wide range of sub-sectors including computer systems, computer sub-systems, computer peripherals and media, electronic components, telecommunications and data communications equipment, control and test systems, and consumer electronics. The sector accounts for one-third of all industrial exports from Ireland and has posted an annual average of 1,000 new jobs since 1987.

The driving forces behind the growth of the sector in Ireland are international investment and the emerging strong technology base within the indigenous electronics sector. Indigenous electronics firms are an important feature of the Irish electronics industry as they provide essential supply services to international

manufacturers. As these manufacturers utilize world class manufacturing techniques, indigenous suppliers have had to adopt these principles in order to achieve sub-supplier status. Additionally, the ready availability of well-educated and skilled personnel to staff new international investment projects is a distinct feature of the sector in Ireland.

Sector output is dominated by the presence of major international computer manufacturers such as Apple, AST, Amdahl, Dell, Gateway 2000 and Stratus. The presence of these firms has created a lucrative sub-supply sector which is comprised of both international manufacturers and indigenous Irish firms. There are over 50 international electronic components and peripheral manufacturers based in Ireland, including U.S. corporations such as Intel, Analog Devices, Cabletron, Hewlett Packard, Teradata, 3 Com, Sensormatic, Teradyne, and Tellabs. As outlined, the utilization of world class manufacturing (WCM) techniques by these firms has led to the adoption of WCM principles by indigenous sub-supply firms. Since the start of the 1990's, the level of technology within the Irish indigenous sector has risen considerably and local firms have become more integrated with both Irish and European-based international manufacturers.

Within the border region, only County Louth has a strong electronics sector with international firms such as Quantum, Oxford Speakers, Keytronic, MKE, Brother Industries, NEC Semiconductors, and ECCO/Harris Semiconductors having established operations locally.

Indigenous electronics firms are continually seeking corporate relationships which will enable them to expand their business operations. Strategic alliances, licensing, and/or technology transfer agreements with U.S. firms seeking a European market presence are actively sought by indigenous electronics firms. Forbairt, the agency responsible for the development of the indigenous sector, is available to assist interested U.S. firms in matching-up with appropriate Irish firms.

## **Transportation Sector**

### **Northern Ireland**

*Northern Ireland has a strong history as a center for engineering and manufacturing industry. It has traditionally been very strong in the transport sector, whether by land, sea, or air. Transport equipment accounts for almost half the output of the engineering industry and just over 13 percent of total regional manufacturing output.*

The broad transportation sector is dominated by two firms: the Harland & Wolff shipyard in Belfast, which built much of the world's shipping fleet of the past,

including the ill-fated "Titanic", and Shorts Brothers, now part of Bombardier of Canada, which is the world's oldest established aircraft manufacturer. Both of these firms reverted from government to private ownership in 1990 and output growth was initially very strong, a combined 15.3 percent in 1991. Since then, however, combined output has declined by 13.2 percent.

The European shipbuilding industry in general confronts considerable challenges for the near future. Weaker than hoped for growth in sea borne trade and the lingering overcapacity in the industry have worked against the prospect for an immediate upturn in production volumes or employment. In the United Kingdom as a whole, the dwindling number military orders has placed increased pressure on domestic shipyards.

Since privatization in 1989, Shorts has been revitalized with major investments in facilities modernization and re-equipment. Its work program is now focused on the design and manufacture of airframe components, jet engine nacelles, and close air defense systems.

However, it is the automotive components sector which is perhaps the most dynamic at the current time, and the most capable of creating employment through expansion and inward investment. The automotive tradition in Northern Ireland is historic and deep-rooted. The region produced both John Boyd Dunlop, who patented the first practical form of the pneumatic tire, and Harry Ferguson, who designed the Ferguson Brown Tractor which gained a worldwide market when Ford Motor Company took over its manufacturing in 1938.

The continuing importance of the sector is manifest in the list of international automotive component manufacturers that have established plants in Northern Ireland. These include Ford, United Technologies, Lucas, Michelin, Ryobi, Montupet, and Narco. Products are various and include tires, pumps and fuel systems, aluminum castings for cylinder heads and transmission casings, electronic components, safety systems, plastic moldings, and v-belts. Of the 4,600 persons employed in the automotive sector, 4,300 work for foreign-owned companies.

The UK Government's Industrial Development Board for Northern Ireland (IDB) is making particular efforts to work closely with the Northern Ireland component manufacturers and the vehicle builders in useful ways including the introduction to new technology, new potential business, and financial assistance schemes. It is promoting the concept of a three-way partnership between itself, the vehicle manufacturers, and the component manufacturers in the areas of design, technology, business development, and manufacturing.

