



# The Report of the High Level Group on Manufacturing

March 2008



## Foreword

I hear a lot about the fact that, as a developed economy, Ireland is increasingly shifting toward a services economy. And indeed the figures support this fact. Unfortunately this statement has also been misinterpreted to mean that Ireland is no longer ‘in manufacturing’ – and this could not be further from the truth.

I firmly believe that there is a future for manufacturing operations in Ireland – last year was the best year for manufacturing since 2002, with an 8% growth in output. When I look at the contribution that manufacturing has made to the development of Ireland’s economy, I realise just how fundamentally important it is. Manufacturing not only contributes in terms of direct employment and expenditures in the economy – but also in terms of creating secondary employment, stimulating innovation and research and development, and as a driver of technological advances and international management capability.

Manufacturing is evolving and it will be different in the future – it will be even more technologically advanced and activities across the value chain may be located in different countries and undertaken by different companies across the world where it makes most strategic or economic sense. High-value manufacturing activities in Ireland will be knowledge intensive, capital intensive and skills intensive. Successful firms will engage in developing a participative culture, where management and staff work collectively to ensure the success and longer term sustainability of the firm to the benefit of all.

Innovation, increased productivity, continuous learning, flexibility and adaptability will become the norm, as firms anticipate change and respond in a way that enables them to take advantage of opportunities and to turn challenges into opportunity.

Today, firms need to view monies spent on research, development and innovation, reskilling and training, and organisational change as an investment in the future of the company – and NOT as a cost or outlay that is only too readily cut in times of cost pressures.

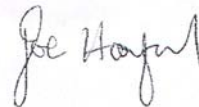
While firms can engage in transformational change, it is important too that the business environment remains supportive. I cannot ignore the issue of the rate of rising costs. It is a key concern to manufacturing firms – and one that, if not addressed with a sense of urgency, will have a detrimental impact on the existing multinational base and on our ability to strengthen the growth of indigenous

manufacturing – and will diminish our potential to attract foreign direct investment and to stimulate new start ups in manufacturing activities.

I wish to thank the members of the High Level Group on Manufacturing, which included representatives from employers, employees (through their Union representatives), Government and the development agencies, for their invaluable contributions. Through open and honest discussion, we came to a shared understanding of the real challenges and opportunities facing the sector. We also identified a limited, but essential, number of actions for employers, employees and the Government to take.

Together we agree that a coordinated and collaborative approach is absolutely necessary if we are to realise our vision of a robust, advanced and high value manufacturing sector in Ireland. We each have a role to play and we each commit to playing our part.

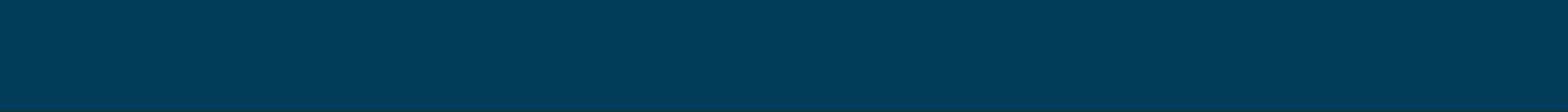
Ireland has successfully adapted in the past - and I am confident that we can do so again. Ireland's future in manufacturing will be realised if we work together and maintain a strong focus on bringing about the change necessary to be a compelling player in global markets.



Joe Harford

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## **Executive Summary**

The High Level Group on Manufacturing (the Group) was established in 2007, resulting from the Social Partnership process and Toward 2016 Agreement<sup>1</sup>. The Group brought together representatives from Government, company representatives from the manufacturing industry (the employers) and from the Unions (representing employees) to consider the challenges facing the manufacturing sector. The enterprise development agencies were represented in an advisory capacity. The Group was asked to identify measures to meet those challenges identified having regard to initiatives already underway.

This report represents a shared understanding of the challenges facing the manufacturing sector and of how the nature of manufacturing itself has evolved. It outlines the characteristics of the firm likely to be successful in today's complex and increasingly competitive environment. The report identifies the focused actions needed by employers, employees (and their Union representatives) and Government to respond to challenges and take advantage of opportunities to further develop the sector in Ireland.

We, (the Group), are not proposing a 'silver bullet', but rather that a collective and inclusive approach on a limited number of key areas is essential – to address reskilling, innovation, and productivity improvements at firm level, and to address cost competitiveness and enhance sector specific infrastructures at the business environment level.

### ***Manufacturing Matters***

Manufacturing has played a strong role in Ireland's economic development over the past decade. Not only does manufacturing contribute to employment, economic output and exports, but it is also a key driver of innovation and technological advance. Manufacturing also generates additional jobs indirectly. Ireland's management capability, high quality outputs, productivity growth and project management skills have evolved as a result of its success in attracting high quality foreign direct investment (FDI) in manufacturing, and in stimulating the growth of indigenous firms with a focus on exports.

For many reasons, it is important that manufacturing continues to play a fundamental part of Ireland's future economic development.

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<sup>1</sup> Towards 2016, Ten-Year Framework Social Partnership Agreement 2006-2015, June 2006  
[http://www.taoiseach.gov.ie/attached\\_files/RTF\\_files/Towards\\_2016PartnershipAgreement.rtf](http://www.taoiseach.gov.ie/attached_files/RTF_files/Towards_2016PartnershipAgreement.rtf)

*Manufacturing accounts for 221,000 direct jobs, and an additional 165,000 through secondary employment. Manufacturing firms spent €25 billion in the Irish economy and contributed €35 billion to Irish Gross Value added in 2006<sup>2</sup>*

### ***The Definition of Manufacturing has Evolved***

However, the nature of manufacturing activities undertaken in Ireland in the future will be somewhat different from that of the past.

A number of global trends have a direct impact on how manufacturing is defined today:

- The increased pace of globalisation presents opportunities through emerging large scale markets. It also presents challenges because of the increased intensity in world wide competition
- Technological advances have been significant and permeate all elements of production and business processes and the management of global operations
- There is an increased blurring of manufacturing and services activities that impacts on how a company does business and differentiates its offering
- Customer demands for products customised to their particular needs have implications for stock management, flexibility in production processes and delivery mechanisms
- New global business models have impacted on how companies address new markets, and have implications for partnering, revenue sharing and off-shoring.

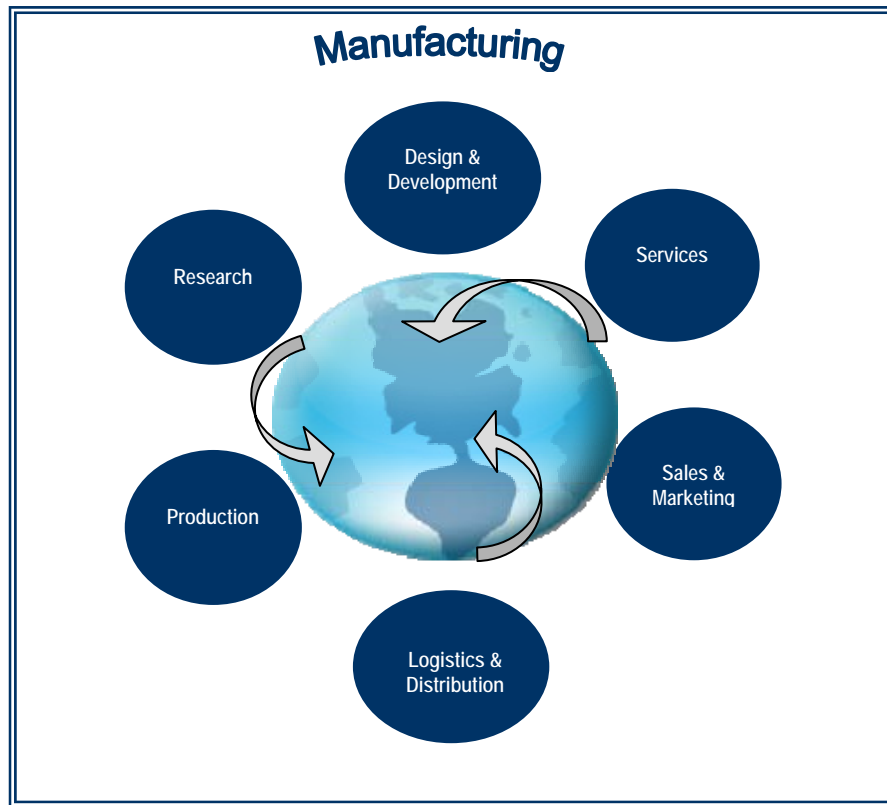
These trends inform an extended definition of high value manufacturing that makes a distinction between production and manufacturing. Production is seen as only one aspect (albeit an important one) of the entire supply chain (Figure 1 overleaf).

*The definition of high value manufacturing today encompasses a broad range of activities from research and development through design, production, logistics and distribution to marketing and after sales services*

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<sup>2</sup> Secondary Employment relating to Manufacturing, Forfás (unpublished) March 2007 – secondary refers to the number of services employees required to produce the services associated with demand from the manufacturing sector.

**Figure 1: An Extended Definition of High-Value Added Manufacturing**



Source: Defining High Value Manufacturing (IFM, DTI, CBI), 2006

This means that production itself may or not be the defining element of a manufacturing firm's activities. Activities across the supply chain may be located in different countries and undertaken by different companies across the world, where it makes most strategic or economic sense.

This concept of high-value manufacturing should not be regarded as being relevant only to what may be termed 'modern' manufacturing sectors – nor indeed, should it be assumed that every firm operating within these sectors is generating high value.

### ***The Characteristics of a High Value Manufacturing Firm***

There are a number of characteristics that are evident within those manufacturing firms that create high value and have a differentiated competitive advantage. They are particularly relevant to companies operating from an open and developed economy like Ireland and serving global markets. Companies that will be successful in creating high value have:



- A focus on gaining an in-depth understanding of markets and customer needs
- Operations that are capital intensive, knowledge intensive and skills intensive
- A participative company culture which involves proactive and open communications between management and staff

Looking at each of these elements in turn, we can identify the implications for how a firm operates and continuously builds its capabilities.

<b>Area of Focus</b>	<b>Implications for the Firm</b>
<b>Markets</b>	Serving existing markets and addressing new markets necessitates a new way of doing business within global supply chains, including partnerships, revenue sharing models and licensing
<b>Customers</b>	Strong customer relationships and in-depth knowledge of their needs enables development of innovative new products, services and solutions
<b>Capital Intensive</b>	Investment in capital equipment and leading edge technology to drive productivity through automation and computerisation is fundamental
<b>Knowledge Intensive</b>	Innovation, including non-technological innovation, across all elements of the business functions is essential in order to gain a competitive edge through differentiation. Even more mature manufacturing areas can benefit from the application of new knowledge to continuous improvement and the use of technologies
<b>Skills Intensive</b>	Continuous investment in people is vital in today's business environment - in continuous learning, reskilling and in developing management capability for the innovative organisation
<b>Strong Participative Culture</b>	Employee involvement and empowerment is a key factor in developing the type of workplace that will achieve success through flexibility, adaptability, innovation and problem solving

*This poses real challenges for companies and requires a flexible and adaptive approach to continuous change*

## *Actions Required At Firm Level*

### *1. Innovation and Productivity leading to Transformational Change*

#### *1.1 Technological Innovation*

We acknowledge the tangible progress that has been achieved to date in building the innovation capacity and capability of firms. This has been realised (in part) through an enhanced range of supports to encourage businesses to invest more in R&D and through increased public investment in research to provide the skilled graduates needed for enterprise research and innovation.

Manufacturing firms need to continue to undertake a progressively innovative approach, and/or to realise a step-change in their production and business processes that would place them at the leading-edge of manufacturing and need to have an appropriate range of supports available to help in this continued evolution.

We have identified three main areas of focus that are relevant to all manufacturing firms operating from Ireland, including large-scale operations and SMEs.

#### *(i) Transformational Change & Productivity*

Companies need to embrace new technologies and adopt leading edge processes that result in transformational change, increased productivity and longer term sustainability. This requires enabling companies to invest in automation and in process R&D, adopt new technologies and/or adapt them to their specific needs, embrace leading edge manufacturing processes and global business models and increase competencies in advanced engineering design of automated systems.

#### *(ii) Energy Efficiency in Manufacturing*

In today's cost environment it is vital that companies themselves engage in improving the efficient use of energy and build competences. They need to understand and embrace the most advanced methodologies and technologies available and to proactively engage in achieving a step change in improving energy efficiencies.

#### *(iii) The Factory of the Future*

Companies need also to be aware of how the Factory of the Future is likely to look, and how it may impact their operations. Companies need to keep abreast of how emerging technologies, new materials and processes, and convergence across technologies, sectors and products will inform future operations.

Of particular relevance to these aspects of technological innovation is the Competence Centre Initiative which was introduced by the enterprise development agencies in 2007. Competence Centres are collaborative entities established and led by industry. They are to be resourced by highly qualified researchers associated with research institutions and are to undertake market focused R&D, defined by a group of companies, and based on industry needs.

### ***Recommendations***

*Establish National Manufacturing Competence Centre(s)<sup>3</sup> (with a sectoral focus, where relevant) that would actively engage with industry, both large companies and SMEs, to address the current and future needs of production, through R&D and innovation in process, supply chain management, and energy efficiency, and to address training and reskilling needs.*

*Suggested areas of focus include (as a priority):*

- *Transformational Change and Improving Productivity*
- *Preparing for the Factory of the Future*
- *Increasing Energy Efficiencies*

*(Action:DETE, Enterprise Development Agencies)*

*It is essential that firms actively engage with Competence Centres and utilise the capability, know-how and services being provided and to provide continuous feed-back so that such Centres remain relevant to the needs of, and easily accessible by, manufacturing firms.*

*(Action: Manufacturing Firms)*

## ***1.2. Non-technological Innovation: Applying Innovation across Business Processes and Workplace Systems***

The concept of innovation should not be considered solely in terms of scientific or technological innovation. We believe that greater recognition is needed of the critical role that other forms of innovation play in fostering productivity growth. This includes, for example:

- Regular benchmarking of performance against competitors, including aspects such as employee motivation, workplace systems and HR practices, reskilling and development etc., with a view to embedding systematic enhancements and innovation within the culture of the firm;

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<sup>3</sup> On the basis of a detailed proposal being evaluated in line with the Competence Centre process

- Systematic market watch relevant to the firm, assessing key trends, competitor strategies, and also developing strong customer and partner relationships;
- Engaging in new ways to address markets through partnerships, alliances and/or outward direct investment; and
- Appropriate use of ICT across all facets of the business, both internally and externally to link with international clients, suppliers and partners.

To date, while the development agencies have focused on a range of initiatives in benchmarking and process improvement, there is a need to broaden initiatives to address the areas of business process improvement and workplace reorganisation.

### ***Recommendations***

*Manufacturing firms should engage in benchmarking, (supported by the development agencies), at a sectoral level in relation to their international counterparts in order to gain a more in-depth understanding of areas for improvement across production, business and workplace processes. They should then focus efforts (with the support of the agencies where relevant) on capital investment, R&D, skills enhancement and/or organisational change that would have greatest impact on productivity, competitiveness and longer term sustainability. The social partners also have a role in promoting engagement with these initiatives.*

*(Action: Enterprise Development Agencies, Social Partners)*

*Within this context, the enterprise development agencies should develop and intensify supports for business and workplace innovation to include incentives for business process reengineering, change management, organisational change, market development capability and new business model development.*

*(Action: Enterprise Development Agencies, Social Partners, NCPP)*

*Develop a User Guide on Productivity Improvement and Management to better inform both employees and employers of the practical actions that need to be taken in the workplace to realise increased productivity.*

*(Action: Forfás, Social Partners)*

## ***2. Reskilling and Management Development for the Innovative Firm***

Ireland's skilled workforce has played a significant role in attracting FDI and in the development and growth of indigenous companies. We recognise that in today's challenging global environment, continued commitment to increasing the participation levels of people who are in employment in education and training is fundamental to underpinning Ireland's future success. Enhanced skills also increase the mobility of people and equip them to take on alternative opportunities.

Together with initiatives to support non-technological innovation, the development agencies need to revitalise the use of training grants for upskilling and management development in specific areas to support transformational change and develop the key skills needed – in areas such as technology management, supply chain management, market development, product development and also in supplementing existing skills so that individuals develop strong inter-disciplinary capability (e.g. engineering coupled with business skills).

Approaches that have proven to be effective to date in delivering industry led and relevant programmes (such as Skillnets) should be promoted, and supported to meet increased demand.

A step change in reskilling will only be realised if all parties - the State, employers, Unions and employees, proactively engage in supporting and embracing continuous advancement in the workplace.

### ***Recommendations***

*Having regard to the commitments contained in Towards 2016 and the NDP and the vision contained in the National Skills Strategy we recommend specific action be taken that optimises the use of available resources to focus efforts on reskilling people in the workforce at all levels and on developing world-class management capability as follows:*

*Increase funding to meet the demand arising for the services of those organisations (such as Skillnets), that have demonstrated an effective delivery mechanism. Manufacturing firms needs to actively engage with training providers and other bodies such as Skillnets and FÁS to outline their specific training and development needs.*

*(Action: DETE)*

*Increase resources for the provision of relevant courses for people in employment. The focus should be on the development of skills, at all levels, specific to the manufacturing sector in order to increase the productivity, competitiveness and employability of workers.*

*(Action: DETE, FÁS)*

*Intensify the use of training funds to realise a step-change in capability at all levels to enable companies to engage proactively in transformational change.*

*(Action: DETE, Enterprise Development Agencies)*

*The High Level Group on Manufacturing acknowledges that the Expert Group on Future Skills Needs (EGFSN) is exploring options to incentivise people to participate in training whilst in employment. Options being considered include individual learning accounts, brokerage services, learning leave and tax incentives. Given the fundamental importance of upskilling, appropriate initiatives should be implemented as a matter of priority.*

*(Action: DETE, EGFSN)*

*As part of its action plan, the Management Development Council should have specific regard to the needs of manufacturing SMEs in Ireland to build leadership and management skills relevant to an innovative environment operating within a global context.*

*(Action: Management Development Council)*

*As agreed in the Towards 2016 agreement (Section 7.9) put in place a targeted fund to alleviate the fees in public institutions for part-time courses at third level by those at work who have not previously pursued a third level qualification.*

*(Action: Department of Education and Science)*

*Manufacturing firms need to engage in the programmes offered, and provide continuous feed-back of their needs as they evolve over time. Both management and employees also need to commit to taking up (relevant) training and reskilling initiatives.*

*(Action: Social Partners)*

### ***3. Awareness and Take up of Initiatives***

We have already stated that manufacturing in Ireland is facing significant challenges – and indeed, the definition of manufacturing itself has evolved. It is absolutely critical that firms engage proactively in making a transformational change in how they operate. The development agencies have a role to play to aggressively market their support programmes (including financial supports and advice) over the near term to stimulate take up by firms.

Although there is a wide range of state initiatives already in place to support the development of manufacturing in Ireland we have identified two aspects that need to be addressed. Firstly there

appears to be a relatively low level of awareness amongst companies about the availability of supports and how to access them. Secondly, from a company perspective, there are issues in relation to the process, including access to information, the application, eligibility, criteria applied and subsequent draw-down of supports.

### ***Recommendations***

*Review and enhance the effectiveness of the development agencies' Productivity Improvement Fund, Benchmarking, Training and R&D supports to significantly improve uptake and drawdown by manufacturing companies.*

*(Action: DETE, Enterprise Development Agencies)*

*Increase and intensify efforts to promote the range of support initiatives, to include:*

- *a national promotion campaign about available supports*
- *the increased use of "advocates" for SMEs to reach out to companies and employees (building on the pilot initiative introduced by EI to encourage companies to engage in R&D)*
- *a streamlining and simplification of the process and improve access to programmes through, for example, the use of on-line application processes where appropriate etc, and*
- *Continue working with the NCPP<sup>4</sup> to encourage employees in the manufacturing sector to avail of training and upskilling opportunities.*

*(Action: Enterprise Development Agencies)*

*Prioritise the implementation of a comprehensive central web-based resource of relevant, up to date, user led business information for enterprises as called for by the Small Business Forum.*

*(Action: DETE, Enterprise Development Agencies)*

### ***The Business Environment***

At the same time, it is important that the business environment remains conducive to both indigenous and foreign manufacturing firms operating from Ireland.

The availability of a highly skilled and innovative work-force, an environment that encourages and stimulates investment in research and development, entrepreneurship and continuous learning, a cost base that is in line with other developed economies, an agile and responsive Government, supportive fiscal and regulatory structures and a high quality of life are all factors that will position Ireland as a

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<sup>4</sup> National Centre for Partnership and Performance

‘good place to do business’. We are aware of a number of strategies and policies that have been developed to progress Ireland’s development in each of these areas.

*However, our primary concern is that the high pace of inflation has resulted in a loss of cost competitiveness when benchmarked against other developed economies. This is a critical issue for manufacturing firms*

We have identified a limited number of areas that need to be addressed urgently – and which, if not addressed, will continue to have a negative impact on the future for manufacturing in Ireland.

### ***Actions required to Enhance the Business Environment***

#### ***4. Ireland’s Relative Cost Competitiveness***

The biggest immediate challenge facing the manufacturing sector is the loss of cost competitiveness. Between 2000 and 2006, Ireland experienced a loss of 15% in international price competitiveness<sup>5</sup>. The rate of inflation in recent years has been consistently higher than that of our European and competing counterparts and is problematic. High inflation rates are impacting not only on the competitiveness of firms operating in Ireland but also on the living standards of employees. We acknowledge that some of the price increases are outside our control. There is a need to address those factors over which we *do* have control.

*A failure to take immediate action in addressing cost competitiveness will negate the benefits of the productivity gains that can be, and are being, achieved by many companies within the manufacturing sector*

Ireland has benefited from high levels of growth over recent years, and living standards have improved substantially. As a developed economy, this is as it should be. It is important that improvements in standards of living are not compromised through efforts to address cost competitiveness and rates of inflation, and that such efforts are complemented by improved productivity in all firms (whether trading locally or internationally) and in the public sector.

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<sup>5</sup> Eurostat, Economy and Finance Indicators, 2006



*The Group strongly endorses the proposal by the National Competitiveness Council for the development of a national programme to restore cost competitiveness that includes setting inflation targets close to the Eurozone target rate of inflation of 2%<sup>6</sup>*

The following aspects of cost competitiveness are particularly relevant to the manufacturing sector:

- Energy
- Waste
- Local Authority Charges
- Local Professional Services

### ***Energy Policy and Efficiency***

Over the years 2001 to 2007, Irish industrial electricity prices increased by almost 70% - nearly twice the increase in the EU-15 average of 36.4%, although this is as a result of a number of both external and internal factors. The development of energy policy is complex and necessitates a balancing between somewhat conflicting aspirations in terms of reasonable costs (relative to EU competitors), security of supply and sustainability. We are also aware of the fact that energy markets are subject to EU internal market legislation and that State intervention to directly control wholesale or retail energy prices is not permitted.

From a manufacturing perspective, however, the issue of costs is now paramount. We contend that energy policy to date has not achieved an impact in this area, although the implementation of the recommendations contained within the Energy White Paper (May 2007) and the establishment of the all island Single Energy Market introduced in November 2007 should, over time, lead to a more efficient and cost effective electricity market.

### ***Recommendation***

*It is critical that the issue of energy costs is prioritised, and that practical steps are implemented in the immediate term that will bring energy costs back in line with the EU.*

*(Action: DCMNR)*

Within this context, the need for continued and enhanced efforts to promote more efficient energy use by both business and residential users to achieve Ireland's target of a 20% reduction in energy demand by 2020 becomes increasingly important. Firms themselves must play a role in terms of

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<sup>6</sup> National Competitiveness Challenge 2007 – [www.competitiveness.ie](http://www.competitiveness.ie)

taking steps to increase energy efficiency, and, where applicable, avail of the supports managed through SEI<sup>7</sup> and the development agencies.

### ***Recommendation***

*Enhanced financial supports should be offered to companies to assist them in the drive towards increased energy efficiency, together with mechanisms to raise awareness and share best practice amongst firms.*

*(Action: SEI, DETE, Enterprise Development Agencies)*

### ***Waste***

A recently published *Waste Benchmarking Report*<sup>8</sup> shows that Ireland is the second most expensive country for non-hazardous landfill and is by far the most expensive for biological waste treatment gate fees against a range of benchmarked countries. Ireland is currently heavily reliant on landfill as a waste treatment option and the costs of such landfill in Ireland are among the highest in the EU. The full range of waste management options and infrastructures need to be available to firms, from minimisation and recycling and to energy recovery to disposal.

From a manufacturing perspective we suggest that the overarching goal should be the development of an appropriate mix of competing waste management and treatment infrastructures that will meet best practice in environmental standards and result in real reductions in costs to industries (so that they are more closely aligned with competitor countries) and an increase in efficiencies.

### ***Recommendations***

*The High Level Group on Manufacturing endorses the recommendations outlined in the Waste Benchmarking Report which are set out below, and emphasises the urgent need for action in addressing issues that directly impact on price structures.*

*The development of specific additional waste management infrastructures, particularly thermal treatment, biological treatment and reprocessing facilities must be accelerated.*

*(Action: DoEHLG, public and private infrastructure providers)*

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<sup>7</sup> Sustainable Energy Ireland

<sup>8</sup> Waste Management in Ireland: Benchmarking Analysis and Policy Requirements, Forfás, March 2007. [www.forfas.ie/publications](http://www.forfas.ie/publications)

*The required resources to progress the development of markets for recycled materials, as identified in the Market Development Group work programme, need to be put in place without further delay so that work on delivering the various elements of the work programme can commence.*

*(Action: DoEHLG, Market Development Group)*

*The relative roles and responsibilities of the State in the regulation and management of the waste sector at national, regional and local level need to be reviewed to address the issues affecting infrastructure provision. As a first step there is a need for a clear statement of policy for the sector and clarity on roles of current and/or future public bodies in the area.*

*(Action: DoEHLG)*

*Regional waste management plans need to be effectively coordinated to ensure that Ireland is benefiting from the economies of scale that can exist in the delivery of national waste infrastructure.*

*(Action: DoEHLG)*

*The impact of the Strategic Infrastructure Act 2006 and the proposed legal reforms on the speed of delivery of important new infrastructure need to be maximised to ensure the expected benefits are being realised.*

*(Action: DoEHLG)*

Firms have a role to proactively seek ways of engaging in cleaner, greener behaviours. A range of waste/pollution prevention or resource conservation initiatives is being undertaken by different organisations<sup>9</sup>. We consider that initiatives need to be more heavily marketed by the relevant agencies, and complemented with raising the awareness and capability of firms so that they engage effectively in them.

### **Recommendation**

*Concerted efforts are required to ensure that businesses are fully aware of the benefits of waste prevention and how best to exploit waste management reduction processes and technologies<sup>10</sup>.*

*(Action: DETE, Enterprise Development Agencies, IBEC, EPA).*

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<sup>9</sup> The National Waste Prevention Programme - Second Annual Report 2005/06, EPA, September 2006.  
<http://www.epa.ie/OurEnvironment/Waste/NationalWastePreventionProgramme/AnnualReports/pdfsforNWPPAnnualReports/FileUpload,10897,en.pdf>

<sup>10</sup> Details of waste prevention programmes in other benchmark countries were included in the 2006 baseline waste management benchmarking study - <http://www.forfas.ie/publications/show/pub265.html>

### ***Local Authority and Development Charges***

Local Authorities play an important role in supporting enterprise development through investment in local infrastructures and services – and many work very closely with existing and potential investment companies to deliver a proactive service. We acknowledge that the level of services provided has expanded in response to the demands by industry, households and communities. This has been coupled with an increase in services and development charges. Such charge increases have been significant over recent years, and although steps have been taken at the request of the Minister to keep increases in the annual rate on valuation (ARV) to the minimum required we remain concerned that businesses are levied disproportionately for goods and services.

We are aware that a Government Interdepartmental Committee carried out a review of development contributions and issued revised guidelines in May 2007. The revised guidelines address the issue of the need for greater transparency in the way in which development contributions are levied and applied. From the perspective of the manufacturing sector, we welcome the revised guidelines as a first step in addressing the competitiveness implications of development charges. It is important that they are applied as a matter of priority by the Local Authorities.

#### ***Recommendation***

*Local Authorities should have specific regard to the impact of rising costs for industry and employment in their areas in the context of the increasingly competitive global environment. A rebalancing of the contributions is required together with increased engagement with business regarding expenditures and recovery.*

*(Action: Local Authorities)*

### ***Costs of Professional Services***

Manufacturing firms based in Ireland rely on locally provided professional services, including legal, audit and accountancy services – the costs of which have a direct impact on their final product pricing structures. The recent National Competitiveness Council's *Annual Competitiveness Report* (published November 2007) demonstrates that Dublin is the most expensive against benchmarked cities for legal fees, and the four main cities in Ireland are more expensive than Belfast, Derry, Manchester or Copenhagen for accountancy fees.

The Competition Authority undertook a review of a range of professional services in the domestic market and identified clear actions that would counter the existing regime that effectively allows for inefficient delivery of services or the artificial inflation of prices.

### ***Recommendation***

*Establish implementation structures to coordinate effective responses to the recommendations of the Competition Authority's review of these sectors of the economy in order to deliver the type of fundamental reform that is called for by the Authority.*

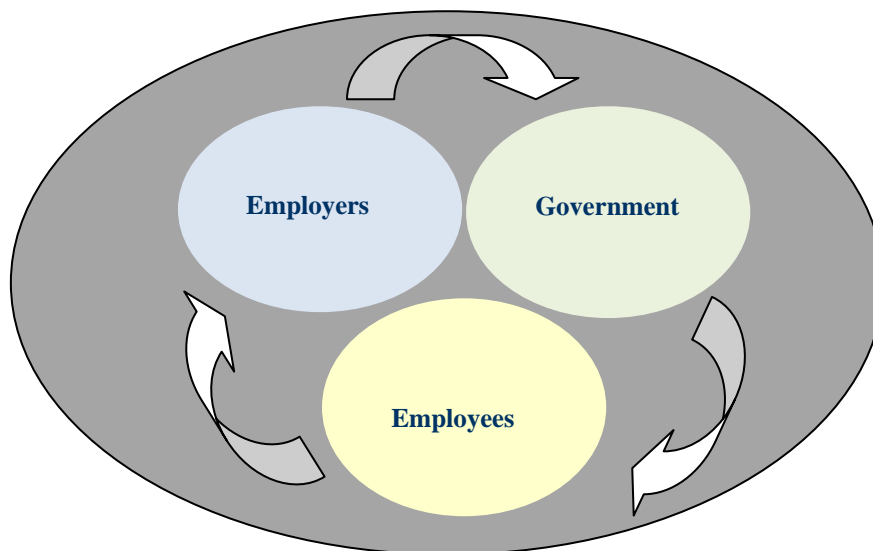
*(Action: Department of An Taoiseach, Department of Justice, Equality and Law Reform)*

### ***We all have a role to play***

As a small open economy, Ireland needs to respond in a way that ensures manufacturing firms can readily adapt to take advantage of global opportunities and address challenges.

The Group agrees that there is a need for coordinated and comprehensive action by Government, employers and employees if Ireland is to continue to be attractive for high-value manufacturing activities underpinned by an innovative, adaptive and responsive environment and culture (Figure 2).

**Figure 2: Working Together to Make it Happen**



<b>Government</b>	For Government a primary role is to develop and implement public policy that ensures that the broad business environment underpins the development of a sustainable manufacturing sector. Government has a role to play in ensuring that key decisions are taken without undue delays, cognisant of the pace of change in the competitive environment in which businesses operate, and that barriers to timely decision making are addressed.
<b>Employers</b>	Employers need to develop the management and leadership capability relevant to an innovative firm operating in a global context. They need to invest in building capacity within their firms to produce innovative products and specialise in the activities that yield value added for the firm, and to support and encourage employees' engagement in continuous learning.
<b>Employees</b>	Employees, and their trade unions, need to embrace ongoing change and adaptability and to be aware of the changing skills needs of the manufacturing sector. Employees should be supported and encouraged through the provision of information, advice and facilities that encourage their commitment to lifelong learning so that they can take advantage of opportunities for advancement, whether that is within their existing workplace, or alternative employment elsewhere.

## ***Making it Happen***

### ***Recommendation***

*We recommend the establishment of a Manufacturing Forum to drive the implementation of actions required at Government level and at individual firm level (including employers and employees) that will result in the change required, both at the firm level and in the business environment. The Forum should be established under the auspices of the social partners, acknowledging the importance of a collaborative approach. It should report to the social partners annually. The Forum should be supported and facilitated by DETE and Forfás.*

*(Action: DETE)*

## **5. *The Role of the Manufacturing Forum***

The make-up of the Forum should be such that it acts as a strong champion and advocate for the sector and becomes a respected voice for the manufacturing sector, valued by employers, employees and their unions and Government. The Forum should ensure that manufacturing remains central to current and future industrial policy, and:

- Take responsibility to progress the implementation of the recommendations outlined in this report (directly or indirectly as appropriate) and undertake an evaluation of progress against actions one year following the establishment of the Forum and annually thereafter;
- Act as a vehicle for the open and frank exchange of information and views between manufacturing representatives and relevant Government Departments, regulatory bodies, development agencies and NCPP on issues concerning the development of the sector as they arise;
- Act as a “clearing house” to address obstacles to the implementation of the actions required to develop the manufacturing sector; and
- Identify ways of raising awareness of the continuing importance of manufacturing to Ireland’s future economic development and of manufacturing as a viable and rewarding career option.

Communication to the wider community of employers, employees and Government will be critical to the Forum’s success:

- The Government representatives will ensure that issues raised by the Forum are brought to the attention of relevant parties within the Government sector and will arrange for direct contact with the Forum where this would be of value in progressing implementation of recommendations and/or gaining an in-depth two-way understanding of more complex issues.
- The business representatives on the Forum will promote workplace innovation, investment in increasing productivity, management development and employee training and reskilling to their members and peers (as appropriate).
- The employee representatives on the Forum will engage with their members to raise awareness of the challenges facing the sector, and of the need for adaptability and flexibility, and encourage high levels of employee participation in opportunities for continuous learning.

## *Conclusion*

Ireland's economic growth has been driven to a large extent by its success in attracting FDI in manufacturing and in stimulating the growth of indigenous companies.

Whereas the industry faces considerable challenges – it also faces opportunities. Firms, through their management and employees, need to position themselves to take advantage of these opportunities. Firms operating from a small open economy like Ireland are impacted to a greater extent by external forces, so that they cannot compete in low margin activities. As this report outlines, there are many ways in which individual firms can differentiate their offering and generate added value.

Innovation across all elements of the value chain, increased productivity, continuous learning and development and reskilling at all levels within the firm, and an adaptive flexible workforce, are today's 'table stakes'.

Whereas firms, through employers, Unions and employees, can play their part in engaging in innovation and enhancing productivity, we cannot ignore the criticality of regaining cost competitiveness across a number of key areas of concern to the manufacturing sector. As it stands today, even the more progressive firms contend that they are 'running to stand still' as improvements in productivity are quickly eroded by high levels of inflation.

A strong future for manufacturing in Ireland will not become a reality without concerted and focused action in a relatively small number of areas.

We believe that collectively, with each of us playing our role, we *can* make the necessary transformation to ensure that a highly competitive, sustainable, high value manufacturing sector will continue to be a valuable part of Ireland's future economic growth.



# 1 The Manufacturing Sector in Ireland Today

- Manufacturing directly accounts for 11% of Irish employment (221,000 jobs)
- 4 new jobs in manufacturing create an additional 3 service jobs in the economy
- Manufacturing firms' total direct spend in the Irish economy exceeds €25 billion
- The sector contributed 23% (or €35bn) to Irish Gross Value Added in 2006
- Manufacturing contributed almost a third of corporation tax yields (€1.6 billion) in 2005
- Manufacturing is a key driver of R&D activity and innovation

## 1.1 Background

The manufacturing sector has played a key role in Ireland's economic success and currently accounts for 11% of total employment and 23% of economic output GVA<sup>11</sup>.

The impact of the manufacturing sector is felt throughout the economy. Manufacturing has a large impact on job creation, both direct and indirect, and sustains about 74 secondary jobs per 100 direct manufacturing jobs, across all skills levels. Manufacturing activities provide inputs to other sectors of the economy and satisfy a broad range of final and intermediate demands.

High value-added manufacturing, in particular, is a key driver of innovation and technological advance. It increases opportunities for attracting and embedding R&D activities, collaboration with the higher education sector and stimulating networks. Ireland's management capability, high quality outputs, productivity growth and project management skills have evolved as a result of our success in attracting high quality FDI in manufacturing, and our focus on stimulating the growth of indigenous firms.

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<sup>11</sup> Gross Value Added (GVA) at basic prices is a measure of the value of the goods and services produced in a region (less the materials and services used which come from outside the region) priced at the value which the producers received minus any taxes payable and plus any subsidies receivable as a consequence of their production or sale (CSO)

## 1.2 Manufacturing in Ireland

There are some 4,300 manufacturing companies in Ireland (with 4,500 plants). Irish owned companies account for almost 90% of these, of which a high proportion is made up of small firms employing less than 50 people<sup>12</sup>. Foreign owned companies based in Ireland account for almost 50% of manufacturing employment and over 80% of manufacturing output.

### 1.2.1 Employment Over the Past Decade

#### *1995-2000*

Total Manufacturing employment in Ireland increased significantly in the period 1995 to 2000, rising from 215,000 to 248,000 (QNHS Q4 data). A significant proportion of this growth was predicated on the dot.com era which saw global telecommunications and computer companies doubling their work-forces, and Ireland benefiting from large flows of FDI.

#### *2001-2004*

Since 2000, and following a thirty year period in which Ireland managed to buck international trends, employment levels declined steeply in each of the years from 2001-2004 falling to 218,400, with an accumulated loss of 30,000 jobs. Much of these losses resulted from the downsizing of those ICT companies that had experienced such exponential growth in the preceding five years<sup>13</sup>.

#### *2005-2006*

Employment levels stabilised in 2005. In 2006 we saw a small increase of 2,400 jobs bringing the overall employment levels in manufacturing to approximately 221,000.

Within these employment figures there is a constant 'churn': of jobs lost and new jobs created; of firms discontinuing operations and of new firms setting up in Ireland (both indigenous and foreign) in both manufacturing and services activities.

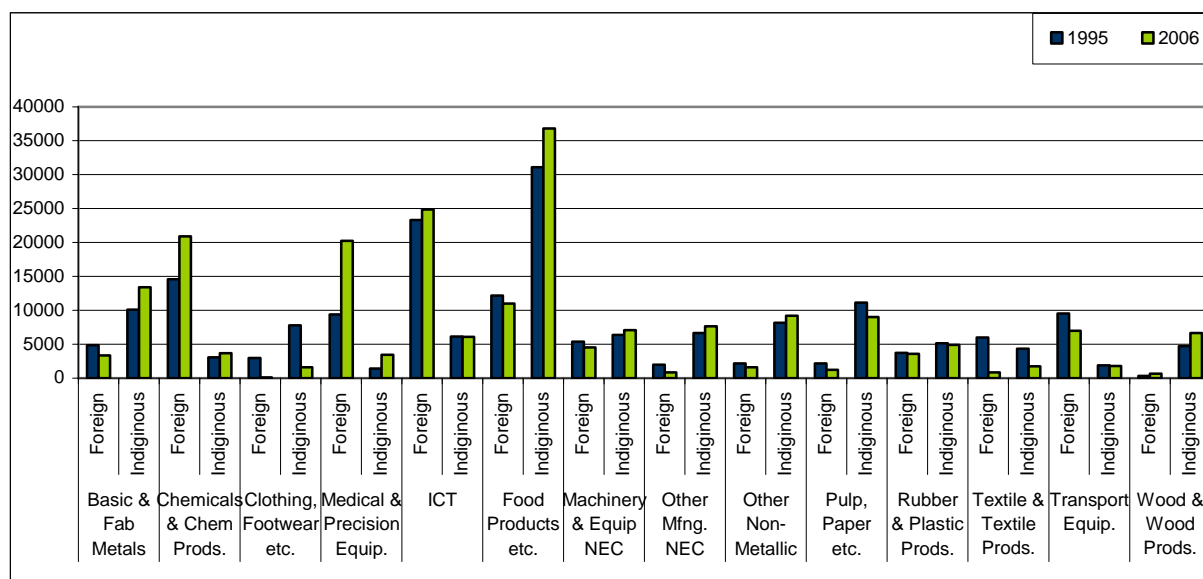
Figure 1.1 overleaf shows employment by ownership and sector for the years 1995 and 2006.

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<sup>12</sup> Source: CSO – Census of Industrial Production (companies employing more than 3 persons)

<sup>13</sup> This peak is not readily apparent from figure 1.1 overleaf which shows employment for the years 1995 and 2005 only, (with relatively consistent job numbers over those years) thereby not demonstrating the year 2000 peak and subsequent drop.

**Figure 1.1: Manufacturing Employment by Ownership and Sector: 1995, 2006<sup>14</sup>**



Source: Forfás, ABSEI

While traditionally Ireland never had a large manufacturing base, the share of the total workforce directly employed in the sector has dropped from 16% to 11% in the past decade. However, this reduced share is attributable more to the dramatic rise of services and construction employment rather than a major decline in manufacturing employment.

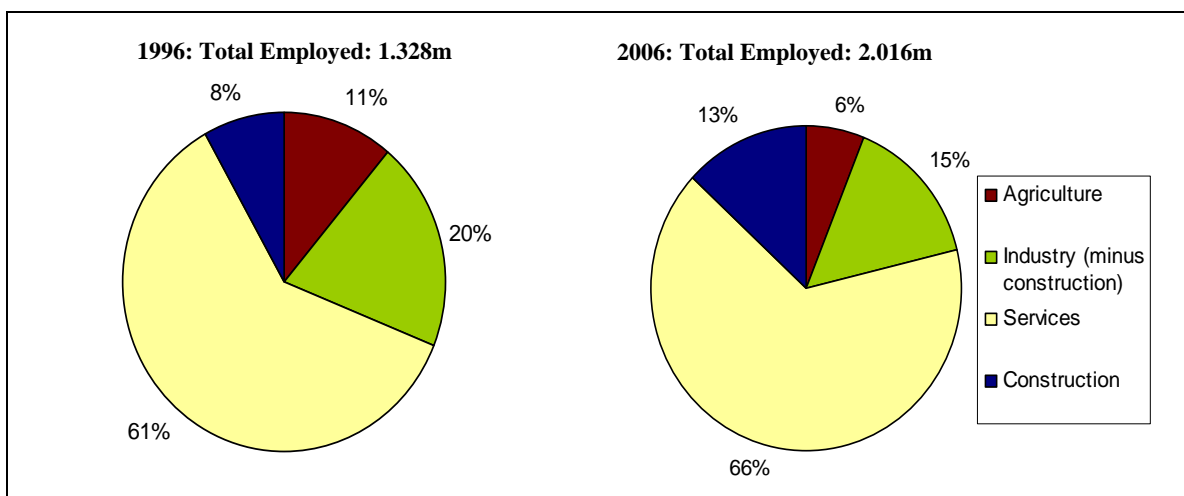
Figure 1.2 overleaf shows the transition over the 10 year period from 1996 to 2006 where services increased to 66% of the total 2.016 million employed, from 61% in 1996 of the total 1.328 million employed – while industry (which includes transport, electricity and gas supply, mining and quarrying as well as manufacturing), dropped from 20% to 15% over the same period.

Approximately 160,000 additional jobs are created indirectly by, and are therefore reliant upon, the manufacturing sector. Whereas the average is 74 additional jobs created per 100 manufacturing jobs, sectoral differences are evident. The Pharmaceuticals sector sustains 137 services jobs per 100 manufacturing jobs, and Publishing/Print and Recorded Media 208<sup>15</sup>.