In response to the changing needs of the automotive industry on a world scale and the competitive development of the automotive culture in Northern Ireland, the IDB has promoted the formation of an association of component suppliers. Called the NIACMA (Northern Ireland Automotive Component Manufacturers

Association) it counts among its 14 members all of the principal automotive firms in the Province.

The NIACMA expresses a commitment to:

- cost reduction strategies;
- the establishment of a central Northern Ireland simultaneous design and engineering resource;
- securing European Union support for pan-European automotive initiatives;
- raising the profile of the Northern Ireland component supply base within Europe;
- R&D design and engineering, technology-sharing;
- the formulation of automotive design and engineering training strategies; and
- integration into wider European automotive industry associations.

*Ford Motor Company: A Case Study* -- Ford Motor Company is the largest U.S. manufacturer in Belfast. The rationale behind its decision to set up in Northern Ireland applies equally to other component manufacturers. Northern Ireland has provided Ford with a gateway to Europe for the last 30 years. In choosing Belfast, Ford points to the well-educated and flexible workforce, quick access to European assembly plants via low-cost shipping capabilities, and numerous financial incentives. Its tax-free property status has saved the company many millions of dollars.

Established in 1965, Ford's Belfast plant is a critical part of the firm's supply chain, manufacturing oil and water pumps and fuel handling components. Its state-of-the-art facilities comprise 29,000 square meters of factory space, employing over 600 people. Ford reports that employee turnover is extremely low.

Thanks to Northern Ireland's advanced infrastructure, Ford can easily supply engine plants in Cologne, Germany and Valencia, Spain, as well as its British plants in Dagenham and south Wales on a "just-in-time" basis. They can deliver to British destinations within 24 hours and to the Continent within 48 hours. Same day delivery is available by airfreight from Belfast International Airport to its European plants.

### Border Counties

Despite having no automobile manufacturing and assembly industry, Ireland has developed a very strong automotive components industry which currently exports in excess of \$400 million annually to European car manufacturers such as General Motors/Adam Opel, Mercedes-Benz, Ford, Audi, BMW, and Renault. There are 24 U.S. automotive components manufacturers based in Ireland that are manufacturing products to European market standards. These firms utilize Ireland as their manufacturing location to achieve their objective of graduating

into the lucrative European automotive components market. There is a strong auto component manufacturing base in 5 border counties (Sligo, Donegal, Leitrim, Louth, Cavan). Most of these operations are of German origin.

Against a background of automotive industry restructuring, as well as more intensive competition on a global scale, the major priorities for the industry in Ireland are continued cost competitiveness, quality management, quick response capability, good labor relations, product development, and operative training. Fulfillment of these goals will enable the development of successful Irish-owned companies in this sector. The presence of international manufacturers and the strong exporting capability of the overall sector illustrate the potential in the automotive components sector.

## Health Technologies

### Northern Ireland

*The health technologies sector comprises manufacturing and service firms involved in pharmaceuticals, biotechnology, medical equipment and supplies and a range of support services, including clinical trials, for hospitals and universities. The region has a strong base in emerging technology expertise in cardiology, medical devices, biotechnology and health management. Most of the large and mid-size companies operate in global markets.*

Over the last five years, the sector has enjoyed average annual growth rates of around 20 percent per year for pharmaceuticals firms and 10 percent for medical supply and medical technology firms. The 35 firms which make up the sector have annual sales of approximately 110 million pounds sterling (\$176 million), and directly employ around 2,500 persons.

Growth has been largely driven in large part by foreign direct investment drawn by capital subsidies from government, low labor costs and access to EU markets. Other factors are the entrepreneurial drive of key firms and the availability of investment support from government for expansion. Prospects for continued expansion of the sector are generally regarded to be good.

Growth within the domestic Northern Ireland and UK health care markets is expected to be quite robust, particularly for competitive private-sector suppliers. The state-run National Health Service (NHS), financed from general tax revenues, provides 80 percent of health care in Great Britain and Northern Ireland. This market has recently undergone fundamental change as the NHS has reorganized in an effort to achieve operating efficiencies and obtain greater value for funds expended. One result has been to grant financial autonomy to most NHS-run hospitals, known as "hospital trusts," and to autonomous individual physicians, known as "fund-holding GPs."

The reforms have permitted fund-holding GPs to send NHS patients to any hospital, including those privately-run, which offers more efficient and cost effective services. Both hospital trusts and fund-holding GPs now have the freedom and responsibility to contract for the full range of medical equipment, supplies and support services, most of which can be obtained faster and less expensively from the private sector.

The newly-created "internal market" within the NHS allows hospital trusts and fund-holding GPs to buy and sell services to each other, and to the private health care industry. NHS trusts are now aggressively marketing pay-beds and developing private wings to compete directly with private hospitals, believing they can make better use of limited resources by forging closer links with the private sector. NHS trusts are also forming symbiotic partnerships, with collaboration extending from the sharing of equipment to the construction of private bed facilities on NHS sites.