<sup>14</sup> The NACE code Electrical and Optical Equipment has been disaggregated to show ICT and Medical Technologies/Precision Equipment separately.

<sup>15</sup> Secondary Employment relating to Manufacturing, Forfás (unpublished) March 2007

**Figure 1.2: Employment by Broad Sector<sup>16</sup>**



Source: CSO

### 1.2.2 Sectoral Variations

The last decade has seen an increased concentration of manufacturing activity in four areas: Food and Drink; Electrical and Optical Equipment (which includes ICT and Medical Devices); Chemicals/Pharmaceuticals and Print/Recorded Media (a sub-sector within Pulp, Paper and Paper Products).<sup>17</sup> Together, these four areas account for 65% of all manufacturing employment and 85% of manufacturing GVA.

The relative employment shares of the manufacturing sub sectors remained quite stable over the period 1995 to 2006, with a few notable exceptions. A large fluctuation in the employment level of the electrical and optical equipment sector (which has been subdivided here into the broad headings of ‘ICT’ and ‘Medical Devices’) can be explained by the spike in ICT employment which coincided with the dotcom boom around 2000. In contrast with this spike in ICT was the more consistent employment growth in the medical devices sector, which doubled in size between 1995 and 2006 (Figure 1.3 overleaf).

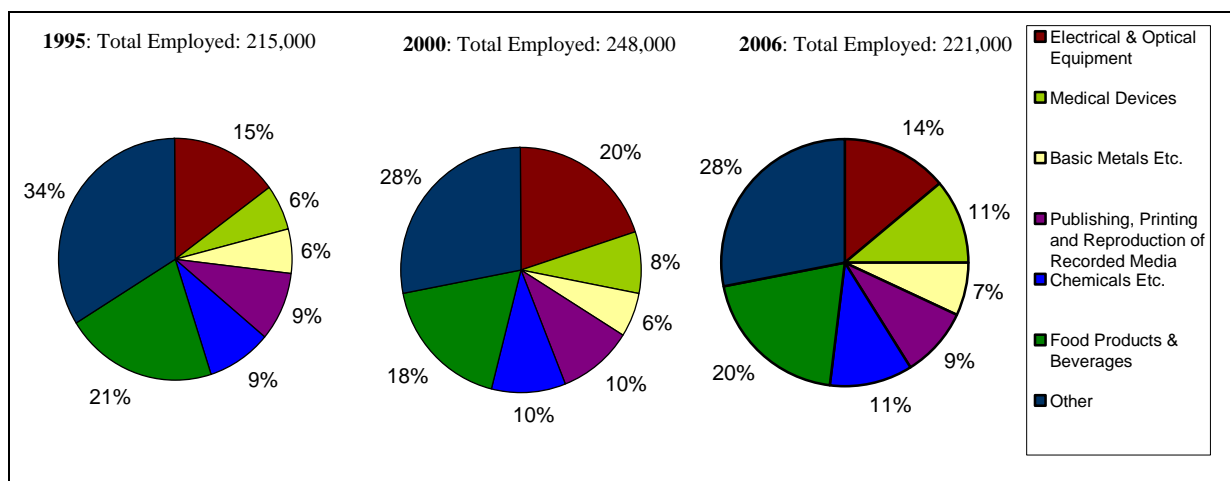
Also notable is the demise of the textile industry. From being the 3<sup>rd</sup> largest manufacturing sub sector (in employment terms) in 1995, with almost 9,000 employees, this low skill, cost sensitive industry has all but disappeared from the industrial landscape today, employing less than 2,000 people. This story contrasts with the development of the chemicals industry, which, in 1995 accounted for a similar portion of employment as the textile industry. Steady growth over the period

<sup>16</sup> It is not possible to isolate Manufacturing employment from Industrial employment at broad sectoral level for 1996 and accordingly the data shown relates to overall Industrial employment for both years

<sup>17</sup> The latter 3 areas are often referred to as “modern manufacturing”

since 1995 has seen this high value sector of manufacturing become one of Ireland's key industries, employing more than 24,000 people.

**Figure 1.3: Manufacturing Employment by Sub Sector for Agency Supported Companies, selected years<sup>18</sup>**



Source: Forfás ABSEI

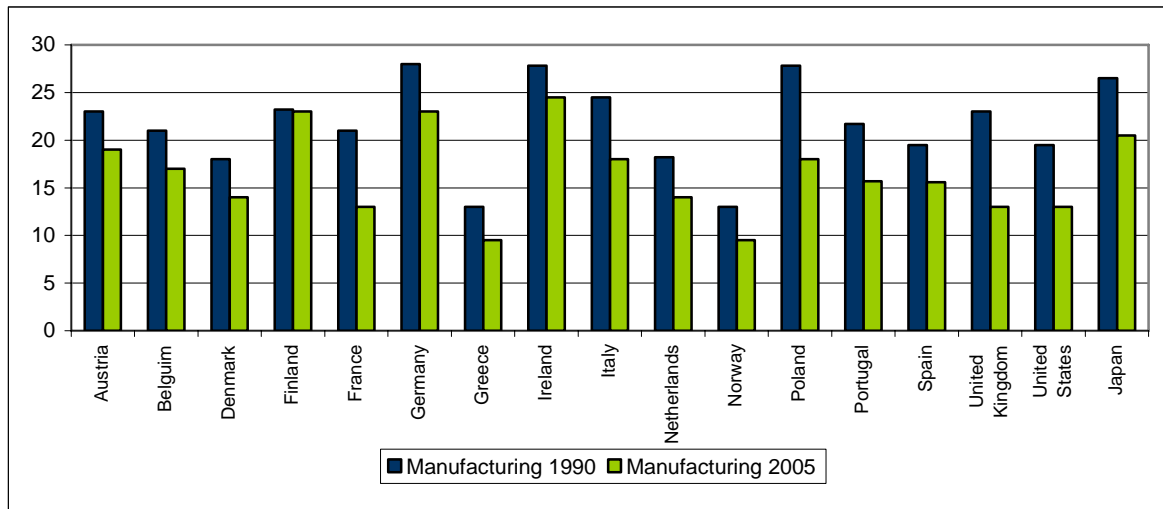
Other sectors which show growth in employment levels over the period include the Basic Metals/Fabricated Metal Products sector and the Wood/Wood Products sector. However, job gains in these areas may be related to the construction industry boom and as such may be susceptible to a downturn in that sector.

### 1.2.3 Output and Productivity

Manufacturing as a percentage of total GVA has declined in a number of OECD countries with the exception of Finland (Figure 1.4 overleaf). While Ireland has followed this trend, manufacturing still accounts for a greater share of total GVA (24.5% in 2005) than that of any of the other countries shown.

<sup>18</sup> The 'Medical devices' sector is normally classified under the 'electrical and optical equipment' heading within the NACE codes, but has been separated out to more accurately reflect the decrease in employment in ICT and increase in Medical Devices over the period 2000-2006

**Figure 1.4: Manufacturing Contribution to GVA (Selected OECD Countries)** <sup>19</sup>

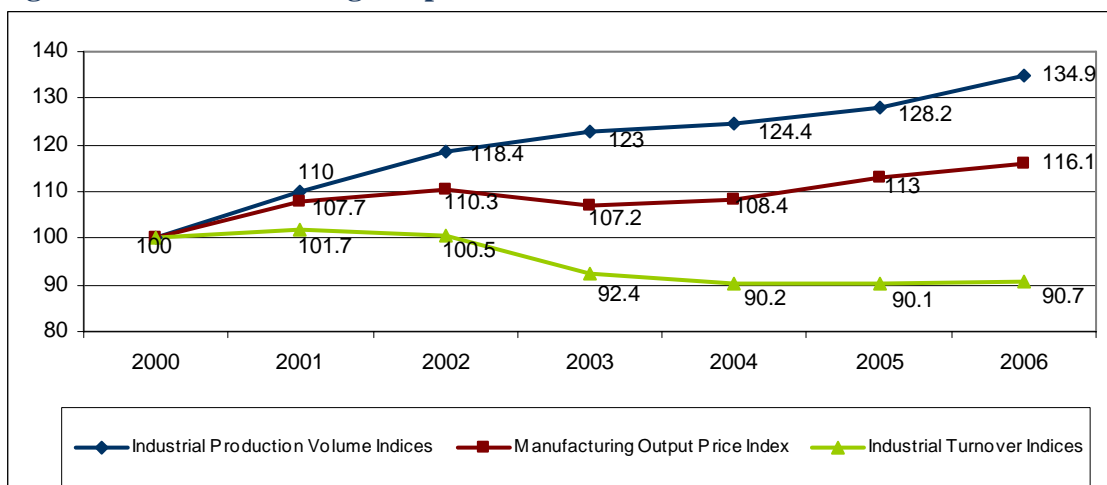


Source: OECD

Although there has been a decrease in manufacturing's relative contribution to GVA, there has been strong growth in real output of 35% (in volume terms), over the period 2000 and 2006<sup>20</sup>. However, while volume growth has increased substantially since 2000, manufacturing turnover has not increased at the same pace, rising by 16% from 2000 to 2006. This reflects the fact that the average price received for manufacturing goods has fallen by 9% since 2000 (Figure 1.5).

The fact that manufacturing production continued to increase while employment dropped over the same period points to strong productivity growth in the sector.

**Figure 1.5: Manufacturing Output**



Source: CSO

<sup>19</sup> Source OECD in Figures 2002 and 2007

<sup>20</sup> Latest figures available

### 1.2.4 Sectoral Variations

Table 1.1 shows the change in employment and GVA for all sectors over 1995 to 2006 and highlights the growing importance of the four major sectors which in 2006 accounted for 65% of manufacturing employment and 85% of manufacturing output.

The predominantly foreign owned sectors Chemicals /Pharmaceuticals and Electrical / Optical Equipment account for 54% of output in 2006 and 36.5% of manufacturing employment.

The performance of the Food and Drinks Sector, in which indigenous firms predominate, is noteworthy in that in 1995 the sector accounted for almost 20% of manufacturing output but declined considerably to 12% in 2000 and has since recovered strongly to the point where this sector accounts for 17%.

**Table 1.1: Percentage Contribution of Manufacturing Sectors to Total Manufacturing Employment and GVA**

	1995		2000		2006	
	Empl. %	GVA %	Empl. %	GVA %	Empl. %	GVA %
<b>Food Products and Beverages</b>	<b>20.8</b>	<b>19.9</b>	<b>17.6</b>	<b>12.1</b>	<b>19.8</b>	<b>17.0</b>
Textile and Textile Products	8.9	2.9	3.8	1.0	1.9	0.7
Leather and Leather Products	0.7	0.2	0.3	0.1	0.1	0.0
Wood and Wood Products	2.0	1.0	2.2	1.0	3.0	1.2
<b>Pulp, Paper and Paper Products etc<sup>21</sup></b>	<b>8.7</b>	<b>10.4</b>	<b>9.7</b>	<b>15.2</b>	<b>8.7</b>	<b>14.5</b>
<b>Chemicals Pharmaceuticals etc</b>	<b>8.6</b>	<b>27.6</b>	<b>9.5</b>	<b>32.8</b>	<b>11.3</b>	<b>32.5</b>
Rubber and Plastic Products	4.2	2.4	4.1	1.6	4.4	1.6
Other Non-Metallic Mineral Products	4.1	4.2	4.5	3.2	4.9	2.7
Basic Metals / Metal Fabrication Etc	6.0	3.4	6.0	3.3	7.3	3.0
Machinery and Equipment, N.E.C	6.5	3.9	5.8	2.4	4.9	2.5
<b>Electrical and Optical Equipment<sup>22</sup></b>	<b>20.9</b>	<b>20.1</b>	<b>28.3</b>	<b>24.5</b>	<b>25.2</b>	<b>21.4</b>
Transport Equipment	4.3	2.0	4.1	1.5	3.8	1.6
Manufacturing N.E.C.	4.2	2.1	4.0	1.2	4.6	1.4
<b>Manufacturing Industries (NACE 15-37)</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
Contribution of the Four Main Sectors	59.0	78.0	65.1	84.6	65.0	85.4

Source: CSO

<sup>21</sup> Includes Print & Reproduction of Recorded Media

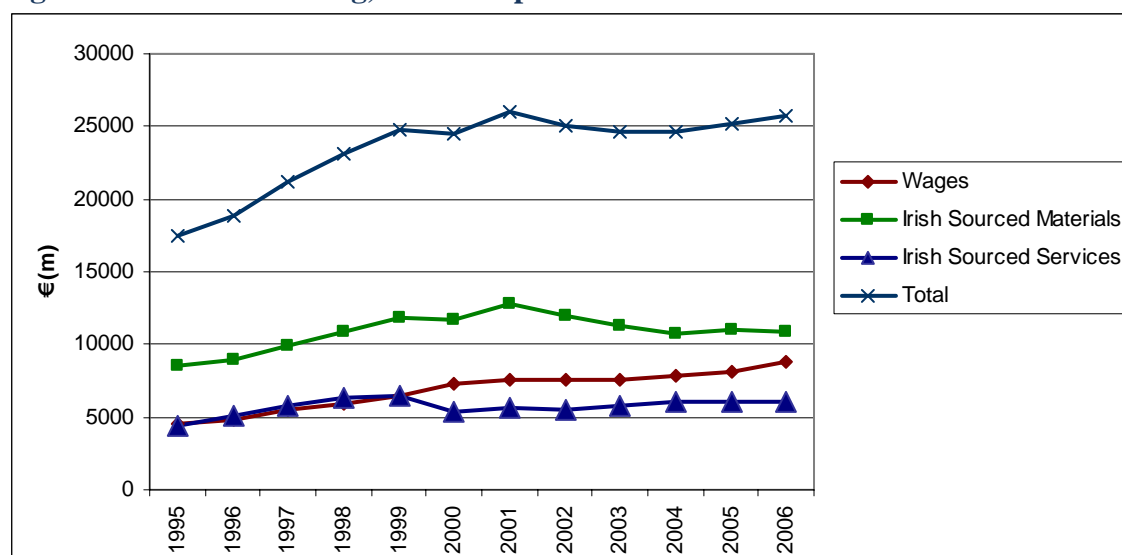
<sup>22</sup> Includes ICT and Medical Devices

### 1.2.5 Expenditures – Contribution to the Economy

The manufacturing sector makes a valuable contribution to the Irish economy in terms of expenditures on wages, and Irish-sourced materials and services. The combined spend by the manufacturing sector amounted to €25.7 billion in 2006 and has been relatively consistent since 1999. Irish companies contributed to over half of this total in 200.

The slight reduction in the level of materials sourced in Ireland since 2001 may be explained to some extent by the off-shoring of low-margin ICT manufacturing activities to lower-cost locations (Figure 1.6).

**Figure 1.6: Manufacturing, Direct Expenditures**



Source: Forfás Agency Data

Manufacturing companies also provide for a large share of corporation taxes, contributing €1.6bn, or 30% of the total corporation tax yield in 2005. MNCs are responsible for over 90% of the total corporation tax receipts from manufacturing (Table 1.2).

**Table 1.2: Corporation Tax from Manufacturing by Sector 2003/2005**

	2003 (€K)	2004 (€K)	2005 (€K)
Total Corporation Tax Manufacturing	1,605,400	1,634,200	1,654,000
Total Corporation Tax Yield	5,161,000	5,332,000	5,492,000
Manufacturing as % Total Yield	31.10%	30.60%	30.10%

Source: CSO



### **1.3 Ireland's Performance in Context**

Manufacturing activities play an important role in Ireland's economic structure, and will continue to do so. The trends experienced by the sector in Ireland have occurred within the context of significant global change. These include the opening of new markets, the increased pace of technological advances, the transition toward servicisation and changing global business models and supply chains. The next chapter describes these global trends in more detail and leads to a broader definition of manufacturing for the future.

## **2 The Business Environment : Trends, Challenges and Opportunities**

- The increased pace of globalisation has resulted in intensified competition between and within firms.
- Advances in technology have enabled new global business models and supply chains that are disaggregated, and dispersed to locations where it makes economic sense. This presents opportunities for companies to focus on developing distinctive competences within the global supply chain, new products, services and solutions.
- There is an increasing blurring of the former distinction between manufacturing and services as we see companies producing innovative products, services and solutions tailored to a customer's specific requirements.
- There is an urgent need to tackle Ireland's loss of cost competitiveness.
- In a developed higher-cost economy like Ireland, increasing productivity and innovation within firms is crucial if manufacturing firms are to be successful on a global stage.
- The definition of high value manufacturing today encompasses a broad range of activities from research and development through design, production, logistics and distribution to marketing and after-sales services.

### **2.1 Overview**

In this chapter we consider major global trends, exploring the challenges they pose and opportunities they present for manufacturing companies in Ireland. We also look at the domestic environment and the challenges presented within the global context.

These global and domestic factors both influence the responses required to ensure that Ireland's manufacturing sector continues to evolve and develop.

## 2.2 Global Factors

### 2.2.1 *Increased Pace of Globalisation*

Markets have become much more open and competition has intensified significantly over recent years. The value chain is increasingly disaggregated with activities distributed to locations that make the most economic or strategic sense. Advances in technology enable communication and management to take place on a global scale, and underpin new business models and innovative products, services and solutions.

#### *Intensified Competition for Inward Investment*

The clearest demonstration of the benefits to Ireland from globalisation is illustrated by inward FDI. This has been one of the principal drivers of the strong economic performance of Ireland over the last two decades. As Ireland has gained from the mobility of investment, competition from other locations has intensified.

That said, Ireland remains attractive for investments in capital intensive, high value, low labour intensive activities, and for sectors where the regulatory framework and/or compliance issues are a high priority. In addition to attracting FDI, IDA Ireland has placed significant focus on embedding existing multinational enterprises in Ireland, by encouraging them to increase the scale of activities, and to expand the range of activities undertaken. Such skills and knowledge intensive activities include R&D, supply chain management, technical support and headquarter functions.

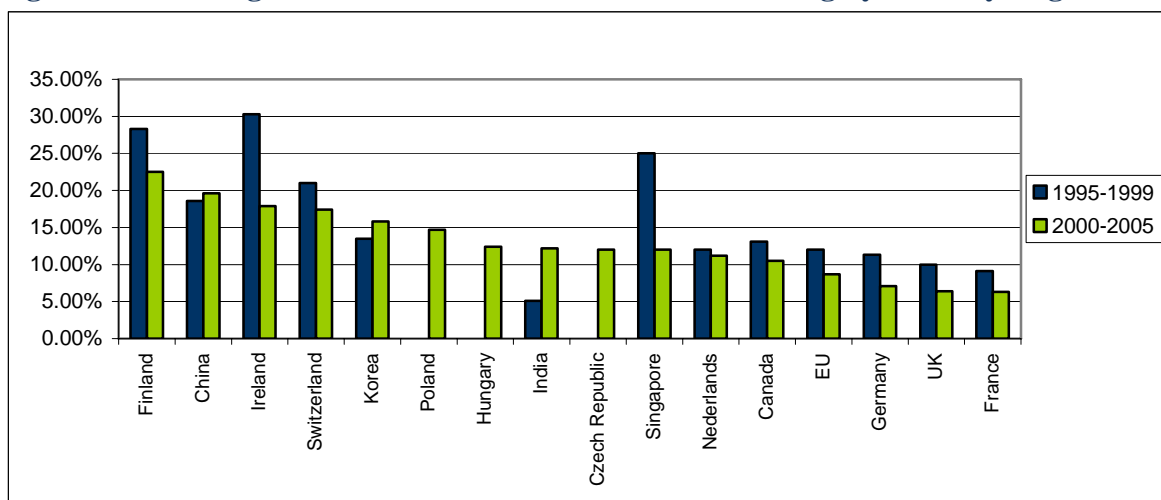
Although the rate of return on FDI investment in the Irish manufacturing sector compares favourably with the EU average, it has slipped significantly from an average of 30.3% in the 1995-99 period (ranked 1 of those benchmarked) to 17.9% in 2000-2005 (ranked 3)<sup>23</sup> (Figure 2.1 overleaf). At the same time the rate of return in a number of other countries is improving significantly. Ireland continues to punch above its weight when it comes to attracting overseas investment, but if these trends continue Ireland will drop quickly down the rankings.<sup>24</sup>

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<sup>23</sup> Forfás/US Bureau of Economic Analysis

<sup>24</sup> The first National Irish Bank/OCO Investment Performance Index

**Figure 2.1: Average Return on Investment in Manufacturing by Country/Region<sup>25</sup>**



Source: Bureau of Economic Analysis, US

### *Increased Competition for Investment within Multinationals*

The reality of the business world means that there is ongoing churn as mature products reach the end of their life cycle and are replaced by next generation products – and as products become commoditised relocation to other lower cost locations makes economic sense. Apart from costs, relocation decisions can also be as a result of business takeovers, consolidations or changes in product or market focus.

From the Irish subsidiary’s perspective this reality presents a challenge, as they compete with other divisions or subsidiaries of their own companies to retain existing functions and attract new investment. It also presents an opportunity to develop higher-end manufacturing and related activities.

In this context, it is essential for the Irish based subsidiary to invest in productivity improvements and innovation and to engage in activities and functions that are critical to the parent company, so that the Irish entity plays a more strategic role.

### *Opportunities for Internationalisation and Outward Investment*

The expansion of the EU, successive rounds of WTO trade liberalisation and the ending of old political divisions have seen the emergence of countries and regions such as China, India, Russia

<sup>25</sup> Data for Poland, Hungary and Czech Republic is unavailable for the period 1995-1999

and Eastern Europe as major new markets. This has presented new business opportunities for Irish manufacturing companies to expand their operations overseas.

Outward Direct Investment (ODI) has grown significantly over the period 2000 to 2005 when it reached \$117.9 billion – with manufacturing being the most common activity by subsidiaries of Irish companies overseas. Anecdotally, it is said that there are about 90,000 people employed in Irish owned businesses based in the US alone.

Irish companies invest overseas not only to internationalise and pursue opportunities in new markets, but also to access lower cost inputs, and/or to maintain international competitiveness and the long term sustainability of the company.

Although there is considerable debate regarding the impact of ODI, a recent statement by Forfás<sup>26</sup> indicates that it is largely beneficial for the economy. ODI can facilitate the Irish operation to restructure toward higher skills, higher value activities which result in improved productivity and wealth creation.

While the net impact of ODI is positive for Ireland's economy, there are potentially negative effects, as in some instances it can be accompanied by job losses. The employment churn that can arise from ODI has implications for those in low skilled jobs in areas where opportunities for alternative employment in different industries or sectors are not readily available.

### *Increased Competition for Investment Domestically*

As well as competing for investment with foreign locations, the manufacturing sector competes for funds domestically with other sectors of the economy. It appears that the negative perception surrounding the future of manufacturing is discouraging potential investors while the recent high returns in property have attracted significant amounts of investment (although there is now evidence of a slow down in the property market).

This issue is principally relevant for indigenous firms that are at a growth phase, and require funding as they attempt to increase scale and capacity, so that they can more effectively target market opportunities.

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<sup>26</sup> Forfás Statement on Outward Direct Investment, November 2007

### ***2.2.2 Shift toward Global Supply Chains***

Globalisation has been accompanied by a fundamental change in our concept of manufacturing. Each function of a manufacturing process - from design through procurement, production, logistics, marketing and sales to after-care service - can be devolved to its most efficient location. Manufacturers increasingly see themselves as managing a global supply chain or 'virtual network' that may consist of any combination of these activities, whether or not provided by the manufacturer itself.

Disaggregated supply chains offer opportunities for companies to assess where they best 'play' within this context. It enables them to focus on core competencies and to differentiate and/or specialise in their product offering.

This shift to global supply chains also has implications for the way in which business is conducted, through different business models involving licensing or franchising or whereby companies partner with others to deliver a final product or solution. It raises strategic questions about location, outsourcing, markets, branding, partnering and differentiation for firms in a global context.

Smaller innovative companies that are open to the possibilities and 'think global' will benefit significantly from the potential offered.

### ***2.2.3 The Blurring of Manufacturing and Services***

The traditional distinction between manufacturing and services, both in relation to products and indeed, the actual companies themselves, is becoming less clear. Many successful manufacturers now combine a product with a value-added service and provide tailored solutions to meet a customer's specific needs. In relation to products such as the I-pod, I-phone and countless others from medical devices to engineering systems it is no longer obvious whether these are service-enhanced products or product-enhanced services. While a manufactured product may be at the centre of business, often there will be more people working on service support, technical information and a range of other services that add value.<sup>27</sup>

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<sup>27</sup> This increased blurring between the traditionally segmented activities has implications for data and trend analysis, and it is difficult to assess the extent to which (if any) the manufacturing trends outlined in Chapter 1 are impacted

### ***2.2.4 Productivity and the Role of Technology***

As a developed and higher cost economy, a focus on increasing productivity is essential if we are to compete effectively on the global stage. Advances in technology have had a demonstrative impact on manufacturing in a number of ways. Productivity gains can be achieved through investment in skills and automation and through the application of technology and process improvements across all elements of the business cycle. Process innovation in production is enabled by automation and robotics, signal processing and production control underpinned by high speed information and communications systems.

When we consider how manufacturing is evolving, it is likely that we will see firms in Ireland increasingly engage in early stage production runs (pilot / Beta testing) aligned with new product and process development. The nature of production will require increased focus on agility and anticipation to permit flexible small-scale or even single batch production, enabled by the integration of affordable intelligent technologies and process control.

Since 2000 productivity in the Irish manufacturing sector has grown by 35% which represents an outstanding performance (although the performance across sectors and companies has varied quite significantly). Going forward success in manufacturing will increasingly depend on the ability of all firms across all sectors to integrate new technologies rapidly into both products and operations.

### ***2.2.5 Sectoral Convergence***

There is evidence that formerly discrete sectors are converging, driven by customer demand, and largely enabled by advances in technologies. Personalised medicine, remote diagnostics and combination products such as drug eluting stents are enabled by the convergence in pharmaceuticals, medical technologies and electronics. The digital content sector has emerged as a result of convergence across media content, software and telecommunications.

Developments in convergence have implications for manufacturing firms in a number of ways. Manufacturing processes will become more complex, e.g. incorporating biological components (in pharmaceuticals and food sectors) or in combination products (e.g. across pharmaceuticals and medical devices). Together with manufacturing processes, implications for firms include the need to gain a knowledge of Intellectual Property rights, licencing arrangements, regulations and standards. The need for multi-disciplinary skills becomes more prevalent.

### ***2.2.6 The Increased Focus on Environmental Issues***

There is an ever increasing focus on global warming and environmental issues, and it is difficult to assess what the longer term implications of this trend might be for industry in terms of energy usage, emissions, product standards, transport and logistics etc. At a European level, negotiations have resulted in the establishment of national targets for reduction of carbon emissions. Policy instruments such as emissions trading, carbon taxes, and other regulations are being considered to stimulate the change required by firms and consumers to achieve these reductions.

This focus on environmental issues also presents an opportunity for companies to gain advantage over competitors by making more efficient use of energy resources, and by developing and/or adopting environmentally friendly products, materials and services.

## **2.3 Domestic Factors**

### ***2.3.1 Competitiveness and Costs***

Ireland's strong economy growth in more recent years has been driven by non-sustainable domestic factors - such as personal consumption and construction rather than international competitiveness. While Ireland still ranks among the most competitive economies in the world, our competitiveness rankings have fallen in recent years. In the World Economic Forum report for 2006, Ireland is ranked 21<sup>st</sup> of 125 countries - a fall of 16 places since 2000.

Maintaining and improving living standards will depend on improving our competitiveness performance through reinstating export led growth. The manufacturing sector has a significant contribution to make in this regard.

A range of policies is being pursued to enhance competitiveness and improve the business environment for manufacturing. These include, tackling infrastructure deficits, improving the quality of regulation, education and skills development, and fostering innovation and enterprise development.

However, the immediate challenge facing the sector is the loss of cost competitiveness. In the period between 2000 and 2006 Ireland experienced a 15% loss in international price competitiveness



reflecting a combination of higher price inflation in Ireland and of Euro currency appreciation against the exchange rates of many of our trading partners<sup>28</sup>.

The rate of inflation in recent years has been consistently higher than that of our European and competing counterparts and has impacted on companies' ability to compete effectively in global markets. Ireland has been in a period of 'catch up' during its recent phase of high economic growth which had some influence on the rate of inflation. We would anticipate that, going forward, inflation should be more closely aligned to that of the developed economies.

This does not take away from the fact that in a number of cases, actual prices are now higher relative to those more developed countries with which we compete for FDI. At the same time, our manufacturing sector faces intense competition from companies operating in markets and environments with a much lower cost base. For Irish firms targeting export markets (particularly the UK and US) currency fluctuations coupled with increased cost inputs present a real challenge.

We acknowledge that some of the cost increases suffered in recent years are outside Government's control (for example high oil prices). There is a need, as a matter of urgency, to examine and actively address the factors within our own economy that are driving inflation.

The costs of energy, waste, local authority charges and local professional services are particularly relevant to the manufacturing sector.

### *Energy*

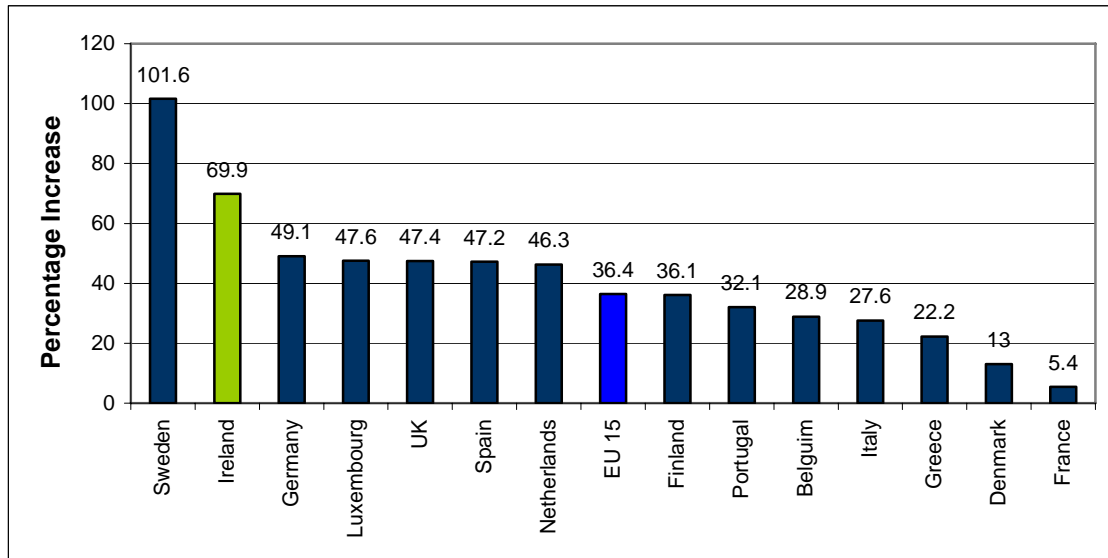
A stark example of the cost increases relative to our competitor countries was presented in Forfás' *An Electricity Benchmark Report*, published in November 2007. It showed that although many countries experienced significant increases in energy prices between 2001 and 2007, Irish industrial electricity prices (excluding VAT but including other taxes) increased by almost 70%. This is almost twice the increase in the EU-15 average of 36.4% (Figure 2.2 overleaf)<sup>29</sup>.

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<sup>28</sup> Eurostat, Economy and Finance Indicators, 2006

<sup>29</sup> Sweden recorded the highest increase during the period 2001-2007, albeit from a low base. Industrial electricity prices in Sweden remain among the lowest in the EU-25

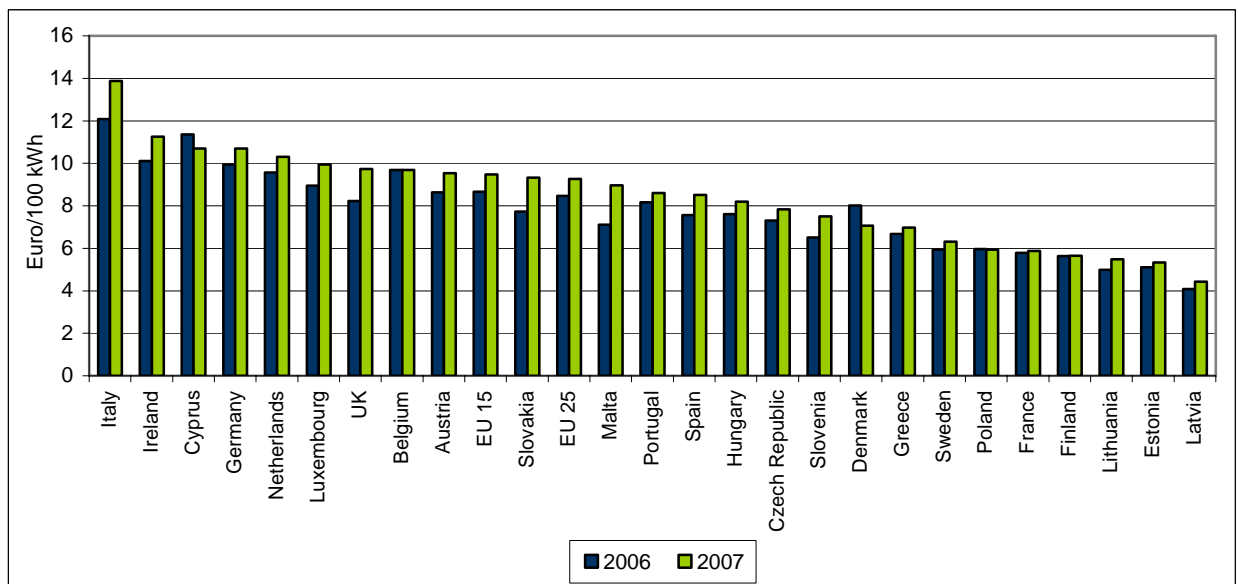
**Figure 2.2: Percentage Increase in Industrial Electricity Prices in the EU-15<sup>30</sup> January 2001 to 2007**



Source: Eurostat

In January 2007, industrial electricity prices in Ireland were the second highest in the EU-25, and were 18.7% above the EU-25. This was a disimprovement over the previous year when Ireland's prices were third highest in the EU-25 and 16.7% above the EU-25 (Figure 2.3).

**Figure 2.3: Ireland's Industrial Electricity Prices 2006 & 2007**



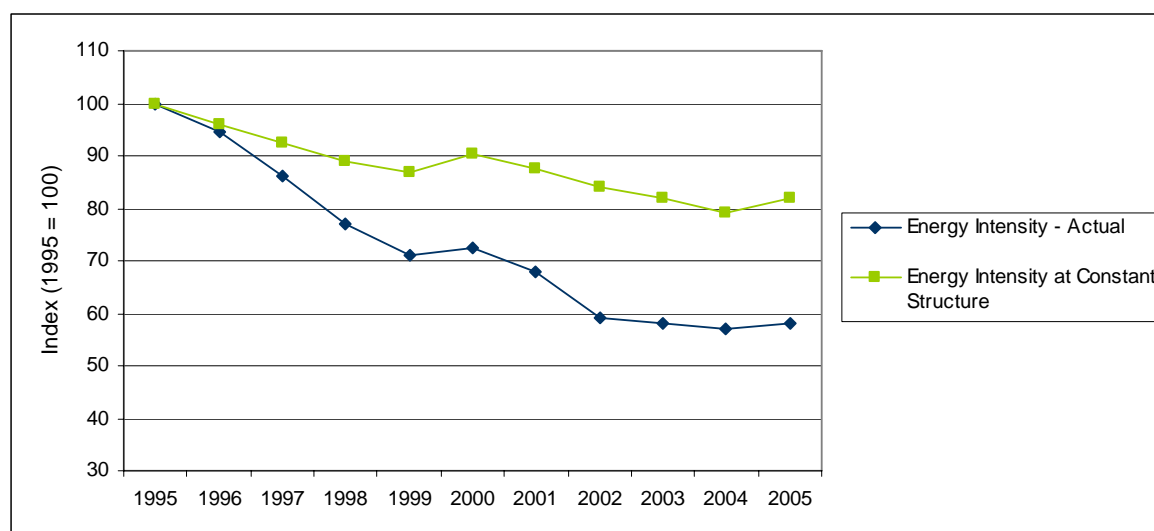
Source: Eurostat

<sup>30</sup> Excl. VAT but incl. Other Taxes

## Energy Efficiency

Ireland has made progress in creating a more energy-efficient economy. Between 1990 and 2005, the value added of industry grew by 224% while industrial final energy consumption grew by only 45%. This resulted in the energy intensity of industry declining by 43% over the period (Figure 2.4). 68% of this decline can be attributed to changes in the structure of Irish industry<sup>31</sup>, with the remainder being due to changes in the fuel mix, economies of scale and behavioural changes.

**Figure 2.4: Index of Energy Intensity of Industry, 1995 to 2005**<sup>32</sup>



Source: SEI

This is a start, but significant challenges still remain if we are to effectively reduce industry's carbon footprint. In October 2007, the Department of Communications, Energy and Natural Resources published its consultation paper on the first National Energy Efficiency Action Plan for Ireland 2007-2020<sup>33</sup>.

## Waste Management for Enterprise

Ireland continues to perform poorly relative to a selection of competitor countries in meeting the waste management needs of enterprise, according to the report *Waste Management in Ireland : Benchmarking Analysis and Policy Requirements*<sup>34</sup>. In terms of waste treatment costs, while

<sup>31</sup> Examples of the structural changes in industry which resulted in a reduction in energy intensity were the closures of steel production (Irish Ispat) and fertilizer manufacture (Irish Fertilizer Industries)

<sup>32</sup> Actual energy intensity is considered a crude indicator as it does not take other factors such as economic, structural, technical, and behavioural issues into account. Energy intensity is defined as the amount of energy required to produce some functional output and in the case of industry, it measures the amount of energy required to produce one euro of value added

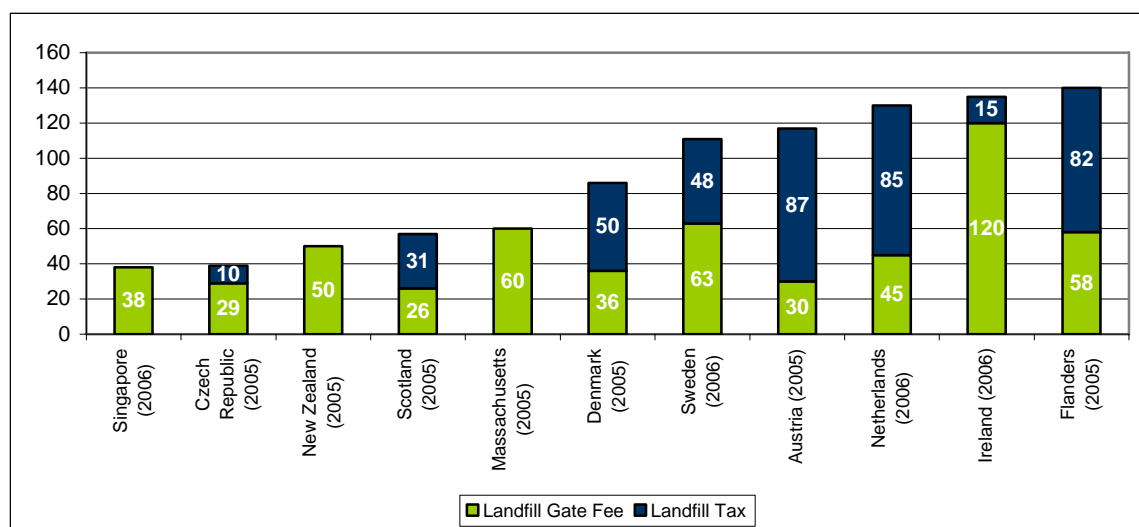
<sup>33</sup> <http://www.lcea.ie/docs/2007/November/NationalEnergyEfficiencyActionPlan.pdf>

<sup>34</sup> Forfás, March 2007

landfill gate fees are levelling off, Ireland is the second most expensive country for non-hazardous landfill among the benchmark comparators<sup>35</sup> (Figure 2.5).

Landfill remains the primary waste treatment solution for Ireland and Scotland, and in 2005, Ireland disposed of 65% of its municipal waste in landfill, the second highest rate among the benchmark countries.

**Figure 2.5: Landfill Gate Fees (€) for Non Hazardous Waste**



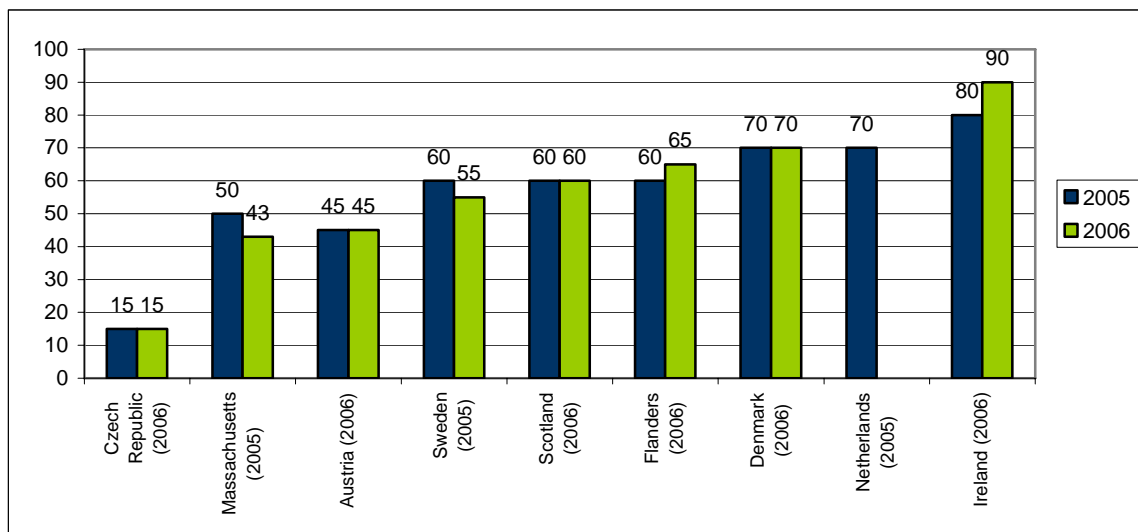
Source: SEI

Ireland remains the most expensive of the benchmark countries for biological waste treatment gate fees and, following cost increases from €80 per tonne in 2005 to €90 in 2006, is now significantly above the benchmark countries (Figure 2.6 overleaf).

Biological treatment is a preferred waste hierarchy treatment solution and these facilities can contribute significantly to diverting material from landfills and achieving recycling targets. The fees given represent the current costs for the treatment of municipal and industrial bio-waste.