As the chosen wholesale supplier to all major NHS hospitals, a newly-created purchasing authority, "NHS Supplies," seeks to achieve the benefits of a nationwide supply organization with a coherent strategy and a common goal. American suppliers can potentially conduct all their NHS business through this one purchasing authority. With managers now able to order their own equipment, the focus for suppliers will be on encouraging customers to replace old and more labor-intensive machinery with more productive equipment.

The NHS reforms present opportunities for U.S. suppliers capable of demonstrating that their products and services will increase productivity. Competitive U.S. suppliers of medical equipment, supplies and services, up to and including the management of entire hospital units, will stand to benefit. U.S. firms control a third of the import market and a fifth of the total market. Advanced technology and experience in selling to the cost-conscious private sector has given U.S. suppliers a significant edge.

As a base of operation for American health care firms, Northern Ireland offers distinct competitive advantages. Human resources available to the sector are generally rated as good and are available at lower cost than in many competing regions. Labor relations within the sector are reported to be excellent, with good career prospects for graduates and skilled labor. Employee turnover is exceptionally low. However, several of the faster growing firms report a local shortage of technicians and graduates with three to four years experience, as well as well-qualified and experienced marketing and senior management personnel. Local universities are responding to the success of the medical sector by designing programs to meet the human resource requirements of the firms.



## Border Counties

Ireland has a strong medical manufacturing sector comprised principally of international firms that produce disposable medical products. Indigenous manufacturers are primarily small-scale companies producing disposable products. The estimated 100 firms in the sector employ about 10,000 people generating an output of \$550-600 million. Most local output is exported to European and worldwide markets as most international manufacturers are using Ireland as a manufacturing and sales base. There is a strong medical manufacturing presence in four of the border counties (Sligo, Donegal, Cavan, and Louth) particularly through the operations of U.S. firms such as Abbott Laboratories (four plants in the North West) and Becton Dickinson. However, the region has not developed the same cluster of companies in the medical sector as it has in the automotive and clothing/textiles sectors.

## **Textiles and Clothing**

### Northern Ireland

*The star performing sector in Northern Ireland has been textiles and clothing which expanded even during recession, and has grown particularly rapidly in the recovery from recession. This sector's output has grown 28 percent since 1988, and its growth has outpaced the textile and clothing industries of Great Britain by a large margin of 7.6 percent on average each year over the period.*

The textiles sector employs a quarter of the Northern Ireland manufacturing workforce and its success has clearly helped employment prospects, even if many of the jobs offer relatively low pay. Although employment in this sector has declined by 9 percent in Northern Ireland since 1988, the record is better than that of Great Britain which showed a decline of 24 percent in the same period.

The textile and clothing industry in Northern Ireland maintains 80 percent of its markets within the UK. In recent years, a number of foreign textile and clothing companies announced intentions to locate in Northern Ireland. These firms have so far added only marginally to output. The growth has been driven principally by companies already established in the Province.

### Border Counties

The clothing and textiles industry is strong in the border counties of Donegal and Louth. It is comprised of both international and indigenous manufacturers and local craft producers. U.S. firms have a strong presence, with Fruit of the Loom, Sub 4, UNIFI, Riverside Manufacturing, and VF Corporation all having manufacturing operations in the region. These manufacturers are exporting the

bulk of their production to the European marketplace. Donegal has a strong clothing, textiles, and knitwear manufacturing base.

## **Metal Goods**

### **Northern Ireland**

The small metal goods sector in Northern Ireland has achieved notably higher performance levels than in Great Britain. This sector in Northern Ireland exports 50 percent of its output beyond the United Kingdom and sells a further one-sixth to markets in Great Britain. Output has grown by over 60 percent since 1988, compared with a 30 percent contraction by manufacturers in Great Britain. Growth in Northern Ireland has thus been better than in Great Britain by 18 percent each year over the period.

Metal goods, along with textiles and clothing, is a sector in which labor costs are an important component of total costs. In textiles and clothing for instance, labor costs comprise 33 percent of total costs compared with 20 percent in chemicals. Improvements in labor costs relative to Great Britain may have been the most important source of competitive advantage.

## **Contract Manufacturing**

### **Border Counties**

To support the large international presence in the electronics, computer software, automotive components, and medical sectors, Ireland has developed a strong sub-supply and contract manufacturing base comprised of both indigenous and international firms. The presence of almost 1,000 multinational manufacturers throughout Northern Ireland and the Republic of Ireland, operating with World Class Manufacturing (WCM) standards, has created a complementary high quality sub-supply and contract manufacturing sector. This excellent sub-supply infrastructure represents another benefit to international firms seeking to establish an operation in Ireland.