<sup>35</sup> The benchmark comparators are: Massachusetts, Singapore, Denmark, Scotland, Flanders, Sweden, Czech Republic, Austria

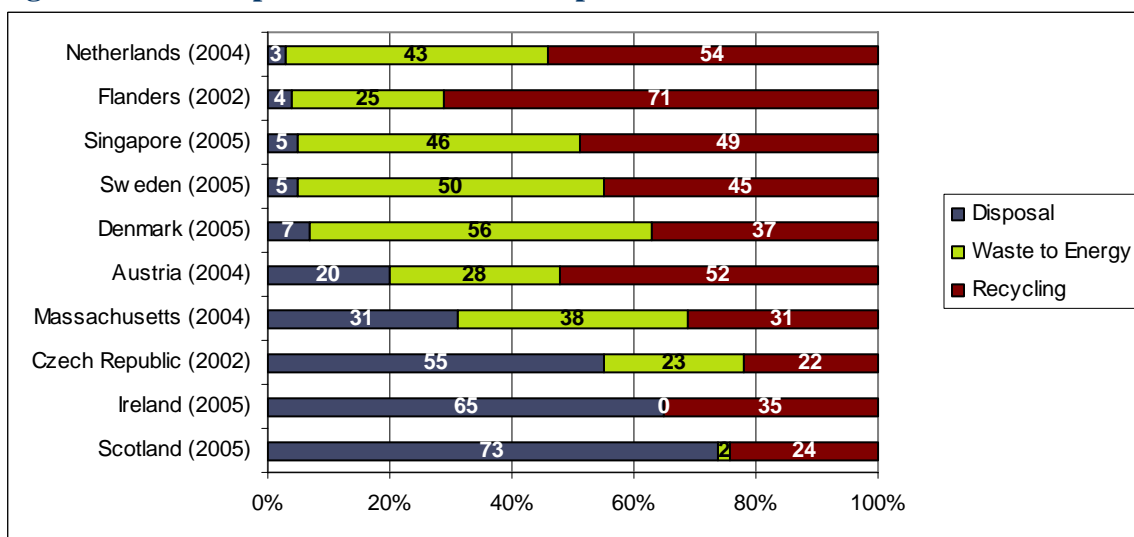
**Figure 2.6: Biological Treatment Gate Fees**



Source: SEI

Ireland is still highly dependent on landfill to treat municipal waste, although the rate of municipal waste recycling in Ireland has improved in recent years<sup>36</sup>. In 2005, Ireland disposed of 65% of its municipal waste in landfill, the second highest rate of all the benchmark countries. In contrast, the top five ranking countries/regions treated, on average, just over 5% of their municipal waste in landfill. The Netherlands, Flanders and Singapore process the bulk of their waste using waste to energy and recycling treatment options. Ireland is the only country benchmarked where waste to energy plays no role in treating municipal waste (Figure 2.7).

**Figure 2.7: Municipal Waste Treatment Options**



Note: No new data was available for the Czech Republic.

Source: SEI

<sup>36</sup> The municipal recycling rate was 9% in 1998

### *Local Authority Charges*

The increased levels of service in recent years have resulted in large increases in local authority current expenditure – total expenditure on services increased by 114% between 1996 and 2004.

Specifically expenditure on:

- environmental protection increased by 177.7%
- road transportation and safety increased by 118.9%
- water supply and sewage increased by 120.3%.

Development charges are contributions paid to a local authority toward the cost of infrastructure that facilitates development, and are levied on both domestic and industrial properties. Income from development contributions has steadily increased over the period 1994 to 2003 from a total of €26 million to €115 million over the period (Table 2.1).

**Table 2.1: Percentage change in the Sum of Development Contributions: 1997-2002**

Year	Total Sum of Development Contributions Received (€m)	Annual % Change in Development Contributions Received	Cumulative % Increase
1992	20.2	0%	0%
1993	19.7	-3%	0%
1994	26.1	33%	30%
1995	28.4	9%	39%
1996	45.9	62%	101%
1997	57.8	26%	127%
1998	66.3	15%	142%
1999	87.2	31%	173%
2000	110.4	27%	200%
2001	122.0	11%	211%
2002	151.0	24%	235%
2003	215.4	43%	278%

Source: Department of Environment, Heritage and Local Government, Planning Statistics 2003

We would expect development charges to have increased based on the significant construction activity over recent years. However, analysis undertaken by Chambers Ireland (2006)<sup>37</sup>, indicates that the percentage increase in contributions is significantly higher than that which might be justified based on scale of development<sup>38</sup>.

There is also considerable lack of transparency as to the basis for calculation that would provide an explanation for the significant difference in charges applied by different local authorities. Charges per metre squared (M<sup>2</sup>) for industrial premises ranges from €6.50 per M<sup>2</sup> (industry, distribution warehousing) in Galway and €7.25 per M<sup>2</sup> in Kerry to the higher end of the scale of €17 per M<sup>2</sup> in Dublin City and €14 in Limerick.

### *Local Professional Services*

As manufacturing firms compete on global markets, the costs of inputs sourced from domestic markets have a direct impact on their final product pricing structures. Of particular concern to manufacturing firms are costs of professional services, including legal, audit and accountancy services. The recent Annual Competitiveness Report (published by the National Competitiveness Council in November 2007) demonstrates that Dublin is the most expensive against benchmarked cities for legal fees, and the four main cities in Ireland are more expensive than Belfast, Derry, Manchester or Copenhagen for accountancy fees (Figures 2.8 (i) and (ii) overleaf).

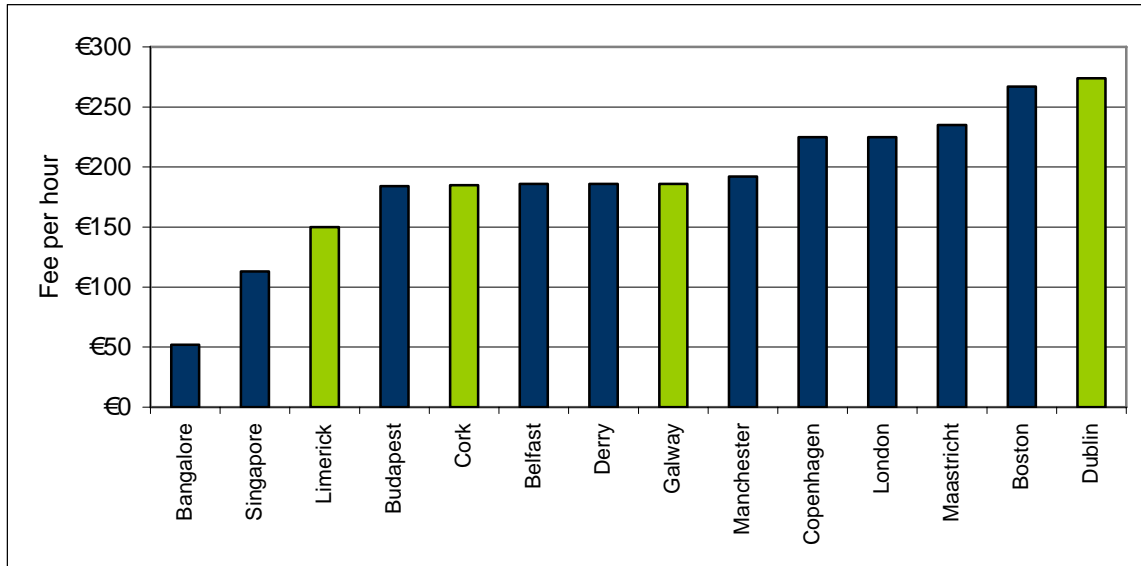
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<sup>37</sup> Development Charges for Business-2006, Chambers Ireland <http://www.chambers.ie/index.php?id=344>

<sup>38</sup> Chambers Ireland has used floor area and numbers of planning decisions as a proxy for scale of development in its report Development Charges for Business-2006

**Figure 2.8 (i): Legal Fees per Hour 2007**

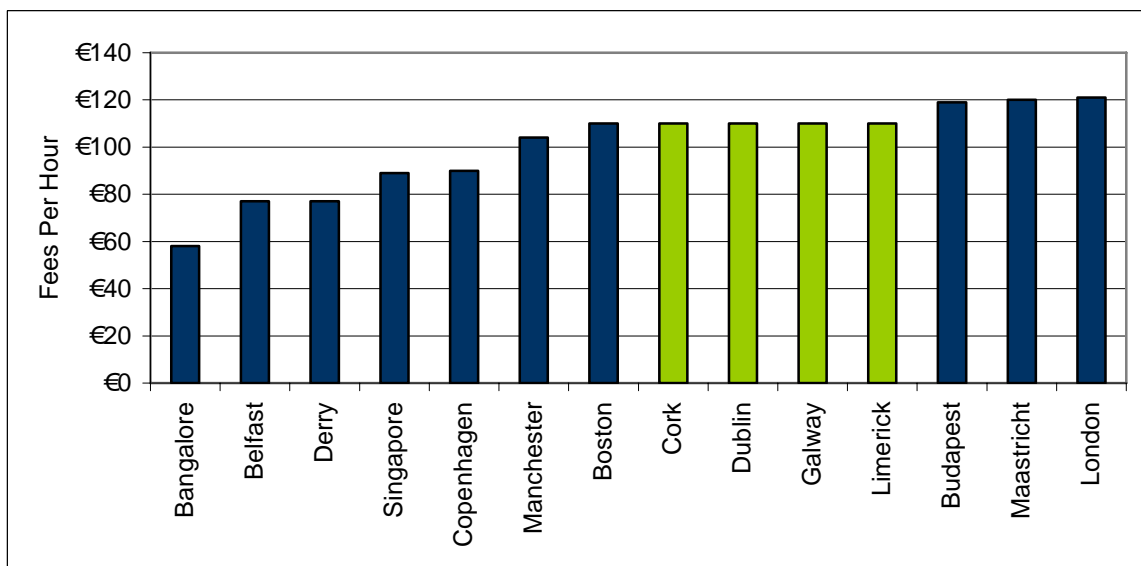
*This chart measures the fees per hour charged by a major legal company for a junior legal assistant excluding VAT. There is considerable variation between Irish cities. Ranking : Limerick 3<sup>rd</sup>, Cork 5<sup>th</sup>, Galway 8<sup>th</sup>, and Dublin 14<sup>th</sup>.*



Source: NCC, Costs of Doing Business in Ireland, 2007

**Figure 2.8 (ii): Accountancy Fees per Hour 2007**

*This chart measures junior accountancy fees per hour. Irish cities are among the most expensive for accountancy fees, significantly more expensive than Belfast, Derry or Copenhagen.*



Source: NCC, Costs of Doing Business in Ireland, 2007



### ***2.3.2 Tax as a Competitive Advantage***

Ireland's low tax regime and positive fiscal environment has been to our advantage in the past. Together with the availability of a skilled workforce, our low tax rate (on manufacturing activities initially, and standardised at 12.5% for all traded activities since 2003) played a key role in positioning Ireland as an attractive location from which to do business, and differentiated our offering from many competitor countries for FDI. The differential, however, is being eroded by the low tax rates offered in the new member states, and others such as Singapore and Puerto Rico.

Given that it is unlikely that there will be changes to our corporate tax regime, creating new competitive advantages is now the imperative. This means enhancing Ireland's education system, innovative capacity and capability, increasing productivity and developing a workforce that embraces continuous learning and that is skilled to address the needs of developing and emerging industries.

## **2.4 An Extended Definition of Manufacturing**

In summary, these trends have resulted in an evolution in manufacturing over time from a basic process of turning raw materials into finished products to where we are today. The modern manufacturing process encompasses a broad cycle of activities from research and development through design, production, logistics and distribution to after sales service (Figure 2.9 overleaf). Activities across the value chain may be located in different countries and undertaken by different companies across the world, where it makes most strategic or economic sense.

This extended definition means that manufacturing and production are not the same. Production is only one activity of a manufacturing company and it may or may not be the defining element of the company, and manufacturing companies add high value through a range of activities and functions. Production processes themselves will become increasingly complex, enabled by advances in technology, quality control, best practice models and enhanced skills.

At the same time, we should not interpret this broader definition to mean that production is no longer important. It is, and high-value added manufacturing will continue to be so in Ireland's context.

**Figure 2.9: An Extended Definition of Manufacturing**



Source: Defining High Value Manufacturing (IFM, DTI, CBI), 2006

## **2.5 The Business Environment – Building Ireland’s Advantage**

Ireland continues to attract new investment and to stimulate new start up companies. Almost 300,000 new permanent full time jobs were created in enterprise agency assisted firms since 1997 of which 185,000 were in manufacturing firms<sup>39</sup>. Having said that, challenges have intensified as we have outlined above, and the environment for manufacturing firms in particular in Ireland is difficult.

Not only is it necessary to ensure the business environment is supportive of the existing manufacturing base but it is also important that Ireland continues to evolve and enhance its distinctive advantages to compete effectively for new investment and to stimulate new indigenous start ups in manufacturing activities in the future.

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<sup>39</sup> Forfás ABSEI

The factors necessary to position Ireland as ‘a good place to do business’ include:

- The availability of a highly skilled and innovative work-force
- An environment that encourages and stimulates investment in research and development and continuous learning
- A cost base that is in line with other developed economies
- An agile and responsive Government
- Supportive fiscal, regulatory and Intellectual Property structures, and
- A high quality of life.

Ireland also benefits from the fact that it has a well recognised track record in attracting FDI, is English speaking and has a stable political environment.

Chapter 3 looks at what the extended definition of manufacturing means at the firm level. It outlines the characteristics of those firms that are successful in operating a high value added manufacturing entity. Chapter 4 identifies the actions required to improve the business environment, and to enhance operations at firm level.

### 3 High Value Manufacturing : What it Means for the Firm

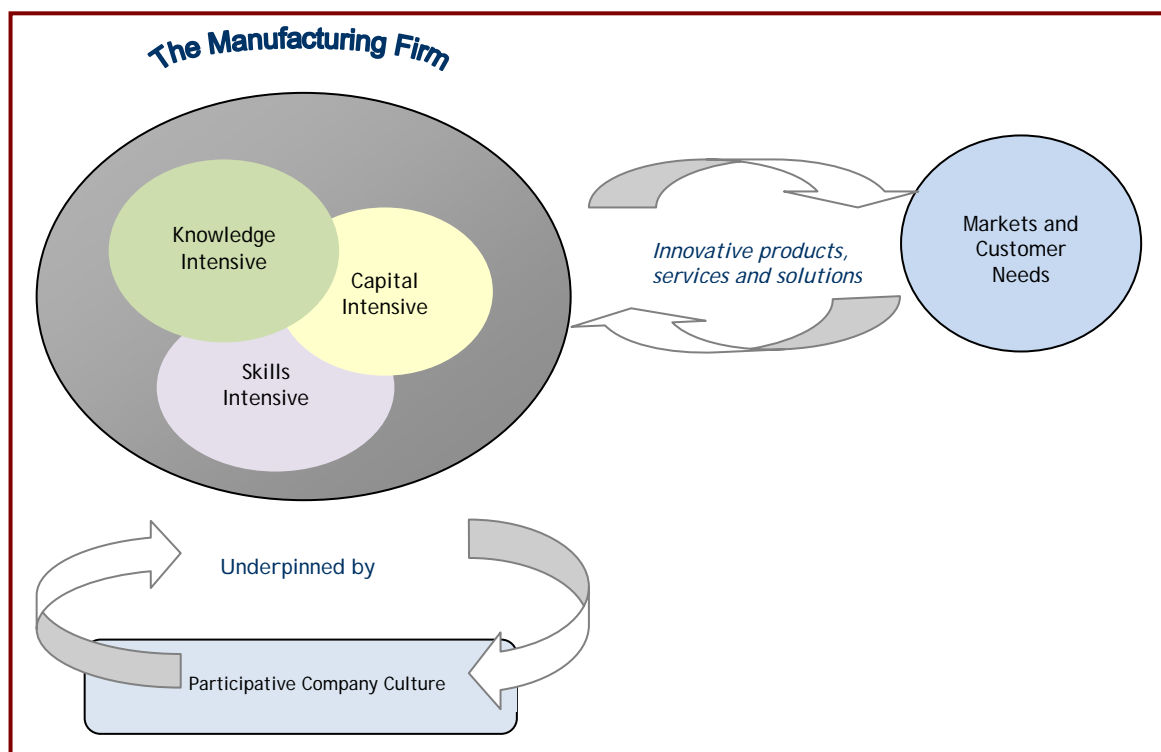
- Firms need to adjust from more traditional operational models if they are to compete effectively on a global stage where competition is intense, and opportunities are diverse
- There are a number of characteristics that are evident within high-value creating manufacturing firms:
  - They have an in-depth understanding of Markets and Customers
  - Operations are capital intensive, knowledge intensive and skills intensive
  - They actively embrace a strong participative culture
- Addressing new markets necessitates a new way of doing business within global supply chains, including (for example) partnerships, revenue sharing models and licensing
- Investment in capital equipment and leading edge technology to drive productivity through automation and computerisation is fundamental
- Innovation – including non-technological innovation - across all elements of the value chain is essential in order to gain a competitive edge through differentiation
- Continuous investment in people is vital in today's business environment: in continuous learning, reskilling and in developing management capability for the innovative organisation
- Employee involvement and empowerment is a key factor in developing the type of workplaces that will achieve success through flexibility, adaptability, innovation and problem-solving

Just as the business environment will need to continuously evolve, so too will firms need to adjust to compete effectively and differentiate their offerings. The Enterprise Strategy Group report *Ahead of the Curve: Ireland's Place in the Global Economy*, (2004) recognised that high valued added manufacturing will continue to be a key component of Ireland's enterprise base. The report highlighted that many Irish based manufacturing firms have adapted successfully to the changing model and that individual firms can (and do) operate successfully within what are sometimes referred to as 'traditional' manufacturing sectors.

There are a number of characteristics that are evident within those manufacturing companies that are successful at creating high value – and these are summarised in Figure 3.1 as:

- They have an in-depth understanding of Markets and Customer needs
- Operations are Capital Intensive – Knowledge Intensive – Skills Intensive
- The firm's strategy is underpinned by a Participative Culture.

**Figure 3.1: High Value Manufacturing in Ireland**



### 3.1 In-Depth Understanding of Markets and Customers

Often today, it is the customer who defines specific needs and the supplier delivers a tailored solution. Dell is a case in point, where an order is fulfilled to individual customers' particular

*'Manufacturing firms today need to focus on delivering a vision of something better - value and leadership to their customers.*

*Providing after sales services and responding to customer feedback are essential elements to creating a compelling and distinctive proposition....' Jim Greene, Keenan Systems, Carlow*

requirements – ranging from processor capability to memory size, monitor size, printer etc. This is somewhat different from a time when suppliers typically produced standard products at a standard price. To succeed today, businesses must be closer to their customer, building an in-depth understanding of their needs so that they can develop and deliver innovative products, services and solutions.

#### **Knowing your Customer: An Example**

*Keenan Systems was established in 1978 as a family owned company to produce highly engineered farm products. The company has implemented a number of innovative initiatives since its establishment, including world-class manufacturing practices (WCM). The company continuously invests in engineering design and R&D to improve existing products, develop new products and to reduce the costs of manufacturing. Recent plans announced in 2006 outline ambitious targets to increase turnover from current levels of €45 million to €65 million over the following three years.*

*The management team developed an in-depth understanding of issues that face their customers. Building on their core competencies in manufacturing and engineering, they developed a solution that combines the advice of a professional nutritionist, after-sales services and an enhanced product that is tailored to the particular needs of a customer. The customer realises significant benefits through increased quality, consistency, yield, cost reduction and efficiency in dairy and beef production.*

*Based on the success of their innovative solutions, the company now employs approximately 275 people (195 in Ireland) and has established subsidiaries in UK, Germany, France, the US, Denmark and Australia. It has in the region of 20,000 customers, 16,000 of whom are outside Ireland. The company has secured a leadership position in Europe, and is second in the world for its niche products and services.*

Firms that also have a deep understanding of their competitors' strategies are well positioned to take advantage of emerging opportunities with a differentiated or niche offering – not only in terms of a product, but in terms of how it is marketed, customised and delivered. Even companies that trade only on the domestic market are faced with international competitors at their door steps.

Emerging markets present significant opportunities – but also a myriad of challenges: How is business conducted? What regulations need to be adhered to? What considerations are needed in branding and marketing to a different culture? This necessitates a continuous tracking of market trends, technologies, standards, regulations and products, coupled with a regular presence in existing and potential markets. For larger firms, this is relatively easy to achieve. For smaller firms, however, the challenge is significant, given the constraints on management capacity - and in some cases management capability - and on staff and financial resources.

## **3.2 Capital Intensive – Knowledge Intensive – Skills Intensive**

### ***3.2.1 Capital Intensive***

For companies in Ireland, the global competitive environment re-enforces the need for investment in capital equipment and leading edge technology to drive productivity through automation and computerisation. Global manufacturing has been fundamentally reshaped by improvements in technology. The increase in advances in technology touch every part of the manufacturing process, enabling the development of new products, lowering of production costs, raising of quality, measurement performance and management of the business. Concepts such as 'just-in-time' and 'demand-pull' manufacturing processes and supply chain management are underpinned by developments in technology.

*'Best practice models such as Lean Manufacturing and Six Sigma are no longer a choice for companies, but essential 'table stakes' ....Frank O'Regan, Bausch & Lomb, Waterford*

Investment in capital equipment and technology is now an imperative for manufacturing firms in Ireland. As a starting point, such investment drives increased productivity and competitiveness. Used strategically, and coupled with investment in people development and training, such investment presents considerable opportunity to develop new products and processes and to reach new markets in different ways.

### **Leading Edge Manufacturing - Innovation across the Supply Chain: An Example**

*Green Isle Foods is an Irish based subsidiary of Northern Foods Plc. and produces some of Ireland's best known brands such as Goodfella's Pizza and Donegal Catch. It has full responsibility for the frozen food activities of its parent company in Ireland and the UK it employs 1,200 people in its 6 plants across the country, and has a turnover of over €280 million in 2007.*

*Its success to date can be attributed to a continual investment in capital, R&D, product innovation, brand development and customer services. It has a formalised innovation process, focusing on the customer, which includes all elements of the business:*

***Consumer Understanding:*** *Continuous and extensive research into consumer trends, habits and tastes to drive product innovation and market development.*

***Brand Development:*** *Brand integrity and messaging is crucial, and should be adapted in line with changing consumer preferences.*

***Customer Relations:*** *In addition to traditional customer relationship management techniques, Green Isle's strong category management expertise provides a strong platform for enduring customer relationships.*

***Innovation in Product and Processes:*** *The company's continuous research into consumer trends drives new product development and innovations in the company's production and business processes.*

***Employee Capability Development:*** *Innovation is a continuous process and Green Isle views its employees as a central part of its innovation process. They receive regular training to enhance their capabilities.*

### **3.2.2 Knowledge Intensive**

There is much talk of Ireland's transition to an innovation driven knowledge economy. But what do we mean by it? And what role does manufacturing play within this economy?

Within the business context we often think of innovation and knowledge in terms of R&D. Indeed R&D has become increasingly important for manufacturing firms, and not only in the development of new materials, products and processes, but also in the application of technology and knowledge created elsewhere to develop differentiated products and improved processes.

However, for the firm, being knowledge-intensive encapsulates a wide agenda across all related activities:



**Products, services and markets:** the knowledge intensive firm applies knowledge of customer and markets to capture opportunities by developing new and/or adapted products, services and solutions and entering new markets.

**Operations:** The knowledge intensive firm engages in continuous improvements in the effectiveness and efficiency of core production processes and business functions through benchmarking, re-engineering and application of models such as Six Sigma and Lean Manufacturing. It seeks out and adapts the best available technologies to create competitive advantage.

**Business models:** Strategic business models define the way companies generate revenue. Knowledge intensive companies innovate by identifying how best to take advantage of technological advances and disaggregation of the value chain to integrate their offering into a global supply chain. They identify and build on their strengths, focusing on core activities where they can add value and create a compelling proposition to suppliers, customers and partners. They actively seek and take advantage of opportunities in partnering, revenue and Intellectual Property sharing, networking and eBusiness.

*‘Today’s reality is that companies compete at a global level. They need to develop their strategies so that they can participate effectively within this global context, and position themselves for longer term sustainability.*

*In some cases this may mean outsourcing labour intensive manufacturing, and focusing on higher value added, more skill intensive activities such as design, R&D, supply chain management and leading edge production.*

*This re-enforces the fundamental need for continuous investment in upskilling so that everyone has the opportunity to benefit.’*

*Pat Delaney IBEC*

**Relationships:** The successful knowledge intensive firm also spends time developing both internal and external relationships that are key to identifying and sharing knowledge and best practice<sup>40</sup>. The firm actively develops relationships with research institutes, customers, industry networks, standards bodies etc., as appropriate for their particular business.

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<sup>40</sup> Building Wealth Through Relationships: The Role of Internal and External Relationships in the Knowledge-intensive Firm. Thomson M

We must caution against assuming that all manufacturing companies will become R&D intensive, and indeed, as outlined above, that it not what is meant by knowledge-intensive.

***Knowledge Intensive has Relevance for all Types of Manufacturing.....***

*..... Although radical transformation of the (manufacturing) industry must be the long term objective, it has to be ensured that Europe continues to be competitive in the mature manufacturing areas, where the driver is no longer radical innovation, new patents etc., but rather a continual improvement and gradual application of new technologies, and last but not least where competitiveness is secured through lean management and well known, but underutilised principles.*

Source: European Commission's Report of the High Level Group (Nov 2004)

**A Change in Strategic Direction : An Example**

*Ovelle is a small indigenous manufacturing firm that has undergone a fundamental restructuring to address its competitive challenges. It employs 50 people in a unionised workforce and has sales of €3.5 million.*

*The company's former strategy involved a diverse range of products which it produced under licence in a contract manufacturing operation, and, in the main, served the veterinary market. This low-value added activity became increasingly uncompetitive in the context of globalisation and intensified competition from low cost manufacturing locations.*

*Ovelle embarked on an ambitious, market-oriented business strategy that enabled the business to survive and prosper. The company narrowed its focus to a select number of high margin branded products in its portfolio, transitioning to serve the cosmetics market. Investments in R&D enabled the company to develop its products further, enhancing value added and building unique aspects that underpinned its re-branding and marketing. The very successful Elave range of skincare products is a result of this development.*

*The switch in product focus involved an entire re-structuring of the production process and investment in re-training and development of staff and management.*

*The radical transformation undertaken by this company was enabled through the commitment of staff and management and their proactive engagement in the change process.*

### 3.2.3 Skills Intensive

Knowledge is embedded in people. It is people who have the capacity to create knowledge. A highly skilled innovative workforce is core to driving Ireland's future economic development. But just as products have life cycles, so too do skills. The skills people acquired ten or fifteen years ago are unlikely to remain relevant unless they are refreshed and enhanced regularly over time. This is true for all parts of the manufacturing sector from paper pulp production to leading edge biopharmaceuticals, and related activities such as supply chain management, regulation, process operations and quality control.

*Tomorrow's Skills – Toward a National Skills Strategy*<sup>41</sup> (2007), identified the fact that about 500,000 people within the existing workforce will need to be upskilled by 2020 if Ireland is to meet the needs of an innovation-based economy. This presents a real challenge for Government, employers and employees and requires significant continued investment.

In effect this means that formal education needs to become less about passing on information and focus more on teaching people how to learn, and how to apply learning, and that life-long learning is absolutely vital for individuals and organisations.

A knowledge intensive environment requires individuals to work more autonomously: be self managing; work as part of flexible teams; adapt to change; solve complex problems; think creatively and engage with innovation as a continuous process<sup>42</sup>. This is easier said than done - and requires investment and commitment from both management and staff throughout an organisation. Factors

*'The importance of skills cannot be overstated because most of the people who will be at work in 2020 are already in the workforce today. They will need to be retrained as the workplace changes. It is vital that Government, employers and unions work together to promote skill enhancement in the workplace at every opportunity.....' David Begg, ICTU*

such as the relevance of formal training, availability of hands on training, time required by employees for training certification, access to courses, and sources of funding all need to be considered and addressed if continuous investment in upskilling is to become a reality<sup>43</sup>.

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<sup>41</sup> EGFSN

<sup>42</sup> Working to Our Advantage – A National Workplace Strategy, National Centre for Partnership and Performance, March 2005

<sup>43</sup> From a manufacturing perspective, Manufuture - Assuring the Future of Manufacturing in Europe (EC Report of the High Level Group September 2006) identifies the need for strong links between industry and academia resulting in industrial 'real life' courses, and the introduction of case studies that will promote concrete expertise in manufacturing

### **A Highly Skilled Workforce : An Example**

*A multinational subsidiary, operating a high-volume production plant in Ireland operates in a highly cost competitive segment in the LifeSciences sector. The Irish operation faces competition not only from external competitors, but also with sister companies' manufacturing facilities in other locations. The company employs 600 people currently and recent investments will create a further 200 jobs. The employees are highly skilled - over 90% hold technical qualifications and over a third has a third level qualification.*

*The company has an R&D function and operates a D&M model (Development and Manufacture). The recent development of a new product in Ireland is likely to significantly increase market penetration for the parent company. However, because of pressures on margins, its introduction to the production floor also necessitated developments in the manufacturing process to maximise productivity and reduce costs of production. It also required the employees to adapt readily to these new systems and embrace further change.*

*The processes in the manufacturing plant are already highly automated, so that these enhancements place the firm at the leading edge in its use of technology. They have demonstrated an ability to adapt readily to new systems.*

*The fact that a multinational manufacturing company, in a highly cost competitive business, can retain and build its operations in Ireland by using a skilled workforce in a capital intensive operation to deliver innovation in products and process represents a strong vote of confidence in the manufacturing sector's future in Ireland.*

### **3.2.4 A Participative Company Culture**

The continued growth and development of the manufacturing sector in Ireland will require the development of creative and adaptable workplaces that are characterised by higher levels of innovation, problem-solving and employee involvement and participation.

Employee empowerment is a key factor in improving performance and promoting innovation. Employee involvement is at the very core of initiatives that are designed to foster a culture of continuous improvement and adaptability to change. Organisational change will be required to enable companies to make better use of the knowledge of their employees.

These ‘high involvement’ HR practices involving performance management and remuneration, communication, participation, training and development are categorised as High Performance Work Systems (HPWS). Within HPWS there is an emphasis on utilising a system of management practices that give employees the skills, information, motivation and latitude that results in a workforce which is a source of competitive advantage rather than a cost to be minimised. High-value manufacturing firms include interdisciplinary workgroups, systems for collection of employee proposals, planned job rotation, integration of functions and performance related pay as part of the overall work practices<sup>44</sup>.

*‘Our adaptability was our strength in the past ..... Improvements in flexibility and acceptance of continuous change can become a competitive advantage for Ireland.’ .... John F Condon, formerly Merck Sharp and Dohme (Ireland) Ltd.*

*‘Workplace change and innovation is critical to Ireland’s future as a dynamic, inclusive, knowledge-based economy.*

*In the constantly evolving world of business the most successful companies are those that anticipate and adapt so as to turn change to their advantage.*

*By embracing change, both employers and*

A relevant study, *High Performance Work Systems in Ireland – The Economic Case*, acknowledges that HR management practices do not directly influence corporate performance, but do so indirectly by influencing the motivation, behaviour and performance of employees<sup>45</sup>. Based on a survey of 165 companies in Ireland, the findings indicate that an increased use of HPWS contributes a 15.6% increase in labour productivity and 16% decrease in employee turnover.

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<sup>44</sup> Source: Forum on the Workplace of the Future, NCPP

<sup>45</sup> High Performance Work Systems in Ireland – the Economic Case, Prof Patrick Flood & Prof James P. Guthrie, NCPP 2004

Management has a key role to play in ensuring effective engagement and communication. Therefore, management development and capability building within the context of an innovative environment takes on a particular significance for Ireland's future.

*'Open communication between managers and employees is particularly important to gaining a shared understanding of the realities of the challenges and opportunities facing manufacturing firms*

*This is essential if we seek to generate a highly participative approach and create a sense of ownership throughout the firm to deliver on the actions needed to address the challenges and take advantage of opportunities.' .....John Woods, Multi Print, Swords*

### 3.3 Characteristics of High Value Manufacturing Firms

Customer and Markets

Focus on building links to customers, suppliers, competitors and research institutes. These links facilitate sharing of best practice and understanding of changing needs and trends that, in turn, influence product and market development, and process and service delivery improvements

Monitor market trends and develop early response mechanisms to benefit from emerging opportunities

Invest in capital equipment, automation and leading-edge technologies, together with the use of advanced production processes including e.g. Six Sigma and Lean Manufacturing

Benchmark regularly against best practice and continuously search for ways to improve productivity, effectiveness and efficiencies

Invest in R&D in new products and processes – or at a minimum build capabilities and networks to take advantage of science and technological R&D undertaken elsewhere, and adapt/apply acquired knowledge to innovate differentiated products, processes, services and/or solutions

Engage in opportunities presented by new business models: understand where the company ‘fits’ within a global supply chain, for example, by identifying niche product opportunities and partnering as appropriate

Participative Culture

Build strengths in the application of regulation and standards appropriate to the industry

Engage proactively in the development of business processes, using technology and eBusiness concepts across all aspects of internal business processes through to linkages with customers, suppliers and networks

Engage in and support continuous learning – for all staff throughout the firm, and ensure continuous development of management capability relevant to the innovative organisation. Develop a culture of agility and flexibility and demonstrate an ability to anticipate change and respond proactively

Demonstrate openness to new ideas and communication within the firm itself, thereby encouraging innovation

Recognise that the knowledge content of all jobs is important to the organisation’s performance and is embedded in the firm, and understands that the knowledge required for all jobs will change and adapt regardless of the nature of the work

Actively encourage and reward high performance at all levels.

Capital Intensive

Knowledge Intensive

Skills Intensive

## **4 Actions Required : Conclusions and Recommendations**

### **4.1 Overview**

The evidence presented in Chapter 1 highlights the importance of manufacturing to Ireland's economic development and its significant contribution in terms of GVA, employment, productivity and capability building. Manufacturing has a valuable role to play in terms of stimulating R&D, technological advance and innovation such that a continuing policy focus on manufacturing is crucial to Ireland's future.

Chapter 2 described the major global trends and the implications for the manufacturing sector in Ireland – both in terms of challenges and opportunities – and highlighted some domestic issues relating to Ireland's business environment when compared with other developed economies. It also outlined the changing nature of manufacturing and presented a broader definition that is more appropriate to today's circumstances.

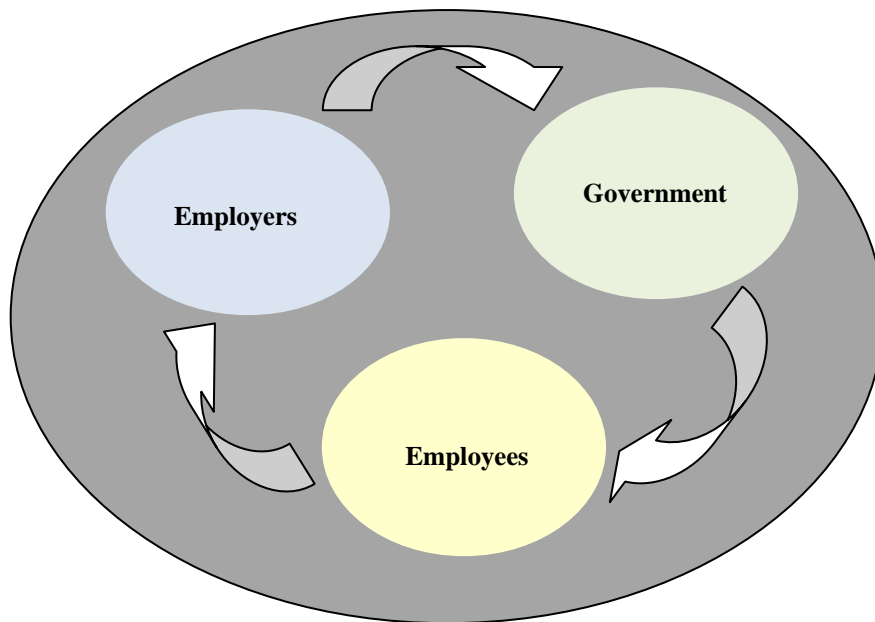
Chapter 3 identified what these trends mean for the manufacturing firm operating from Ireland, and outlined the characteristics of those manufacturing firms likely to be successful within the intensely competitive global context.

This assessment highlights a number of concerns and actions required at both the business environment and firm levels.

It also emphasises the fact that there is a clear role for all parties - for Government, for employers, and for employees and their trade unions if we are to continue to engage competitively in high-value manufacturing activities in Ireland (Figure 4.1 overleaf).



**Figure 4.1: Working Together to Make it Work**



<b>Government</b>	For Government a primary role is to develop and implement public policy that ensures that the broad business environment underpins and supports the development of a sustainable manufacturing sector. Government has a role to play in ensuring that key decisions are taken without undue delays, cognisant of the pace of change in the competitive environment in which businesses operate, and in addressing barriers to timely decision making.
<b>Employers</b>	Employers need to develop the management and leadership capability relevant to an innovative firm operating in a global context. They need to invest in building capacity within their firms to produce innovative products and specialise in the activities that yield value added for the firm, and to support and encourage employees' engagement in continuous learning.
<b>Employees</b>	Employees, and their trade unions, need to embrace ongoing change and adaptability and to be aware of the changing skills needs of the manufacturing sector. Employees should be supported and encouraged through the provision of information, advice and facilities that encourage their commitment to lifelong learning so that they can take advantage of opportunities for advancement, whether that is within the existing workplace, or alternative employment elsewhere.

## 4.2 Response of the High Level Group on Manufacturing

In response to our Terms of Reference we considered the relevant policies being pursued to foster innovation and to create a highly skilled labour force, as articulated in the National Strategy for Science Technology and Innovation, the National Skills Strategy and the National Workplace Strategy.

We also acknowledge the strategies outlined by the Enterprise Strategy Group in its report *Ahead of the Curve*, and the Small Business Forum's report *Small Business is Big Business* that highlight the challenges and opportunities facing enterprise in Ireland.

We compiled a complete listing of the support initiatives provided by the enterprise development agencies (Appendix V). We also acknowledge that there has been considerable investment made to tackle infrastructure deficits, and a commitment within the NDP 2007-2013 to continue such investment in infrastructures, education, R&D, entrepreneurship and balanced regional development.

However, these strategies and policies will only have real benefit if the recommendations are implemented in a timely and coordinated manner.

*Concerted effort now needs to focus on speedy and effective implementation*

*This requires commitment, support and action on the part of Government Departments, State agencies, business representative groups, trade unions and, at the level of each workplace, employers and employees*

We wish to highlight a number of key areas where more focussed attention is needed at the level of the business environment and of the firm:

<i>At Business Environment Level</i>	
<b>Cost Competitiveness</b>	The loss of cost competitiveness must be tackled as a matter of urgency, and in particular, as it relates to Energy, Waste, Local Authority and development charges, and local professional services.

*At Firm Level*

<b>Innovation and Productivity</b> <i>Transformational Change</i>	There needs to be a transformational change within firms in terms of increasing productivity and engaging in technological and non technological innovation across all activities and functions. Such transformational change should be reinforced by changes within the culture of the firm, to embed innovative thinking, flexibility and participation across all levels.
<b>Reskilling and Management Development for the</b> <i>Innovative Firm</i>	Employers, employees (and their Unions) and the State must commit to increasing the level of employee training and reskilling. Management practices need also to be enhanced in the context of an innovative firm operating in an increasingly competitive global environment.
<b>Awareness and Take Up of</b> <b>Initiatives</b>	There needs to be an increased focus on raising awareness of Government initiatives and agency supports already in place in order to remove barriers and to stimulate take up by companies.

### 4.3 The Business Environment - Cost Competitiveness

There is a consensus among the High Level Group on Manufacturing that the immediate challenge facing manufacturing firms in Ireland is the loss of cost competitiveness.

While we acknowledge that some of the cost increases suffered in recent years are outside Government's control, and that Ireland's rapid economic 'catch up' had some impact on the rate of inflation, we stress that those that *are* within domestic control should be tackled as a matter of urgency.

We cannot afford to be complacent and to assume that the successes of past years will continue into the future, particularly as we have seen our differentiated offering (in terms of costs, labour supply and tax environment in particular) diminish relative to competitor countries. Immediate and effective action is required to address a situation that is becoming unsustainable in the immediate term, and could seriously threaten the manufacturing sector as a strong contributor to Ireland's longer term development.

Of critical importance to the sustainability of the manufacturing sector are the following aspects of cost competitiveness:

- (i) The rate of cost increases in energy relative to competitor countries
- (ii) Costs of, and deficit in, waste and hazardous waste infrastructures
- (iii) Local Authority and development charges, and
- (iv) Costs of local services, in particular legal and accountancy services.

*A failure to take action in addressing cost competitiveness will negate the benefits of the productivity gains that can and are being achieved in many companies within the manufacturing sector*

### **4.3.1 Energy**

#### ***Energy Policy***

Despite the fact that there have been attempts at policy level to introduce competition to Ireland's energy market, industry continues to experience dramatic increases in price relative to the Eurozone.

A number of factors have driven higher prices in Ireland, including the relatively high reliance on imported fossil fuels, the exposure to global fuel prices changes, the low level of spare generation capacity, the relative scale of generation plants, the poor performance of the generation plants in terms of availability, and the limited competition in generation and supply. We accept that there is little that can be done to impact the external forces at play that have driven price increases – but there are factors over which Government does have control.

*'Although we have not increased energy usage, we have experienced an increase of €2 million in our energy costs in the two years ended December 2006 – equating to an increase of 50% over that period.*

*Increases at this level have a significant impact on our ability to compete effectively and are unsustainable.' .....Larry Murrin,  
Dawn Farm Foods*

The development of energy policy is complex and necessitates a balancing between somewhat conflicting aspirations in terms of reasonable costs (relative to EU competitors), security of supply and sustainability. Energy markets are subject to EU internal market legislation and State

intervention to directly control wholesale or retail energy prices is not permitted. The small size of the Irish electricity market also means that the establishment of contestable markets is difficult to achieve – so that we are now in a situation whereby high prices, while facilitating competition, are adversely affecting competitiveness.

Energy policy initiatives are now aimed at structural and market reforms to promote competition and tend, by their nature, to have impacts in the medium to long terms. It is anticipated that the implementation of the recommendations contained within the Energy White Paper (May 2007) should, over time, lead to a more efficient and cost effective electricity market.

However, from a manufacturing perspective, the issue of costs is now paramount. We contend that energy policy to date has not achieved an impact in this area and that the recent Energy White Paper must be expanded upon to clearly demonstrate the linkage between its proposed strategies and programmes and their expected impact on energy costs to the manufacturing sector in the short, medium and longer terms.

### ***Recommendation***

*It is critical that the issue of energy costs is prioritised, and that practical steps are implemented in the immediate term that will bring energy costs back in line with the EU.*

*(Action: DCMNR)*

### ***Energy Efficiency***

Within this context, it is increasingly important that firms themselves engage in initiatives to increase energy efficiency. We acknowledge that some progress has been made to date. Sustainable Energy Ireland (SEI) initiatives, such as the Large Industry Energy Users Network, have been successful and have resulted in demonstrable savings for business. However significant challenges remain, mostly among SMEs. Continued and enhanced efforts are required to promote more efficient energy use by both business (whether individually or collaboratively) and residential users to achieve Ireland's target of a 20% reduction in energy demand by 2020.

### ***Recommendation***

*Enhanced financial supports should be offered to companies to assist them in the drive towards increased energy efficiency, together with mechanisms to raise awareness and share best practice amongst firms.*

*(Action: SEI, DETE, Enterprise Development Agencies)*

### **4.3.2 Waste**

*Waste Management in Ireland: Benchmarking Analysis and Policy Requirements*<sup>46</sup>, highlights the developments in implementing the National Waste Prevention Programme, including the allocation of funding for waste management infrastructure under the NDP (2007-2013), the enactment of the Strategic Infrastructure Act 2006, and the publication of the Government's Bioenergy Action Plan.

While some progress is being made, for the most part in the area of waste recycling, Ireland still performs poorly in terms of meeting the needs of enterprise. From a manufacturing perspective we suggest that the overarching goal should be the development of an appropriate mix of competing waste management and treatment infrastructures that will meet best practice in environmental standards and result in real reductions in costs to industry (comparative to competitor countries) and an increase in efficiencies. Specific infrastructures that need to be accelerated include thermal treatment for hazardous waste, and capacity to recover energy from municipal and industrial waste.

### ***Recommendations***

*The High Level Group on Manufacturing endorses the recommendations outlined in the Waste Benchmarking Report as set out below, and emphasises the urgent need for action in addressing issues that directly impact on price structures.*

*The development of specific additional waste management infrastructures, particularly thermal treatment, biological treatment and reprocessing facilities must be accelerated.*

*(Action: DoEHLG, public and private infrastructure providers)*

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<sup>46</sup> Forfás, March 2007 - <http://www.forfas.ie/publications/show/pub265.html>

*The required resources to progress the development of markets for recycled materials, as identified in the Market Development Group work programme, need to be put in place without further delay so that work on delivering the various elements of the work programme can commence.*

*(Action: DoEHLG, Market Development Group)*

*The relative roles and responsibilities of the State in the regulation and management of the waste sector at national, regional and local level need to be reviewed to address the issues affecting infrastructure provision. As a first step there is a need for a clear statement of policy for the sector and clarity on roles of current and/or future public bodies in this area.*

*(Action: DoEHLG)*

*Regional waste management plans need to be effectively coordinated to ensure that Ireland is benefiting from the economies of scale that can exist in the delivery of national waste infrastructure.*

*(Action: DoEHLG)*

*The impact of the Strategic Infrastructure Act 2006 and the proposed legal reforms on the speed of delivery of important new infrastructure need to be maximised to ensure the expected benefits are being realised.*

*(Action: DoEHLG)*

It is incumbent upon firms (as well as consumers) to proactively seek ways of engaging in cleaner, greener behaviours. A range of waste/pollution prevention or resource conservation initiatives is being undertaken by different organisations<sup>47</sup>. Given its importance, we consider that initiatives need to be more aggressively marketed by the relevant agencies, and complemented with raising awareness and the capability of firms to engage effectively in initiatives.

### ***Recommendation***

*Concerted efforts are required to ensure that businesses are fully aware of the benefits of waste prevention and how best to exploit waste management reduction processes and technologies<sup>48</sup>*

*(Action: Enterprise Development Agencies, IBEC, EPA)*

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<sup>47</sup> The National Waste Prevention Programme - Second Annual Report 2005/06, EPA, September 2006.  
<http://www.epa.ie/OurEnvironment/Waste/NationalWastePreventionProgramme/AnnualReports/pdfsforNWPPAnnualReports/FileUpload,10897,en.pdf>

<sup>48</sup> Details of waste prevention programmes in other benchmark countries was included in the 2006 baseline waste management benchmarking study - <http://www.forfas.ie/publications/show/pub265.html>

### ***4.3.3. Local Authority and Development Charges***

Local Authorities play an important role in supporting enterprise development through investment in local infrastructures and services. Many work closely with existing companies and potential companies, ensuring a collaborative approach is taken in the way they provide services. At the same time, many face challenges in raising adequate funding to address local needs, particularly in the context of rapid growth in households and businesses experienced in recent years. As outlined in Chapter 2 increases in expenditures and charges over the period 1996 – 2004 have been significant.

Although steps have been taken at the request of the Minister to keep increases in the annual rate on valuation (ARV) to the minimum required we remain concerned that businesses are levied disproportionately for goods and services, and by the lack of transparency regarding development charges in particular.

We are aware that a Government Interdepartmental Committee carried out a review of development contributions and issued revised guidelines during 2007. Their deliberations were informed by the Small Business Forum Report *Small Business is Big Business* and the report of Chambers of Commerce Ireland, *Development Charges for Business, 2006*. The revised guidelines address the need for greater transparency into the way in which development contributions are levied and applied. The guidelines also addressed issues regarding the level of contributions, and lack of consistency in methodologies applied across Local Authorities.

From the perspective of the manufacturing sector, we welcome the revised guidelines as a first step in addressing the competitiveness implications of development charges. It is important that they are applied as a matter of priority by the Local Authorities. In general, for all Local Authority charges, we reiterate the importance of equity, transparency, value-for-money, and of accountability to the business community. Significant benefit would be achieved through increased communication and involvement between the Local Authorities and their local business community regarding expenditures and recovery.

#### ***Recommendation***

*Local Authorities should have specific regard to the impact of rising costs for industry and employment in their areas in the context of the increasingly competitive global environment. A rebalancing of the contributions is required together with increased engagement with business regarding expenditures and recovery.*

*(Action: Local Authorities)*



### 4.3.3 *Costs of Professional Services*

As manufacturing firms compete on global markets, the costs of inputs sourced from domestic markets have a direct impact on their final product pricing structures. Of particular concern are costs of professional services. Restrictions on competition result in inefficient delivery of services or the artificial inflation of prices. This has a direct negative impact on manufacturing firms' cost inputs.

#### ***Recommendation***

*Establish implementation structures to coordinate effective responses to the recommendations of the Competition Authority's review of these sectors of the economy in order to deliver the type of fundamental reform that is called for by the Authority<sup>49</sup>.*

*(Action: Department of An Taoiseach, Department of Justice, Equality and Law Reform)*

### 4.3.4 *Rate of Inflation*

While highlighting those costs that are of particular importance to the manufacturing sector, there is a need to address the broader range of factors within the domestic economy that are driving inflation. Chapter 2 highlighted the fact that Ireland's rate of inflation has been consistently higher than that of our European and competing counterparts. Inflation erodes wage increases and ultimately drives a self-perpetuating inflationary pressure that puts Irish based firms at a significant competitive disadvantage. We welcome the fact that the Anti-Inflation Group has been reconstituted under Towards 2016.

*The High Level Group on Manufacturing strongly endorses the proposal by the National Competitiveness Council for the development of a national programme to restore cost competitiveness that includes setting inflation targets close to the Eurozone target rate of inflation of 2%.*

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<sup>49</sup> Competition Authority Report on Solicitors and Barristers  
<http://www.tca.ie/PromotingCompetition/MarketStudies/Professions/SolicitorsBarristers/SolicitorsBarristers.aspx>

## **4.4 Actions required at Firm Level - The Transformation of Manufacturing through Innovation and Increased Productivity**

We believe that the crucial issue to be addressed for manufacturing is how to encourage and support all firms to engage in transformational change. Such changes should effectively increase productivity, stimulate innovation across all elements of business activity and positively impact on the longer term sustainability of manufacturing related activities in Ireland.

Companies that are successful are those that continuously seek new ways of working, and take a complementary approach to:

### ***Technological Innovation***

- Investing in automation and technology to support new production methods and processes

### ***Non-Technological Innovation***

- Developing new work practices, management methods, organisational structures and environments that stimulate new ideas for products, services and delivery methods, and
- Engaging in new partnerships and ways of integrating into global business models.

Perhaps most importantly, they also invest in their people through continuous learning and upskilling, recognising that a skilled workforce is fundamental to an innovative environment.

To date, there has been much emphasis by companies and the development agencies on technological innovation in product and process R&D.

The adaptive and progressive company needs also to engage in non-technological innovation, and we consider that there is opportunity to increase development agency supports and focus on this aspect.

### ***4.4.1 Technological Innovation: Enhancing in-firm Research and Development and Innovation***

We acknowledge the tangible progress that has been achieved to date in building the innovation capacity and capability of firms over recent years. There has been significant increased public investment in R&D as provided for in the Strategy for Science Technology and Innovation and

realised in part through the enhanced range of supports in place to encourage businesses to invest more in R&D<sup>50</sup>. Successful initiatives include the SFI Centres for Science, Technology, Engineering and Strategic Research Clusters that incorporate industry partners, the Industry-Led Research Programme and Tech-Transfer.

In 2006 Enterprise Ireland spent €9 million in supporting commercialisation and R&D, by directly assisting firms in engaging in R&D, and by supporting industry collaboration with higher education institutes and commercialisation activities. In the same year, the IDA supported a total of 54 R&D projects with expenditure of €170 million. Development agency supports have stimulated increased investment in R&D within firms, both foreign and Irish owned. Total business expenditure in R&D grew by 9.5% in 2005 over the previous year to reach €1.3 billion<sup>51</sup>, and is expected to reach €1.56 billion in 2006, an increase of 17.4%.

However, while these results are impressive, there appears to be a lack of awareness of existing R&D supports across a wider range of companies, and a potential for higher utilisation and draw-down. This issue is considered in section 4.6.

The picture of manufacturing in the future outlined in Chapter 3 raises a number of questions. How can we build the capability within Ireland's manufacturing firms so that they undertake a progressively innovative approach to manufacturing, or realise a step-change in their production and business processes to place them at the leading-edge of manufacturing?

We have identified three main areas of focus that are relevant to all manufacturing firms operating from Ireland, including large scale firms and SMEs.

#### **(i) Embrace Transformational Change and Increase Productivity**

Companies need to embrace technologies and leading edge processes that result in increased productivity and longer term sustainability. This requires enabling companies to:

- Increase their awareness of, and adapt new technologies to best suit their own needs, including robotics, machine vision, sensors, etc.

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<sup>50</sup> Enterprise Ireland and IDA

<sup>51</sup> Foreign Owned Business Expenditure on R&D (BERD) rose by 10% to stand at €39 million in 2005. Irish-Owned BERD rose by 8.9% to stand at €390 million

- Invest in R&D in manufacturing processes and automation and gain an understanding of, and become competent in advanced engineering design of automated systems
- Adopt leading-edge efficient manufacturing processes (including, for example, World Class Lean Manufacturing and Six Sigma) to improve quality, increase productivity and shorten time-to-market
- Benchmark productivity performance against international competitor companies within the sector and proactively address the potential for improvements
- Engage in environmentally conscious practices through reduction of waste, ‘designing in’ environmentally friendly materials and processes into product development, and improving energy efficiency
- Embrace manufacturing related business processes that are underpinned by technology, including supply chain management, eProcurement, open collaboration, design partnerships etc., that take advantage of operating within a global environment
- Understand the opportunities arising from the shift toward servicisation of manufacturing in the context of their own product offerings
- Inform the education and training systems of changes in skills and capabilities needed for manufacturing as it evolves.

## **(ii) Energy Efficiencies**

In today’s cost environment it is vital that companies themselves build competences to proactively engage in achieving a step change in improving energy efficiencies and embrace environmentally friendly processes and materials. The Large Industry Energy Network demonstrates the benefits of sharing best practice and learnings – are there ways in which we can extend this concept to smaller entities? Sustainable Energy Ireland provides advice on a number of approaches to improve energy management, including benchmarking, energy audits, monitoring, and in how to optimise usage of technologies – how can we further stimulate company awareness and engagement?

### **(iii) The Factory of the Future**

The Factory of the Future is likely to be somewhat different than the model in operation today. We can already see a shift toward increasing complexity, the convergence of sectors and technologies requiring multidisciplinary skills, the need for adaptive, flexible production processes to cater to increased customisation, the shift toward nano-scale and broader networks across companies and countries. Technologies will allow for increased use of simulation, modelling and presentation tools in the design of ‘digital factories’ – a virtual representation of an entire factory that would dramatically reduce time and cost savings in the implementation of new facilities.

The Factory of the Future involves a broader range of interests, including technologies, multidisciplinary competences, organisational knowledge, industry and market trends, and is likely to involve disruptive changes to established practices.

How can we ensure that companies keep abreast of how technologies, new materials and processes, and convergence across sectors and products will inform the Factory of the Future? How can we assist companies to engage in innovation to the extent that it becomes embedded in the culture of the organisation, and that managers and employees embrace change and organisational work systems that support high levels of participation? How can companies be supported in preparing to take advantage of such evolution? It requires enabling companies to:

- Engage in R&D on manufacturing processes that accommodate (perhaps disruptive) changes in technologies, materials and global networks
- Understand the potential arising from seamless integration of scientific and technical knowledge from all fields of production, including process industries, advanced functional products, micro- and nano-scale engineering and intelligent mechatronics systems for high performance design, engineering and production - which involves research into modelling and simulation
- Exploit the convergence of nano-, bio, info- and cognitive technologies to develop the next generation of high value added products, engineering concepts, and processes
- Operate seamlessly across a range of companies, cultures and geographies and manage networks and knowledge transfer in a systematic and comprehensive way

- Build the capacity and capability to absorb and adapt to these new technologies and ways of operating.

While there is a cohort of companies that are at a stage of preparedness to engage in future focused initiatives, others would gain significantly from low technology process innovation and should not be overlooked when devising initiatives. We need to ensure that smaller companies, in particular, make changes appropriate to their own circumstances to result in improved productivity, whether through changes in process, investment in capital equipment and technology, and/or reskilling and management development.

#### ***4.4.2 Non Technological Innovation: Applying Innovation across Business Processes and Workplace Systems***

The concept of innovation should not be considered as just technological innovation. While technological innovation is extremely important in many companies, we believe that greater recognition is needed of the equally important role other forms of innovation in business and organisational processes play in fostering productivity growth.

These forms of innovation include:

- Regular benchmarking of performance against competitors, including aspects such as employee motivation, workplace systems and HR practices, reskilling and development etc., with a view to embedding systematic enhancements and innovation within the culture of the firm
- Systematic market watch relevant to the firm, assessing key trends, competitor strategies, and also developing strong customer and partner relationships
- Engaging in new ways to address markets through partnerships, alliances and/or outward direct investment, and
- Appropriate use of ICT across all facets of the business, both internally and externally to link with international clients, suppliers and partners.

The imperative today is to support the development of non technological capability in firms so that they are enabled to undertake transformational change. Although there are some initiatives already in place (for example, ICT audits, benchmarking and mentoring supports provided by EI) the

breadth of them does not adequately support the range of areas within the business that could benefit from non technological innovation.

In some instances, where existing supports are in place, there is potential for higher utilisation and drawdown (both financial and non financial). This issue is considered in section 4.6.

Of particular relevance is the Competence Centre initiative which was introduced by the development agencies in 2007. Competence Centres are collaborative entities established and led by industry. They are resourced by highly qualified researchers associated with research institutions. They undertake market focused R&D based on industry needs, and defined by a group of companies.

### ***Recommendations***

*Establish National Manufacturing Competence Centre(s)<sup>52</sup> (with a sectoral focus, where relevant) that would actively engage with industry, both large companies and SMEs, to address the current and future needs of production, through R&D and innovation in process, supply chain management, and energy efficiency, and to address training and reskilling needs.*

*Suggested areas of focus include (as a priority):*

- *Transformational Change and Improving Productivity*
- *Preparing for the Factory of the Future*
- *Increasing Energy Efficiencies*

*(Action: DETE and Enterprise Development Agencies)*

*It is essential that firms actively engage with Competence Centres and utilise the capability, know how and services being provided and to provide continuous feed-back so that such Centres remain relevant to the needs of, and easily accessible by, manufacturing firms.*

*(Action: Manufacturing Firms)*

*Manufacturing firms should engage in benchmarking, (supported by the enterprise development agencies), at a sectoral level in relation to their international counterparts in order to gain a more in depth understanding of areas for improvement across production, business and workplace*

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<sup>52</sup> On the basis of a detailed proposal being submitted and evaluated in line with the Competence Centre process

*processes. They should then focus efforts (with the support of the agencies where relevant) on capital investment, R&D, skills enhancement and/or organisational change that would have greatest impact on productivity, competitiveness and longer term sustainability. The social partners also have a role in promoting engagement with these initiatives.*

*(Action: Enterprise Development Agencies, Social Partners)*

*Within this context, the agencies should develop and intensify supports for business and workplace innovation to include incentives for business process reengineering, change management, organisational change, market development capability and new business model development.*

*(Action: Enterprise Development Agencies, Social Partners, NCPP)*

*Develop a User Guide on Productivity to better inform both employees and employers of the practical actions that need to be taken in the workplace to realise increased productivity.*

*(Action: Forfás, Social Partners)*

## **4.5 Reskilling and Management Development for the Innovative Firm**

Ireland's skilled workforce has played a significant role in attracting FDI, in the development and growth of indigenous companies and entrepreneurship. We recognise that continued commitment to increasing the participation levels of people who are in employment in education and training is fundamental to underpinning Ireland's future success. Enhanced skills also increase the mobility of people and equip them to take on alternative opportunities.

We welcome the commitments to upskill Ireland's labour force contained in Towards 2016 and the National Development Plan which has a total allocation of €2.6 billion for training. The key challenge is to ensure that these resources are balanced appropriately across the varying demands, so that there is a strong emphasis on reskilling those currently in employment.

This challenge is well articulated in the National Skills Strategy (NSS) which identified that Ireland must upskill an additional 500,000 people by 2020, of which 330,000 are low skilled. There are a range of questions to be addressed in terms of achieving this objective including: How can managers be informed and engaged? How do we encourage take up by the workforce? How and when are programmes delivered, how relevant are they to the needs of manufacturing?



The announcement made in February 2008 by Minister Sean Haughey to establish an Inter-Departmental Committee to oversee the implementation of the strategy should ensure that there is continued focus on achieving the objectives of the National Skills Strategy.

In the first instance we suggest that approaches that have proven to be effective to date in delivering industry-led and relevant programmes (such as Skillnets) be adequately supported and promoted.

Together with initiatives to support non technological innovation, the enterprise development agencies need to revitalise the use of training grants for upskilling and management development in specific areas to support transformational change – in areas such as technology management, supply chain management, market development, product development and also in supplementing existing skills so that individuals develop strong inter-disciplinary capability (e.g. engineering coupled with business skills). The Leadership Programme piloted by EI during 2007 is regarded as a successful initiative that aims to achieve world-class capability within SMEs.

A step change in reskilling will only be realised if all parties: the State, employers and employees, proactively engage in supporting and embracing continuous advancement in the workplace.

### ***Recommendations***

*Having regard to the commitments contained in Towards 2016 and the NDP and the vision contained in the National Skills Strategy we recommend specific action be taken that optimises the use of available resources to focus efforts on reskilling people in the workforce at all levels and on developing world-class management capability as follows:*

*Increase funding to meet the demand arising for the services of those organisations (such as Skillnets), that have demonstrated an effective delivery mechanism. Manufacturing firms needs to actively engage with training providers and other bodies such as Skillnets and FÁS to outline their specific training and development needs.*

*(Action: DETE, IDC for NSS implementation)*

*Increase resources to the provision of relevant courses for people in employment. The focus should be on the development of skills, at all levels, specific to the manufacturing sector in order to increase the productivity, competitiveness and employability of workers.*

*(Action: DETE, FÁS)*

*Intensify the use of training funds to realise a step change in capability at all levels to enable companies to engage proactively in transformational change.*

*(Action: DETE, Enterprise Development Agencies)*

*The High Level Group on Manufacturing acknowledges that the Expert Group on Future Skills Needs (EGFSN) is exploring options to incentivise people to participate in training whilst in employment. Options being considered include individual learning accounts, brokerage services, learning leave and tax incentives. Given the fundamental importance of upskilling, appropriate initiatives should be implemented as a matter of priority.*

*(Action: DETE, EGFSN, IDC for NSS Implementation)*

*As part of its action plan, the Management Development Council should have specific regard to the needs of manufacturing SMEs in Ireland to build leadership and management skills relevant to an innovative environment operating within a global context.*

*(Action: Management Development Council)*

*As agreed in the Towards 2016 agreement (Section 7.9): put in place a targeted fund to alleviate the fees in public institutions for part-time courses at third level by those at work who have not previously pursued a third level qualification.*

*(Action: Department of Education and Science)*

*Manufacturing firms need to engage in the programmes offered, and provide continuous feed-back of their needs as they evolve over time. Both management and employees also need to commit to taking up (relevant) training and reskilling initiatives.*

*(Action: Social Partners)*

## **4.6 Awareness/Access to all Supports**

There are two key issues that need to be addressed relating to existing state supports. Firstly: in terms of awareness of the availability of supports across a wider range of companies; and secondly: in terms of process, from ease of access to information, the application itself, criteria applied and subsequent drawdown of supports.

We contend that the initiatives of particular relevance to manufacturing firms include:

- R&D and innovation
- Productivity
- Benchmarking (at sectoral level)
- Training

It is apparent that the take up is less than it could be to maximize impact across a wider range of companies. We need to better understand the inhibitors that prevent optimum engagement by firms. The difficulties faced by SMEs in accessing information about supports for business development has been highlighted by the Small Business Forum in its recently published report *Small Business is Big Business* (2006).

At the same time, we acknowledge, and welcome, the requirements for transparency, competition and value-for-money that apply to State incentives. We are also aware that there are limitations imposed by the EU on State Aids, which impact on the provision of supports for capacity building (e.g. including capital and employment grants) to large companies.

We have already stated that manufacturing in Ireland is facing significant challenges – and indeed, the definition of manufacturing itself has evolved. The development agencies have a role to play to aggressively market their support programmes (including financial supports and advice) over the near term to stimulate take up of these initiatives by firms – not only to address the immediate need to significantly increase productivity, but also to embed an approach that ensures continuous improvement and preparation for the factory of the future as it evolves.

### ***Recommendations***

*Review and enhance the effectiveness of the development agencies' Productivity Improvement Fund, Benchmarking, Training and R&D supports to significantly improve uptake and drawdown by manufacturing companies.*

*(Action: DETE, Enterprise Development Agencies)*

*Increase and intensify efforts to promote the range of support initiatives, to include:*

- *a national promotion campaign about available supports*
- *the increased use of "advocates" for SMEs to reach out to companies and employees (building on the pilot initiative introduced by EI to encourage companies to engage in R&D )*

- *a streamlining and simplification of the process and improve access to programmes through, for example, the use of on-line application processes where appropriate etc; and*
- *Continue working with the NCPP<sup>53</sup> to encourage employees in the manufacturing sector to avail of training and upskilling opportunities.*

*(Action: Enterprise Development Agencies)*

*Prioritise the implementation of a comprehensive central web-based resource of relevant, up to date, user led business information for enterprises as called for by the Small Business Forum.*

*(Action: DETE, Enterprise Development Agencies)*

## **4.7 Making it Happen**

There is a consensus among the High Level Group on Manufacturing that a mechanism needs to be established to inform and drive the implementation of policies and actions required at Government level and at individual firm level (including employers and employees), to foster a dynamic, competitive and innovative manufacturing sector capable of providing high quality sustainable employment.

One possibility considered was that of appointing a Chief Manufacturing Advisor. We concluded that the establishment of a dedicated Manufacturing Forum comprised of key decision makers from manufacturing companies and representatives from manufacturing employees would provide a broader based and more representative voice for the sector.

### ***Recommendation***

*We recommend the establishment of a Manufacturing Forum to drive the implementation of actions required at Government level and at individual firm level (including employers, employees and their unions) that will result in the change required, both at the firm level and in the business environment. The Forum should be established by the Social Partners, and an agreed chair appointed. It will report to the Social Partners annually. The Forum should be supported and facilitated by DETE and Forfás.*

*(Action: DETE)*

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<sup>53</sup> National Centre for Partnership and Performance

#### ***4.7.1 The Role of the Manufacturing Forum***

The make-up of the Forum should be such that it acts as a strong champion and advocate for the sector, and becomes a respected voice for the manufacturing sector, and is recognised by employers, employees and their unions, and Government. The Forum should ensure that manufacturing remains central to current and future industrial policy, and:

- Take responsibility to progress the implementation of the recommendations outlined in this report (directly or indirectly as appropriate) and undertake an evaluation of progress against actions one year following the establishment of the forum and annually thereafter
- Act as a vehicle for the open and frank exchange of information and views between manufacturing representatives and relevant Government Departments, regulatory bodies, and agencies on issues concerning the development of the sector as they arise
- Act as a “clearing house” to address obstacles to implementation of the actions required to develop the manufacturing sector
- Identify ways of raising awareness of the continuing importance of manufacturing to Ireland’s future economic development and of manufacturing as a viable and rewarding career option.

Communication to the wider community of employers, employees and Government will be critical to the Forum’s success:

- The Government representatives will ensure that issues raised by the Forum are brought to the attention of relevant parties within the Government sector and will arrange for direct contact with the Forum where this would be of value in progressing implementation of recommendations and/or gaining an in-depth two-way understanding of more complex issues
- The business representatives on the Forum will promote workplace innovation, investment in increasing productivity, management development and employee training and reskilling to their members and peers (as appropriate)
- The employee representatives on the Forum will engage with their members to raise awareness of the challenges facing the sector, and of the need for adaptability and flexibility, and encourage high levels of employee participation in opportunities for continuous learning.

## 4.8 Conclusion

Ireland's economic growth has been driven to a large extent by its success in attracting FDI in manufacturing and in stimulating the growth of indigenous companies. Manufacturing has been, and will continue to be important to Ireland's economic structure.

Whereas the industry faces considerable challenges – it also faces opportunities. Firms, through their management and employees, need to position themselves to take advantage of these opportunities. Firms operating from a small open economy like Ireland are impacted to a greater extent by external forces, so that they cannot compete in low margin activities. As this report outlines, there are many ways in which individual firms can differentiate their offering and generate added value.

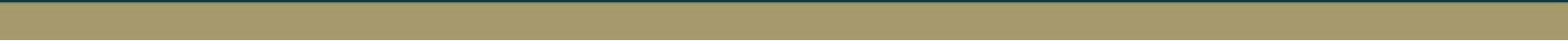
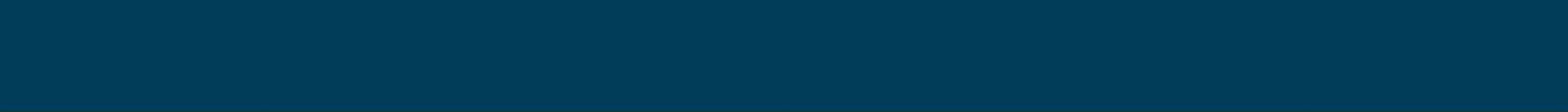
Innovation across all elements of the value chain, increased productivity, continuous learning and reskilling at all levels within the firm, and an adaptive flexible workforce, are today's 'table stakes'.

Whereas firms, through employers, Unions and employees, can play their part in engaging in innovation and enhancing productivity, we cannot ignore the criticality of regaining cost competitiveness across a number of key areas of real concern to the manufacturing sector. As it stands today, even the more progressive firms contend that they are 'running to stand still' as improvements in productivity are quickly eroded by high levels of inflation.

Our success in the past is no guarantee of future success. A future for manufacturing in Ireland will not become a reality without concerted and focused effort.

We believe that collectively, with each of us playing our role, we *can* make the necessary transformation to ensure that a highly competitive, sustainable, high value manufacturing sector will continue to be a valuable part of Ireland's future economic growth.

# Appendices





### Terms of Reference

It is agreed that a High Level Manufacturing Group will be established to review the challenges facing the manufacturing sector and identify further measures to meet those challenges. This Group will be chaired by an industry figure with significant experience of the manufacturing sector, and will report periodically to the partnership process. Having regard to the initiatives underway following the reports of the Enterprise Strategy Group and the Small Business Forum, the Group will consider the full range of issues affecting the competitiveness of the manufacturing sector including the following:

#### *Managing change to sustain competitiveness, in particular measures to:*

- Create an awareness of the critical importance of a flexible and positive attitude to change in technology, systems and processes. This embraces investing in enabling technologies and organisational restructuring with a view to addressing imbalances in productivity performance
- Assist smaller manufacturing firms to realise the potential of information technology
- Support upskilling of low-skilled workers in the manufacturing sector
- Support the change process in companies through advice and assistance.

#### *Enhancing the contribution of research, development and innovation, in particular measures to:*

- Support the establishment of R&D units in manufacturing companies
- Support companies applying for R&D grants under EU Framework Programmes.

#### *Improving the environment for manufacturing, in particular measures to:*

- Ensure good quality regulation
- Ensure that there are no unreasonable increases and impacts in local charges
- Increase knowledge and awareness of the changing conditions in the sector, including exploring the possibility of creating a post of Chief Manufacturing Advisor.

#### *Better exploitation of domestic opportunities, in particular measures to:*

- Encourage greater linkages between MNCs and indigenous manufacturers to support innovation, research and marketing
- Facilitate companies in applying for public sector contracts

*Growing sales in export markets, in particular measures to:*

- Provide access to market information and opportunities
- Enhance the sales and marketing capability within manufacturing companies
- Enhance the effectiveness of the Export Orientation Programme and the Diploma in International Trade in the manufacturing sector.

### Membership of the High Level Group on Manufacturing

#### Chairman

Mr Joseph Harford Former President and CEO Astellas Ireland Co., Ltd

#### IBEC Representatives

Mr Pat Gallagher General Manager, Baxter Healthcare SA  
 Mr John Hennessy Managing Director, LM Ericsson  
 Mr Patrick Feely Managing Director, Kilkenny Limestone Ltd.  
 Mr Pat Delaney Director of Business Sectors, IBEC

#### ICTU Representatives

Mr Michael O'Reilly Regional Secretary, ATGWU  
 Mr Owen Wills General Secretary, TEEU  
 Mr Jack O'Connor General President, SIPTU  
 Mr Fergus Whelan Industrial Officer, ICTU  
 Mr Paul Sweeney Economic Advisor to Congress (*alternate*)

#### Government Department Representatives

Mr Brian Whitney Assistant Secretary, DETE  
 Ms Clare Dunne Principal Officer, DETE  
 Mr John Callinane Assistant Secretary, Department of An Taoiseach  
 Ms Mary Clare O'Sullivan Assistant Principal Officer, Department of An Taoiseach (*replaced Mr J Callinane*)  
 Mr John Thompson Principal Officer, Department of Finance  
 Ms Grainne McGuckin Principal Officer, Department of Finance (*replaced Mr John Thompson*)

#### Development Agencies – Advisory Capacity

Mr Brian Cogan Executive Director, Forfás  
 Mr Enda Connelly Divisional Manager, Life Sciences, IDA  
 Mr Niall O'Donnellan Divisional Manager, Investment Services, Enterprise Ireland

#### Secretariat

Anne Forde	DETE	Maria Ginnity	Forfás
Seamus Grehan	DETE	Mark Faherty	Forfás
David Small	DETE	( <i>replaced Anne Forde</i> )	

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### Glossary of Terms

ABSEI	Annual Business Survey of Economic Impact
CSO	Central Statistics Office
DCMNR	Department of Communications, Marine and Natural Resources
DETE	Department of Enterprise, Trade and Employment
DoEHLG	Department of Environment, Heritage and Local Government
EGFSN	Expert Group on Future Skills Needs
EPA	Environmental Protection Agency
FDI	Foreign Direct Investment
GVA	Gross Value Added
IBEC	Irish Business and Employers Confederation
ICT	Information and Communications Technologies
NCPP	National Centre for Partnership and Performance
ODI	Outward Direct Investment
SEI	Sustainable Energy Ireland
SMEs	Small and Medium Entities

## Appendix V

### Enterprise Agency Supports for Manufacturing Firms as at end 2007

Enterprise Ireland

IDA Ireland

SFI (Relevant to Firms)

#### 1. Business Development and Growth

Category	Initiative	Description	Agency
Strategy /Planning	Productivity Improvement Fund	Financial assistance for capital and technology acquisition and training and management development to help SME client companies achieve greater competitiveness by increasing their export potential. Applicant companies may also apply for support towards the cost of an external consultant to assess their requirements and to assist in the preparation of the application. (This scheme finished at end 2007 and has been replaced by the Growth Fund)	
	Applied Benchmarking for Competitiveness (ABC)	ABC combines the basics of benchmarking and world class business techniques in a proven, effective form for small and medium sized companies. The support available helps SMEs.  Assess current performance and compare it with that of equivalent companies in Ireland and Europe; Interpret and analyse the results achieved; Identify gaps against best practice; help with improvement plans to close the gaps and monitor and evaluate the results	
	Strategy Development Supports	Services include: access to a development advisor, EI specialists, a personal mentor, and external strategic consultants.	
Finance	Recruitment of a key person	Partial funding of the cost of recruiting a key person to contribute to significant and measurable improvements in company productivity or changes in its output to meet defined market requirements.	
	Strategic consultancy grant	Supports efforts to improve the strategic capability of manufacturing or international services companies by encouraging the engagement of outside consultants to assist in the development and implementation of strategic initiatives.	

Category	Initiative	Description	Agency
	Funding for expansions	Assists companies in implementing their expansion plans to increase exports. The funding package is negotiated on a one-to-one basis and funding for training/management development, R&D, capital assets and job creation can be supported.	
Expertise/skills	Supply Chain Management Support	A diagnostics audit of current practice and performance; access to a consultant who will facilitate the implementation process by providing technical and training support; and grant assistance for consultancy and training costs and in-company project management	
	Environmental Management System	Seeks to improve the strategic capability of companies in the management of environmental issues and to develop and exploit the market opportunities that improved environmental performance can bring.	
	Leadership Programme (pilot)	Aimed at growth companies seeking to develop strategic leadership capabilities to a global standard. Piloted during 2007 in Stanford.	
Financial	Environmentally Superior Products	Support for companies in carrying out projects to assess the potential for ESP within their existing or new product ranges. It also seeks to improve the environmental and hence business performance of Irish SME manufacturing industry; and improve the strategic capability of SMEs through the exploitation of the market for ESPs.	
	Skill development supports	Support for clients to develop skills in the area of market led development of products and services and productivity growth.	
Access/Information	Assisting companies to improve business processes by making better use of information technologies	The EI Openup website provides information to help companies use IT and eBusiness to improve competitiveness and grow sales by providing jargon-free, independent advice on topics such as: Finding the right IT supplier; the tax implications of trading online; and the experience of other companies when they implemented eBusiness/ICT projects.	
	First Flight Programme	A development programme to assist companies in a systematic way with their export development needs.	

Category	Initiative	Description	Agency
	Overseas Office Network	Overseas network of 33 offices engages with companies at an early stage to provide intensive assistance to achieve the first sale reference site, accelerating the 'route to market', including seminars on 'preparing for markets'. Offices also assist companies to establish their own market presence in overseas markets in order to build significant sales and market share. Enterprise Ireland has incubator units in Europe, the United States and Asia that provide an office facility, networking benefits and hands-on support from Enterprise Ireland.	
	Market Research/Intelligence	One-to-one with clients on developing: a market entry strategy; researching market and competitor intelligence; indicating opportunities; undertaking product benchmarking; providing help in sourcing agents and distributors in the target market. Other services are delivered through overseas offices, seminars and incubator facilities.	
	Trade Fairs/Trade Missions	Financial assistance to encourage SMEs to disseminate information about their products and to obtain market data on their industries by participating in trade fairs and exhibitions.	
	Introductions to Third Party Services	Introductions to third party professional service providers to help with local issues such as legal, recruitment, funding, mergers, acquisitions, debt collection and PR/advertising.	
	Market development skills	Supports the market development skills of companies by providing support towards internal costs which may be incurred when researching new markets for products and services.	
	Graduate Placements - Export Orientation Programme	A 12 month graduate training programme – graduates spend a min. of 6 months outside of Ireland.	
	Business Acceleration Programme	Seeks to meet the growth requirements of Enterprise Ireland's industrial, consumer, software and services clients targeting the UK as a primary market. It connects individual Irish client companies with an in-market Business Accelerator - an industry expert within a specific sectoral and geographical market, with the experience, knowledge and contacts to support the company's expansion and development into a key export market.	



## 2. Company specific supports for workplace innovation and participation

Category	Initiative	Description	Agency
Financial	Workplace Innovation Fund	The intention of this scheme is to assist in building a stronger commitment to workplace innovation through promotion of innovation at company level. The scheme is administered by EI in conjunction with the Productivity Improvement Fund and in collaboration with NCPP.	

## 3. Company specific supports for technological innovation

Category	Initiative	Description	Agency
Strategy/Planning	R&D Advocates and Awareness Programme	A series of R&D awareness programmes are carried out throughout the country to ensure that companies are made aware of the benefits of engaging with R&D. They are focused on clients seeking to start R&D. Advocates are experienced individuals who typically managed R&D functions in Irish companies in the past and can explain the potential rewards of R&D to SMEs in the context of their own business plans.	

Category	Initiative	Description	Agency
Financial	Innovation Voucher Scheme	Enterprise Ireland launched the Innovation Voucher Scheme in March 2007 in response to one of the recommendations of the Small Business Forum. The objective of the scheme is to generate a culture of innovation within the small business sector through the provision of funding towards collaborating with universities and institutes of technology to explore business opportunities or address problems. To date 350 companies have been awarded €5,000 vouchers. A further call for applications was announced in October 2007. The scheme is open to all small and medium sized enterprises.	
Financial	Knowledge Acquisition Grants	<p>EI has developed a new In-company R&amp;D Initiative which brings together a number of existing supports and is designed to be readily accessible by companies. This new initiative includes an R&amp;D Stimulation grant to encourage companies that have not carried out R&amp;D in the past (or which have done so on a sporadic basis) to develop the establishment of a sustainable R&amp;D activity.</p> <p>Within the context of the R&amp;D Stimulation Grant programme, Knowledge Acquisition is an eligible activity which will allow grants of up to €50,000 to be paid on a once-off basis for projects up to 1 year. EI's new single funding initiative for in-company Research and Development will be rolled out in early 2008.</p>	
Financial	R&D Fund	Financial support for commercially focused, high quality R&D in industry led projects in product and process development.	
Access	TecNet	A joint venture between Enterprise Ireland and the Institutes of Technology to introduce companies to experts in their region. Services include introducing companies to researchers in areas such as: product testing and trials, standards compliance, laboratory testing and analysis, and research and development on products, patents and prototypes.	
Collaboration	TechSearch	A service offered by Enterprise Ireland through which companies can locate and acquire technologies external to the company, that are not readily available from commercial sources. These technologies would typically be found internationally from other companies and from research centres, but may also be acquired from Irish sources.	
Skills/expertise	Intellectual Property Advice	Enterprise Ireland provides Intellectual Property advice on the protection, development and commercialisation of patentable technology and also includes financial assistance with the cost of patenting.	

#### 4. Support for Technical Collaboration

Category	Initiative	Description	Agency
Access/information	Centres for Science Engineering and Technology: Campus Industry Partnerships	Funding for scientists to build collaborative efforts that develop internationally competitive research clusters allied to industry-SFI and Enterprise Ireland are working together to help develop greater linkages between MNCs and SMEs associated with each CSET programme	
	Strategic Research Cluster Programme	The Strategic Research Cluster Programme involves industrial and academic collaboration.	
	AMT and Materials Ireland	National coordinating programme for research and development in materials technologies and materials processing technologies. It gives Irish industry direct access to expertise in the third level sector through technology transfer and specific sectoral networks.	
Access	Informatics Research and Commercialisation	The EI Informatics Research and Commercialisation Group aims to capitalise on the commercialisation potential of Irish third level Informatics research resources to the benefit of Irish based industry.	
Access	Biotechnology Ireland	BiotechnologyIreland.com is the online centre for news, contacts, information, jobs and networking in the biotech sector in Ireland.	

Category	Initiative	Description	Agency
Financial	Commercialisation Fund Proof of Concept and technology development	Grant assistance for individuals or small groups working on short applied projects to develop a product concept through to a stage where a route to commercialisation is clear. The Technology Development phase is aimed at major technology development around platform technologies or groups of products built around a new technology	
Financial	Commercialisation of Research and Development (CORD)	Grant assistance to bring a new product idea/business ventures from third-level educational institutions to market.	
Access	Industry Led Research Programmes	Enterprise Ireland and a number of industry sector groups are working to stimulate Industry Led Research Programmes (ILRPs) in Irish Colleges. The programme aims to solve technical challenges faced by industry in Ireland. The Power Electronics project involves 25 of the 40 indigenous and overseas companies in power electronics in Ireland and it addresses issues relating to efficiency and power density in power supplies for electronic devices. In 2006 a further 2 projects with total funding of €2m were approved in Biotechnology related projects with a further €2 million allocated to an Irish-based wireless software developer and operator companies Group;	
Access	Technology Transfer Initiative	An inter-regional collaborative support structure for small to medium sized companies in the West, Midwest and Southwest regions of Ireland involving the three primary universities of the Atlantic University Alliance - University College Cork, The National University of Ireland, Galway and University of Limerick. The Technology Transfer service helps companies identify opportunities and negotiate agreements; look for new technologies to exploit; search for an innovative solution to a technology need; and with licensing out their own technologies.	
Access	Technology Road Maps	Events for developing the national dialogue on international technology trends where industry experts from global companies share their views on the latest developments and future opportunities in their fields. As well as giving companies access to the latest technological information to influence their R&D and marketing agendas, these events provide an opportunity to meet potential business and research partners.	
Financial	R&D Capability grant	Helps companies to establish or substantially expand their existing Irish R&D function by contributing to the capital costs of establishing an R&D unit (e.g. buildings, equipment etc.) in addition to the current costs of running the unit for a defined period.	
Financial	R&D Fund	Supports established companies planning to undertake their first R&D projects, and companies significantly developing their existing R&D activity. The funding support can be up to a maximum of €50,000 and projects can relate to either product or process development.	

Category	Initiative	Description	Agency
Financial	Innovation Partnership Initiative	Provides financial support to encourage companies to undertake collaborative projects with Irish Universities and Institutes of Technology	
	International Sales and Marketing Centre	Services include: A dedicated facility providing flexible, serviced office space at competitive rates; the Centre provides companies with a trained support team incorporating, reception, meeting rooms, concierge, call answering, message handling, fax and mail handling, video conference facilities, secure access 24 x 7 etc; and flexible start-up package available for new companies.	
	Support for companies applying for R&D grants under EU Framework Programmes	The 7 <sup>th</sup> Framework programme will run from 2007 to end 2013 and provides an opportunity for Irish industry and academic and research institutions to participate in cutting edge research with European partners and intensify research and business networks. A national director for FP7 has been appointed with a dedicated office based in Enterprise Ireland to encourage and support Irish participation in the new programme and to provide support to Irish companies and researchers across all components of FP7	
	EUREKA	A close-to-market R&D programme involving 33 European countries, which provides companies with financial assistance for their participation in international EUREKA workshops and brokerage events, enabling companies to meet potential partners for future R&D collaboration while keeping up-to-date with recent technological developments.	

## FÁS : Supports to Enhance Workplace Skills

Initiative	Description
FAS One Step Up Programme	Key programme for upskilling those in employment. Aims to increase competency levels and encourage life-long learning. State funding of €37m was invested in the One Step Up Programme in 2006 which supported the training of approx 24,000 employed people. The budget for 2007 is €39m, to train approx 26,000 people.
Regional / Sectoral Component to One-Step-Up	Courses offered by FÁS to people in employment on a regional or sectoral basis. These courses encourage lifelong learning and develop employee competencies. Last year we provided training for in excess of 12,000 people.

Initiative	Description
Strategic Training Alliances	<p>Strategic alliances are in place with IBEC/SFA, ISME, Chambers Ireland, ICTU and DIT to deliver a broad range of training needs for SME, including entrepreneurship, management development, occupational specific skills for operative/technical staff. FAS has approved a further 6 Strategic Alliance projects to support employment prospects through raising skills levels, particularly through training those with low level skills and workers in vulnerable employment. These contracts are with ICTU, SIPTU, National Learning network, the Northern Ireland Trade Union Education and Social Centre, the TEEU and a company called Career Decisions Ltd.</p> <p>The ICTU proposal includes the aim to train 480 trade union learning advocates to identify, target and encourage those with low skills to access relevant programmes.</p>
FAS Excellence Through People (ETP)	<p>ETP is a business improvement tool designed to further an organisation's performance through its people. ETP is designed to be a driver for change and innovation and also to promote employee learning, development and involvement in line with the goals of the organisation in question.</p>
FAS Workplace Basic Education Fund	<p>Targets employees with the lowest skill levels and particularly those with literacy and numeric difficulties. The various programmes provide participants with between 30 and 45 hours of applied literacy training at FETAC level 3. By the end of 2006 1,480 participants were registered on the Workplace Basic Education Fund.</p>
FAS Apprenticeships	<p>Apprenticeship is a demand-driven, workplace and classroom, educational and training programme for employed people aimed at developing the skills of the apprentice to meet the needs of industry and the labour market. On successful completion of an apprenticeship, a FETAC Advanced Certificate is awarded; this is recognised internationally as the requirement for craftsperson status.</p>









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